

**UTILIZATION AND BARRIERS OF INFORMATION AND
COMMUNICATION TECHNOLOGIES (ICTs) IN FEDERAL
COLLEGES OF EDUCATION LIBRARIES IN THE NORTH-WEST,
NIGERIA**

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ABSTRACT

The aim of this study is to assess the extent of utilization and barriers to ICTs in the libraries of the seven Federal Colleges of Education in the north-western part of Nigeria. The study employed a survey research design and a stratified random sample. A sample size of 400 was determined through the Taro Yamane Formula from the target population of 23,890 (libraries staff, teaching and non-teaching staff, and NCE students). Data was collected using a structured questionnaire and analyzed using the mean and standard deviation scores. Findings indicated a moderate extent of utilization of ICT services available in the federal colleges of education libraries in the northwest of Nigeria. Also, the study observed the presence of insufficient ICT facilities, a lack of provision for internet connection, insufficient funding, inadequate power supply, a lack of well-trained personnel, and inadequate ICT facility maintenance in the college as barriers to ICTs in libraries. On this note, the authors recommend the need for sufficient ICT facilities, internet connections, funding; power supplies, trained personnel; and facility maintenance to allow for greater utilization of ICTs in libraries.

Keywords: Information and communication technology, Utilization, barriers, Libraries

1.0 INTRODUCTION

The purpose of college libraries is to provide informational resources and services to support the teaching, learning, and research activities of the parent institution (Akintunde, 2007). Hence, the usefulness of a college library in any higher education setting cannot be overestimated. However it is important to remember that manual procedures in academic and non-academic libraries' ideas, practices, and services were impacted by the 20th century revolution (Bhatti and Qutab, 2014). Market variables, changes in customer expectations, and most importantly, the growth of electronic information, are among them.

Based on the aforementioned, libraries are currently implementing ICT for effective service delivery (Agoulu and Agoulu, 2002). ICTs make the processes of information identification,

collecting, storage, processing, and distribution to end users easier, according to Adeleke & Olurunsola (2005). Operations and electronic librarianship have been significantly expanded because to information and communication technology (ICTs). Moreover, Uddin and Hasan (2012) noted the incorporation of teleconferences, hypertext, and virtual libraries. Ngurukwem (2005) states that digital materials developed locally and those accessible online from computers run by other libraries or information service providers are now part of library collections. Unlike today, traditionally, library "collections" consisted only of physical information resources like books, periodicals, videos, and films stored in actual library buildings.

One of the most distinctive features of the information era is the benefit of continual access to digital information. In addition to communication tools like radio, television, mobile phones, computer and network hardware, and satellite systems, several of these information and communication technologies (ICTs) also offer services and tools for video conferencing and distant learning (Bhatti and Qutab, 2014). Despite the immeasurable benefits of ICT for libraries, there has been no improvement as a result of its introduction and use (Victoria and Anthonia, 2017; Elisha and Library, 2006; Bingimlas, 2009). This is due to the difficulty in paying for the software and software licencing fees, paying for internet services, access to electronic publications, and paying for online databases. Akintunde (2007) also noted that libraries that have asserted to be automated do not utilise these automation facilities (ICTs) due to a lack of fundamental infrastructure, such as a computer network, crucial elements like the internet and intranet, and the high maintenance costs associated with these infrastructures. According to the studies, there is also a problem with the provision of out-of-date ICT infrastructure and a lack of power supply, among other things (Kalam et al., 2011; Duhaney, 2001).

In view of the above-mentioned negative development, the researchers feel duty-bound to conduct an assessment on the utilization of ICTs in the libraries of the seven Federal Colleges of Education in north-western Nigeria. The aim of the study is to assess utilization and barriers to ICTs in the libraries of the seven Federal Colleges of Education. The specific objectives are:

1. To ascertain the extent to which users utilize the ICT facilities available in the seven North-West Federal Colleges of Education libraries.
2. To identify barriers to effective use of ICTs in the seven Federal Colleges of Education libraries in the north-west of Nigeria.

The outcome of this study will assist the government, colleges, and all other stakeholders in education in making a concerted effort to improve the situation.

2.0 LITERATURE REVIEW

2.1 Concept of information and communication technology

ICT stands for information, communication, and technology. ICT is a collection of technical resources and instruments used to modify and transmit information. ICT tools include, but are not limited to, computers, the internet, and broadcasting technologies. Anie and Achugbue (2009) describe ICT as the use of technological hardware, software, and protocols for information transfer. According to their definition, ICT also includes the provision of internet

services, the usage of information technology tools and services, media and broadcasting, libraries and information centres, network-based information services, and other related communication activities. Shukla and Shukla (2016) define ICT as the catch-all term referring to all technologies used in the processing and transmission of information. ICT encompasses a wide range of technologies, including computer, communication, multimedia, optical, networking, barcode, etc.

2.2 Utilization and Barriers to ICT

Academics are becoming more and more aware of how ICTs are used in libraries and potential impediments to their use. In other words, the situation of ICT usage and the obstacles in libraries have been the subject of several discussions. According to a research by Iddrees (quoted in Ramzan and Singh, 2009), academic libraries in Pakistan employ Technology sparingly. The author claims that the sole IT application in libraries was the automation of the catalogue. According to the survey, just one library had an internet connection, and 60% of them had just one computer that was utilised for internet access. Victoria and Anthonia (2017) looked at the usage of ICT in academic libraries in Nasarawa, Nigeria, in a different research. The study found that ICT was employed moderately, with PCs and the internet serving as the primary ICT instruments used to deliver creative library services. Elisha and Library (2006) noted a limited use and deployment of ICT across Nigerian libraries in the same vein. According to their study, libraries used ICT to give people online access to their materials and to offer online reference services. Mahanta and Das (2019) found a significant relationship between ICT infrastructure and the ICT-based services provided by college libraries in Assam, India.

The study also demonstrated how the usage of ICTs in libraries led to an improvement in library activities. The majority of libraries in northern Bangladesh employ ICT technology, however adoption rates are still in their infancy, according to Uddin and Hasan's (2012) study. In order to meet user demands in Sub-Saharan Africa, Chisenga (2015) conducted research on strategies for quickening ICT adoption and providing state-of-the-art library and information services. According to the poll, the majority of libraries in Africa had automated their processes, and most gave patrons access to ICT tools including computers, the internet, and mobile devices.

Nonetheless, there have been several obstacles to the successful deployment of ICT in libraries. Victoria and Anthonia (2017) noted the obstacles of financial issues, a shortage of IT personnel, and a shortage of ICT infrastructure. In a similar vein, Elisha and Library's (2006) study identified a lack of finance, staff ignorance of ICT, and the absence of a thorough ICT policy as the key obstacles to libraries adopting ICT. Other significant barriers to ICT adoption in Africa, according to Chisenga (2015), are a lack of financing for ICT equipment purchases and a shortage of skilled staff to manage the ICT facilities in libraries.

According to Bingimlas (2009), there are two types of obstacles to ICT use in libraries: extrinsic (connected to the availability of resources, time, a support system, and training facilities, among other variables) and intrinsic (such as attitudes, beliefs, practices, and the resistance of the teachers). Snoeyink and Ertmer (2001) and Keengwe, Onchwari, and Wachira (2008) defined ICT hurdles as 'first order' and 'second order,' respectively. First order barriers include lack of necessary infrastructure, unreliable equipment, a lack of technical support, and

other "resource" related issues. Second-order barriers are made up of both school-level factors like organisational culture and teacher-level factors like belief about teaching and technology and willingness to change.

Moreover, the Afshari, Bakar, Luan, Samah, and Fooi (2009) study separated the manipulative and non-manipulative types of ICT obstacles in libraries. Manipulative influences include people's attitudes towards using ICT, their understanding of the technology and their skill sets, and the supportive school culture. Non-manipulative elements, or those over which the school has no direct influence, include the teacher's age and experience, governmental regulations, and the outside assistance that schools may access. According to Watson (1993), some of the main extrinsic hurdles are a lack of access to hardware and software, a lack of technical assistance, a lack of hands-on experience with ICT, greater costs, and a dearth of available e-content. In a related research, Duhaney (2001) and Kalam et al. (2011) identified a number of obstacles, including insufficient administrative support, a lack of suitable and high-quality teacher training, a lack of good school leadership, a lack of skilled ICT coordinators, and an undesirable school culture. The three main obstacles to the application of ICT in education, according to Benzie (1995), are pedagogical, psychological, and cognitive.

Given the aforementioned literature, there aren't many research done on libraries. By examining the use of ICT in libraries at institutes of education in North West Nigeria, this study seeks to close this research gap.

3.0 METHODOLOGY

The study employed a survey research design. A total of seven Federal Colleges of Education libraries in North-West Nigeria were studied (federal colleges of education, Jigawa; federal colleges of education Kaduna; federal colleges of education Kano; federal colleges of education, Katsina; federal colleges of education, Kebbi; federal colleges of education, Sokoto; federal colleges of education (tech.) Kano; and federal colleges of education, Zamfara. The population of the study consisted of 23,890 library staff, teaching and non-teaching staff, and NCE students. The sample size of 400 was determined through the Taro Yamane Formula. Thereafter, a stratified random sampling technique was adopted because of the heterogeneous characteristics and also to reduce the sampling error in the study. The population was stratified into three strata (library staff, academic and non-academic staff, and NCE students). Data was collected by a structured questionnaire and analysed using the mean and standard deviation score.

4.0 RESULTS

The Likert scale was used to interpret the study's findings and has a modified five-point framework. Rating scales from 1.00 to 1.80 are considered to be very low extent or strongly disagree, 1.81-2.60 are considered low extent or disagree, 2.61-3.40 are considered moderate extent or neutral, 3.41-4.20 are considered high extent or agree, and 4.21–5.00 are considered to be very high extent or strongly disagree.

Table 1: Utilization of ICT services in the College Library

S/N	ITEM	Mean	SD	Decision
1	The users get access to the Library materials within and outside the Library building	3.31	1.28	Moderate Extent
2	Facilities of e-conferences are Utilized	3.10	2.37	Moderate Extent
3	Internet services and other facilities for academic staff and students are utilized	3.18	2.37	Moderate Extent
4	College utilizes computers for CBT	3.46	2.05	High Extent
Grand mean		3.26		Moderate Extent

Table 1 presents the mean and standard deviation of respondents on the utilisation of ICT services available in the federal colleges of education libraries in the northwest of Nigeria. The result of the study shows that the means for items 1, 2, and 3 fall within the range of 2.61-3.40 set as the criterion for moderate extent, while item 4 falls within the range of 3.41-4.20 set as the criterion for high extent. There is a cluster mean of 3.26, interpreted as moderate extent. Furthermore, the standard deviation score indicated that there was little dispersion among the respondents' responses.

ICT services are therefore used in federal institutions of education libraries in northwest Nigeria to a moderate extent. This conclusion confirms Mesagan, Anyim, Ubogu, and Echezona's (2022) and Elisha and Library's (2006) findings that Nigerian libraries use ICT to a moderate extent.

Table 2: Barriers to the effective utilization of ICTs in the College Library

S/N	ITEM	Mean	SD	Decision
1	Insufficient ICT facilities lead to less academic activities of both teachers and students in the college.	3.92	1.59	Agree
2	Inadequate ICT facilities maintenance in the college.	3.58	1.13	Agree
3	Insufficient funding for replacement of ICT facilities in the College Library.	3.71	1.18	Agree
4	Lack of well trained personnel to handle the ICT facilities discourage users who cannot operate computer and willing to use them.	3.58	1.21	Agree

5	Inadequate power supply, stops users from patronizing the ICT unit of the Library frequently	3.66	1.25	Agree
6	Lack of provision for internet connection, users only patronize the ICT unit of the library just to charge phones and personal computers	3.83	2.39	Agree

The findings of this study, as presented in Table 4, show the mean and standard deviation of respondents on the barriers hindering the effective utilization of ICTs in the North West at the federal colleges of education libraries. The result of the study shows that all items fall within the range of 3.41–4.20 set as the criterion for agreement. There is a cluster mean of 3.62 interpreted as agreed. And, the standard deviation score indicated a minimal dispersion among the responses of the respondents.

The result means that the barriers hindering the effective utilisation of ICTs in North West federal colleges of education libraries are in the following order: (1) insufficient ICT facilities lead to less academic activities of both teachers and students in the college. (2) Because of the lack of provision for internet connection, users only patronise the ICT unit of the library to charge their phones and personal computers. (3) Inadequate funding for the replacement of ICT facilities in the college library; (4) insufficient power supply, which prevents users from visiting the library's ICT unit. (5) The lack of well-trained personnel to handle the ICT facilities discourages users who cannot operate computers but are willing to use them. (6) Inadequate ICT facility maintenance in the college This finding supports Kalam et al. (2011) and Duhaney (2001) disposition that some barriers to ICT adoption in libraries include a lack of support from high authorities, high cost of implementing ICT, a lack of skilled manpower, and a lack of financial support as factors affecting the adoption of ICT among libraries in Bangladesh.

5.0 DISCUSSION

The result from the objective one indicated a moderate extent of utilization of ICT services available in the federal colleges of education libraries in the northwest of Nigeria. The responses show that participants had access to library materials within and outside the library building. There are also facilities for e-conferences, Internet services, and other facilities for academic staff and students that are utilized. Findings from this study align with other studies on moderate utilisation of ICT in libraries (Elisha and Library, 2006; Victoria and Anthonia, 2017; and Uddin and Hasan's, 2012; Mesagan, Anyim, Ubogu, and Echezona, 2022). For example, Victoria and Anthonia (2017) investigation on the use of ICT in academic libraries in Nasarawa, Nigeria, shows that computers and the internet are the main ICT tools used to provide innovative library services. In the same mood, Elisha and Library (2006) observed moderate application of ICT among Nigerian libraries, as the study reported that libraries use ICT to provide online access to their resources and also to provide online reference services to users. According to Uddin and Hasan's (2012) study, the majority of the libraries in northern Bangladesh use ICT technologies, but acceptance rates are still in the infancy stage. On the contrary, the Iddrees (as cited in Ramzan and Singh, 2009) study reported a low use of ICT among academic libraries in Pakistan. The author explains that the automation of the catalogue was the only area of ICT application in libraries. The study further revealed that only one

library had an internet connection, and 60% of the libraries had only one computer each that was used for internet purposes.

The result from the second objective admitted the presence of barriers hindering the effective utilization of ICTs in North West federal colleges of education libraries. These barriers are listed as follows: (1) Inadequate ICT facilities lead to fewer academic activities by both teachers and students in the college. (2) Because of the lack of provision for internet connection, users only patronise the ICT unit of the library to charge their phones and personal computers (3) Insufficient funding for replacement of ICT facilities in the college library (4) An inadequate power supply, stops users from patronizing the ICT unit of the library frequently. (5) The lack of well-trained personnel to handle the ICT facilities discourages users who cannot operate computers but are willing to use them. (6) Inadequate ICT facility maintenance in the college

In line with these findings, Victoria and Anthonia (2017) and Elisha and Library (2006) observed the challenges of ICT adoption in libraries, including financial problems, a lack of ICT manpower, a lack of ICT facilities, and a lack of a comprehensive ICT policy. Also, Bingimlas (2009) grouped the barriers to ICT into extrinsic and intrinsic. The extrinsic barriers include the availability of resources, time, a support system, and training facilities, among other factors, while, the intrinsic barriers are attitudes, beliefs, practices, and the resistance of the teachers).

6.0 CONCLUSION AND RECOMMENDATION

The study suggests that a moderate level of ICT service utilisation is present in the understudied federal colleges of education libraries in Nigeria's northwest. In addition, the study discovered some barriers to ICT services, including: insufficient ICT facilities; a lack of provision for internet connection; insufficient funding; an insufficient power supply; a lack of well-trained personnel; and insufficient ICT facility maintenance in the college as barriers to ICTs in libraries.

In this regard, the authors advocate for enough ICT infrastructure, internet connections, finance, power supply, skilled employees, and facility maintenance to enable increasing use of ICTs in libraries.

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