



Harnessing ICTs for Library Development in Academic Libraries in Katsina Local Government Area, Katsina State, Nigeria

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ABSTRACT

This study was designed to investigate harnessing Information and Communication Technology (ICT) for library development in academic libraries in Katsina Local Government Area. The study employed descriptive survey research design. The population of the study comprised 120 librarians, which were used for the study. Three questions guided by study. Sample and sampling techniques were not used in the study because the population of the study is manageable, a self-structure questionnaire was used as a means of data collection from respondents, and the instrument was administered to the respondents by the researcher and five researcher assistances. Twenty items questionnaire was used as instrument for data collection. The instrument was face validated by three experts. The data collected were analysed using frequency, percentage and mean score. The major findings of the study revealed that the need for fully Information and Communication Technology (ICT) implementation to achieve objectives of the library and enlighten librarians on the relevance of the library use. In conclusion, the study recommends that, more funds should be allocated to libraries for the development, training and workshop: seminars should be organised for librarians to enlighten them on how to implement and use ICT facilities.

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INTRODUCTION

Academic libraries established in universities, polytechnics and colleges of education and other institutions of higher learning to support teaching, learning and research activities. Over the past decade, academic libraries had established formal ways of collecting, organizing, processing, preserving, interpreting, analysing and disseminating information to the target audience. Corral, Kennan & Afzal (2023) opined that academic libraries have meaningfully changed with integration of digital technologies, expanding access to e-resources, institutional repositories and remote learning tools for library development. However, Aabo (2005) observed that library development has changed meaningfully over the past century, adapting to technological advances and changing user needs. Conventionally serving as repositories of physical books, libraries have changed into dynamic

community hubs offering digital access, educational programming and reasonable information services. The digital era library embraces both physical and virtual access to support lifelong learning and information literacy for library development (Bertot, Jaeger & Hansen 2012).

Furthermore, library development frequently aligns with international goals such as the United Nations' Sustainable Development Goals (SDGs), particularly those related to education and inclusive access to information (IFLA, 2019). This global perspective underscores the importance of sustained investment and policy support for libraries as agents of community empowerment and development. In line with this, Jaeger, Bertot, Thompson, Katz and DeCoster (2014) viewed that key element of modern library development is the integration of digital technologies academic libraries and other libraries

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increasingly offer e-books, online databases, and maker spaces bridging the digital divide in underserved communities.

In view of this, academic libraries expected to harness Information and Communication Technology for library development such as collection development, infrastructural development, service development, staff development and digital development. Information and Communication Technology plays a vital role in library development, transforming the way libraries operate and provide services. ICT in libraries involves the use of computer and information technology facilitates to enhance access to information and support various library activities. Information and Communication Technology (ICT) has revolutionized library services, enabling libraries to provide efficient and effective services to user (Okoye, 2011). However, Aina (2014) stressed Information and Communication Technology has transformed library operations, including collection development, cataloguing and reference services,

However, Aguolu (2020) sees information and communication technology (ICT) as tool for gathering, packing, storage and retrieval of information using a combination of computers and telecommunication. Similarly, Islam and Islam (2020) view ICT as the application and use of computers, telecommunication and microelectronics in the acquisition, storage, retrieval and dissemination of information. Thus, technological advancement has compelled academic libraries to adopt interactive online media for their survival. Kavulya (2020) argues that although the ICT is being incorporating in the development of academic libraries. Therefore, there is need for harnessing ICT for the library development and effective operation of those libraries in order to remain viable sources of information to users. Academic libraries in Katsina adopt the idea of the application of ICTs to develop library services and operations of local and global information for the smooth conduct of their day-to-day activities.

STATEMENT OF THE PROBLEMS

In the 21st century, Information and Communication Technology (ICT) has emerged as an essential tool for enhancing the productivity, usability, and significance of library services in academic libraries worldwide. Globally, academic libraries have transformed from mere repositories of physical books into dynamic knowledge hubs, offering digital resources and services that robustly support teaching, learning, and research endeavours. However, in many parts of Nigeria, particularly within the Katsina Local Government Area, the integration and utilization of ICT in academic libraries remain conspicuously underdeveloped.

Traditionally, libraries in this context have operated as physical repositories, necessitating considerable space, manual labor, and in-person access to resources. Owing to the underdeveloped ICT infrastructure, library users are compelled to visit the physical library space to access resources and services. Additionally, library resources and materials are sometimes preserved manually, reflecting outdated practices. In this digital age, library services ought to be facilitated through ICT infrastructure. Harnessing ICT facilities would empower libraries and librarians to develop enhanced services, catering to users' needs irrespective of geographical distance. Digital transformation would align these libraries with global best practices, fostering remote access to extensive digital resources.

Academic libraries should resist transitioning from conventional to digital services, they risk becoming obsolete and losing relevance. Users might migrate to alternative information sources, potentially precipitating the proliferation of unverified and fake information within society. The stagnation of library services could thus undermine their role as credible knowledge disseminators. Academic libraries must embrace and harness ICTs to align with current global challenges and imperatives. The adoption of ICTs promises to enhance the quality of library services expeditiously, extending reach, improving accessibility, and bolstering support for academic pursuits within Katsina Local Government Area.



Objective of the Study

The main objective of this paper to harness ICTs for Library Development in Academic Libraries in Katsina Local Government Area, Katsina State, Nigeria specifically to:

1. Find out the current state of Information and Communication Technology (ICT) infrastructure and services in academic libraries in Katsina Local Government Area.
2. Find the possible benefits of harnessing Information and Communication Technology (ICT) for library development in academic libraries in Katsina Local Government Area
3. Find the challenges and barriers to effective Information and Communication Technology (ICT) implementation in academic libraries in Katsina Local Government Area.

Research Questions

1. What is the current state of Information and Communication Technology (ICT) infrastructure and services in academic libraries in Katsina Local Government Area?
2. How Information and Communication Technology (ICT) can be harnessed to enhance library development and library services in Katsina Local Government Area.?
3. What are the major challenges and barriers to effective Information and Communication Technology (ICT) implementation in academic libraries in Katsina Local Government Area?

LITERATURE REVIEW

Concept of ICT's

Information and Communication Technology which is popularly, refers to as ICT in short have made considerable impact on all spheres of human environment. The impact has been rather well-known in case of service activities such as banking, health, transportation, education and libraries. According to

Dhanavandan (2017). The evolution of the Internet and the World Wide Web, as well as the introduction of interactive technologies such as e-mail, web forms, web chat, and instant messaging, has radically altered the way services are delivered. For instance, the potentials delivered by African Digital library have demonstrated that People in African region can access information on the Web (Tibenderana, 2004). Thus, Quadri (2012) also opined that today libraries are shifting their role from the custodian of traditional information resources to the provider of service oriented digital information resources.

In another view, Information technology (IT) encompasses various technologies used to process, store, and transmit electronic information (Mngutyo & Elizabeth, 2018). This includes computers, communication tools, networks, and even devices like fax machines and pocket calculators (Chukwusa, 2019). In this view, Patil (2018) noted that the key components of ICT which are needed in library are as follows: a) computer technology, b) communication technology, c) reprographic, micrographic printing technology

Types of ICTs in Academic Libraries

According to Chisenga (2007) cited by Obotu, Chukwuka and Gambo (2017), the following are the various types of ICT found in academic libraries are Computers, Internet, Library worldwide wave, Online catalogues and electronic data base, E-mail communication; Digital library. Perera and Chandra (2010) listed the following academic library resources in the ict era: e-books; e- journals; e-theses; databases; e-groups; digital archives; library networks; library websites; Web OPACs; virtual conferences; virtual help desks; web exhibitions; bulletin boards; FAQs. According to Gulavani (2021), commonly used ICT tools for different library operations are computers, scanners, digital cameras, Library software, CDs, DVD, pen drive, portable HDs, internet, intranet, barcode, RFID, biometrics, bibliographic listing and printing technology.

Baskara (2017) highlighted types of ICT used in the library as e-books, e-journals, e-proceedings, e-reports, e-maps, e-pictures/



photographs, e-manuscripts, e-newspaper, internet/websites, listservs, newsgroups, subject gateways etc.

Application of ICTs in Academic Libraries

ICTs and its application in libraries especially universities, polytechnics and colleges of education libraries today have not only increased and broadened the impact of information service delivery, rather has brought services to users doorsteps and have continued to ease and promote quick and timely access to and transfer of information services to support users learning, teaching, and research activities. The application of ICT to library services has generally been accepted by academic libraries as the most means of providing timely, accurate and efficient information services (Shuaibu, Mathias and Umar, 2019).

This of course shows the usefulness of the application of information and communication technologies in universities, polytechnics and colleges of education libraries. However, Odeyemi (2019) identified barcode technology, cloud computing, social media applications, artificial intelligence (AI) and robotics as some of these technologies that applied in library operation to achieve library development and service delivery. That is why Abdulwahab, Agun, Usman, Aliyu (2011) noted that in libraries, several systems have been developed for their various housekeeping chores and more still are being designed and refined due to technology of large-scale integration to handle any of the library information services such as acquisitions, cataloguing, serials control, circulation control, bibliographic control, or Selective Dissemination of Information (SDI).

In addition, to Eze (2017), ICT in Nigerian academic libraries has transformed traditional operations such as cataloguing, circulation, and reference services into more dynamic and interactive processes. In another view, Abubakar (2018) found that the introduction of Integrated Library Management Systems (ILMS) in Nigerian universities has streamlined library functions, allowing users to search for books, journals, and articles from a centralized

database. Limited funding is a significant barrier to ICT adoption in academic libraries. For instance, purchasing necessary hardware, maintaining existing systems, or subscribing to online databases requires substantial financial investment, which many institutions are unable to afford (Tella & Tella, 2017).

Challenges Harnessing ICTs for Library Development in Academic Libraries.

The challenges of Harnessing ICTs for Library Development in Academic Libraries are often influenced by specific regional factors as:

1. **Limited Financial Resources:** Marke & Waziri (2023); Shariful Islam & Nazmul Islam (2006); Genevieve & Obiano; and Durje (2022) identified inadequate acquisition and maintenance of the relevant equipment depends on the availability of funds. Mostly, there is paucity of funds in many libraries in Nigeria thereby, leading to inability to acquire the necessary ICT tools that would enable them to connect to the internet, make subscription to various online databases and obtain software licenses.
2. **Shortage of ICT Facilities and Skills:** Insufficient computers and facilities pose challenges for routine library activities. Additionally, (Haliso, 2011) noted a lack of ICT skills among librarians impedes technological adoption and innovation. Agboola and Shaibu (2019) investigate the impact of information and communication technology on information retrieval system peculiar to federal university Gashua library of yobe state of Nigeria, and found ICTs is low in terms of facilities and utilization
2. **Poor Maintenance of ICT Equipment:** Inadequate space, high maintenance costs, and a lack of maintenance culture result in subpar maintenance of ICT equipment in libraries. (Egunjobi & Awoyemi, 2012) in addition, Onuoha & Chukwuemeka, 2019 cited Okiy 2010 noted that many libraries do not have space and conducive environments for keeping ICT equipment. Furthermore, most of the ICT facilities are not adequately maintained in most libraries

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- as a result of the maintenance cost which is usually very high.
3. **Challenges related to Power Supply and Bandwidth:** Erratic power supply and insufficient bandwidth hamper library services, especially in developing countries like Nigeria. (Abubakar, 2010; Onuoha & Chukwuemeka, 2019). In the same vein, Tamilselvan et al., 2012 observed that the current trend in the supply of electricity in Nigeria is so disheartening. Constant power outage does not encourage good use of ICTs in the libraries be it public, school, or academic. Most of the libraries cannot afford standby generator due to poor funding.
 4. **Lack of Technical IT Knowledge by Library Staff:** A lack of technical expertise among library staff hinders effective operation and maintenance of ICT tools. (Madu & Ngozi, 2017). Most library staffs are not ICT literate thus they cannot give what they do not have. Most libraries do not have experienced and well-trained staff to run the system (Apotiade, 2002). Because of this, the achievement of the goals could be jeopardized or slowed down.
 5. **Staff Attitude towards ICT Utilization/Technophobia:** Some staff's resistance to electronic systems due to fear of errors slows down automation processes. Older librarians may find it challenging to adopt newer technologies. (Kelvin et al., 2012)

METHODOLOGY

Descriptive survey research design was adopted in carrying out this study. Nworgu (2008) views descriptive survey design as a research method that involves collecting data on and describing in a systematic manner the characteristics, features or facts about a given population. It is usually concerned with description of events as they are. Descriptive survey design was considered appropriate because the study collected data from librarians that were used to describe and explain the status of harnessing ICT for library development in academic libraries in Katsina Local Government Area, Katsina State,

Nigeria. This study was carried out in North West, Nigeria. North West Nigeria is one of the six geopolitical zones in Nigeria.

The population of the study is 120 librarians from the four (4) academic libraries attached to tertiary institution in Katsina Local Government Area, Katsina State, Nigeria namely: Umaru Musa Yaradua University, Katsina, Al-Qalam University, Katsina; Federal College of Education, Kastina, and Hassan Usman Polytechnic, Katsina. Questionnaire was used as an instrument for data collection. Cluster A sought to find out the current state of Information and Communication Technology (ICT) infrastructure and services in academic libraries in Katsina Local Government Area. Cluster B sought to find out the possible benefits of harnessing Information and Communication Technology (ICT) for library development in academic libraries in Katsina Local Government Area. Cluster C focused on the challenges and barriers to effective Information and Communication Technology (ICT) implementation in academic libraries in Katsina Local Government Area. Descriptive statistics of mean and standard deviation were employed in the data analysis.

RESULTS AND DISCUSSION

Data Analysis, Presentation and Interpretation

One hundred and twenty (120) copies of questionnaire were administered to the respondents to collect data for analysis and interpretation, out of which 90 copies of the questionnaire were duly filled and returned to the researcher. Therefore, the analysis was conducted based on the 90 copies of questionnaire returned to the researcher.

Does your library have an established ICT infrastructure?

Table 1: Current State of ICT Infrastructure and Services

Items	Frequency	Percentage %
Yes	62	68.8%
No	28	31.2%
Total	90	100%

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Table 1 shows that only 62 respondents (68.8 %) indicated that their libraries had an ICT infrastructure, while 28 respondents (31.2%) indicated they did not have ICT infrastructure in their libraries. Based on the data collected and analyzed, most of the respondents indicated that they had ICT infrastructure in their libraries.

Table 2: Services are currently available in your library

Items	Frequency	Percentage %
Computer access for students/staff	20	22.2%
Wi-fi/Internet access	50	55.6%
Digital cataloguing	12	13.4%
Online databases	8	8.8%
Total	90	100%

Table 4.2 shows that 20 respondents (22.2%) showed that computer access for staff and students are the services they render using ICT infrastructure in the libraries, while 50 respondents (55.6%) indicated that Wi-fi/internet access are services they render with the available ICT infrastructure. 12 respondents (13.4%) also revealed that Digital cataloguing was the ICT infrastructure used to render services in the libraries. Only 8 respondents (8.8%) indicated that online databases are used to render services to users. It means therefore, most of the respondents revealed that Wi-fi/internet access are services they render with the available ICT infrastructure in the libraries involved in the study.

How do you think ICT can be used to improve library services?

Table 3: Harnessing ICT for Library Development

Items	Frequency	Percentage %
Improve access to information resources	12	22.2%
Enhancing library management & admin	15	16.7%
Facilitating online access to library resources	45	50%
Improving communication between library staff & patrons	10	11.1%
Enhance user experience & satisfaction	8	8.8%
Total	90	100%

Table 3 shows that 12 respondents (13.3%) revealed that improving access to information resources could be used to improve library services, while 15 respondents (16.7 %) indicated that enhancing library management & administration could be used to improve library services. Also 45 respondents (50%) revealed that facilitating online access to library resources could be used to improve library services, whereas 10 respondents (11.1%) showed that the services should be improved by improving the communication between library staff and patrons. Only 8 respondents (8.8%) indicated that the services should be improved by enhancing users experience and satisfaction.

Table 4: The key areas where ICT should be further developed in your library

Items	Frequency	Percentage %
e-resources management	10	11.1%
Online databases and journals	34	37.8%

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Items	Frequency	Percentage %
Users support and digital literacy programs	20	22.2%
Library management system	14	15.6%
Access to ICT equipment, like computers, tablets etc	12	13.3%
Total	90	100%

Table 4 shows that only 10 respondents (11.1%) are of the opinion that e-resources management was the key area where ICTs should be developed in their libraries, whereas, 34 respondents (37.8 %) indicated that online databases was the key area that should further be developed. Also 20 respondents (22.2%) revealed that users support and digital literacy programs should be developed. The Table further reveals that 14 respondents (15.6%) showed that library management system should be developed and 12 respondents (13.3%) indicated that access to ICT equipment such as computers, tablets among other should be developed. Based on the data collected and analyzed, most of the respondents were of the opinion that online databases and journals are the key areas that should be developed in the libraries involved in the study.

What are the major challenges to the implementation of ICT in your library?

Table 5: Challenges to ICT Implementation

Items	Frequency	Percentage %
Insufficient funding/budget allocation	13	14.4%
Lack of trained ICT personnel	22	24.4%
Poor infrastructure	12	13.3%

Items	Frequency	Percentage %
(eg unreliable internet access)		
Resistance to change by library staff	10	11.1%
Lack of awareness among library users	9	10%
Inadequate power supply	24	26.7%
Total	90	100%

Table 5 shows that 13 respondents (14.4%) are of the opinion that insufficient funding was the major challenge bedevilling the implementation of ICTs in the libraries, whereas, 22 respondents (22.4 %) indicated that lack of trained ICT personnel was the major challenge impinging the implementation of ICT in the libraries. In addition, 12 respondents (13.3%) revealed that poor infrastructure was the challenge.

The Table further reveals that 10 respondents (11.1%) showed that the challenges was resistance to change among library staff. Only 9 respondents (10%) are of the opinion that lack of awareness among the library staff was the challenge associated with the implementation of ICT in the libraries under study. Likewise, 24 respondents (26.7%) revealed that inadequate power supply was the major challenge impinging the implementation of the ICTs. It means therefore, most of the respondents are of the opinion that inadequate power supply and lack of trained personnel were the major challenges bedevilling the implementation of ICT in the libraries involved in the study.

DISCUSSION OF FINDINGS

The result of the study revealed that a majority (68.8%) of respondents indicated their libraries have established ICT infrastructure, suggesting a foundational level of digital readiness among the libraries surveyed. However, a significant minority (31.2%) reported lacking ICT

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infrastructure, pointing to uneven development. Wi-fi/Internet access emerged as the most prevalent service (55.6%), highlighting libraries' focus on connectivity. Computer access for students/staff (22.2%), digital cataloguing (13.4%), and online databases (8.8%) were other services noted. This pattern suggests libraries prioritize basic access over advanced digital resources like online databases.

Also, result of the study revealed that half of respondents (50%) saw facilitating online access to library resources as a key improvement area, underscoring the push for remote accessibility. Other perceived benefits included enhancing library management (16.7%), improving access to information resources (13.3%), improving communication with patrons (11.1%), and enhancing user experience (8.8%). Respondents emphasized online databases and journals (37.8%) as primary development areas, followed by user support and digital literacy programs (22.2%), library management systems (15.6%), access to ICT equipment (13.3%), and e-resources management (11.1%). This indicates a desire for richer digital content and support mechanisms.

Finally, result of the study revealed that major challenges identified were inadequate power supply (26.7%) and lack of trained ICT personnel (24.4%), highlighting critical infrastructural and human capacity gaps. Insufficient funding (14.4%), poor infrastructure (13.3%), resistance to change (11.1%), and lack of awareness (10%) were other hurdles.

CONCLUSION

ICTs hold great potential for the development of academic libraries in Katsina Local Government Area. While there are significant barriers to their full adoption, the benefits of ICTs in enhancing library services, promoting access to educational resources, and fostering digital literacy cannot be overlooked. For Katsina's academic libraries to thrive in the digital age, a multifaceted approach that includes improved infrastructure, training, and strategic partnerships is essential. As the country continues to push for more inclusive technological

development the integration of ICTs into academic libraries will contribute to the educational advancement of the region and beyond.

RECOMMENDATIONS

1. **Increase Funding:** Prioritize and allocate more funds to libraries, specifically earmarking resources for the acquisition, maintenance, and updating of ICT equipment.
2. **Infrastructure Development:** Address the shortage of ICT facilities by investing in the necessary infrastructure, including computers, internet connectivity, and software licenses.
4. **Policy Formulation:** Develop and implement robust ICT policies that guide the integration and sustainable development of technology in libraries.
5. **Maintenance Support:** Establish mechanisms for the proper maintenance of ICT equipment, including providing adequate space, managing maintenance costs, and cultivating a maintenance culture.
6. **Power Supply Improvement:** Work towards improving the power supply infrastructure to ensure consistent electricity, or explore alternative power sources such as renewable energy to mitigate the impact of power outages.
7. **Training Programs:** Implement continuous training programs to enhance the technical skills of library staff, ensuring they are proficient in the operation and maintenance of ICT tools.
8. **Change Management:** Implement strategies to manage staff resistance to change, especially among older librarians, by emphasizing the benefits and providing adequate support during the transition to newer technologies.
9. **Collaboration and Networking:** Foster collaboration and information sharing among libraries to collectively address challenges, share best practices, and explore joint solutions.
10. **Research and Development:** Encourage research and development initiatives in

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library sciences and ICT to find innovative solutions to challenges and stay abreast of emerging technologies.

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