



**APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN  
ACADEMIC LIBRARY SERVICES DELIVERY IN NIGERIA: A STUDY OF MICHAEL  
OKPARA UNIVERSITY OF AGRICULTURE LIBRARY, UMUDIKE**

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**ABSTRACT**

*This study was on application of information and communication technologies (ICTs) in academic library services delivery in Nigeria. The study focused on the Michael Okpara University of Agriculture, Umudike (MOUUAU) Library. It critically considered opinions of researchers over the time on the application of ICTs in library services delivery in libraries. The study adopted the descriptive survey design with a sample of fifty-five (55) respondents which represents the total population of library staff in the library. A structured questionnaire was the instrument for data collection. Copies of questionnaires were distributed to the respondents and all were retrieved immediately for data analysis. Data generated was analyzed using mean scores and standard deviation. A criterion mean of 2.50 was adopted to ascertain the acceptance and rejection of item statements. The study found out the application of some ICTs like computers, USB or Wifi access, and CCTV, while ICTs like robot, visualizers, and tablet device, were not applied. The extent application of ICTs to the services delivery of the library was found to be low. However, ICTs were applied in numerous areas of services of the library such as reference services, collection development, etc. Challenges of high cost of ICTs, unstable power supply and inadequate funding were among the challenges facing the application of ICTs in MOUUAU Library. The study concludes by observing the need for proper application of ICTs in the services of academic libraries and provision and application of quality ICTs to academic libraries in Nigeria as a means of ensuring quality and qualitative academic library services delivery.*

**Keywords:** Application, Library services, Academic library, ICT

**Introduction**

Academic libraries have continued to experience changes in the modes of services delivery. This is in a bid to maintain patronage and provide more services in order to satisfy the information needs of their users. Today there is massive re-modulations of processes of service delivery in academic libraries, be it the one attached to the universities (university libraries), polytechnics (polytechnic libraries), colleges of education (college libraries) or other institutions of higher learning. The cause of this re-modulation can be attributed to the introduction of information and communication technology (ICT) into academic libraries. Mensah (2015) believes that these ICTs have assumed a significant position in the affairs of man across the



universe and have revolutionized academic libraries, librarianship and information professionals as in other sectors of Nigerian economy. One can affirm that libraries started experiencing the introduction of ICT in 1450 as a result of the invention of movable types by Johann Guternberg, a German scholar. From that period till now, libraries have continue to apply and further made an increase in the application of ICTs to their services as a means of ensuring access to the universe of man's communications with little or no spending of time and energy (Ezeani, 2010).

Bappah (as cited in Adigun, 2015) defines ICT as a broad-based term that encompasses the acquisition, organization, storage, retrieval and dissemination of information that can be in textual or numerical (books, documents), pictorial and vocal forms (audio-visual) or a combination of all the above (multi-media), using a combination of computers and telecommunications telephony distance learning. Furthermore, application of ICT in academic libraries have brought radical changes in the ways information is gathered, stored, organized, accessed, retrieved and disseminated (Sharma, 2009). It has further enhanced the rate at which information is sourced from the library, making information retrieval as fast as possible (Ramzan & Sigh, 2009). ICTs in libraries have further enhanced accessibility to information by different persons from all over the world at a particular point in time. This could be seen from the Internet where wide range of information materials is made available in different formats.

Ramzan and Sigh (2009) opine that application of ICTs allow easy integration of various library activities, increases efficiency in acquisition, access to data, cataloguing, classification, information retrieval and dissemination. It eliminates uninteresting and repetitive work; helps avoid duplication of efforts; increases the range of services; provides marketing opportunities; facilitates cooperation and the formation of networks and resources sharing in libraries. Adigun (2015) notes that with the application of ICT in academic libraries, one can easily access the collection of other libraries in a network; and equally observed that the result of applying ICT in academic library operations is that the library staff will have more energy and time which can be used to attending to more library users and offer more library services.

It is important to note that the provision of library services are aimed at satisfying the informational, recreational and reference needs of the library users. In order to meet these objectives and ensure the overall satisfaction of the users' information needs, the application of ICTs other electronic information resources is necessary (Cox & Corral, 2013), as this application tries to bring several products and services to the scene more than how these services were delivered in the ancient and medieval libraries. However, any library service that is provided effectively, increasingly meets the needs of its information-eager patrons. These ICTs cut across computers, digital systems, multimedia technologies, storage devices and platforms, communication systems, the Internet, printers, closed circuit television, photocopier, scanners, servers, projectors, television, e-journals, e-books, CD-ROM and a variety of other ICTs. However, Mohamed (2007), Ezeani (2010), Cox and Corral (2013), Igwebuikie and Agbo (2015), among others, note that ICTs are fast replacing the traditional resources and services of academic libraries.

This paper therefore seeks to dwell on the application of ICT into library services delivery in Michael Okpara University of Agriculture, Umudike. It will examine the ICTs applied, the extent of application, the areas of application, effects of application, and challenges facing application of ICTs in Michael Okpara University of Agriculture, Umudike library services delivery. The essence of examining all these is to further correlates or disagree with the findings of other researchers before now, who found out the application of ICTs in all areas of the library. When this is done, it would however be agreed or disagreed that Michael Okpara University of Agriculture Library, Umudike is among the academic libraries in Nigeria which has applied ICTs in the services delivery.



Michael Okpara University of Agriculture, Umudike is one of three agricultural institutions in Nigeria. This university is located in Abia State and offers different programmes at undergraduate and postgraduate levels. The University has an academic library which provides for the needs of its students, faculty and members of the university community. The library offers different services and has different departments. It collects and provides information resources in various field of discipline of the University. This academic library is among the academic libraries which saw the need for the creation of ICT and Institutional Repository Departments to further supplement to provision of analogue/print library services. This academic library which started with the inception of the University in the year 1992, is the focus of this study.

### **Research Questions**

The following research questions were answered in this study:

1. What are ICTs applied for services delivery in MOUAU Library?
2. To what extent are the ICTs applied in the services delivery of MOUAU Library?
3. In what areas of services are these ICTs applied in MOUAU Library?
4. What are the effects of the application of ICTs on services delivery in MOUAU Library?
5. What are the challenges facing application of ICT in services delivery of MOUAU Library?

### **Review of Related Literature**

From developed countries like UK, USA, Australia, China, and Malaysia to other developing nations of Africa like Nigeria, there is absolutely no sector of the economy that are not operating effectively with the application of ICT. There are cases that abound like e-services, e-banking, e-billing, e-payment, e-commerce, e-business, e-governance, e-learning, e-libraries, and the like (Elegbede, 2016; Whong, 2014). ICTs in academic libraries basically capture the various electro-mechanical devices used in information handling (from generation to dissemination) (Nnadozie, 2016). It is the aggregate of computers and their accessories, telecommunications equipment, multimedia, and all other associated technologies applied in information organization, management and dissemination.

A debate which has been nullified is an argument that ICTs were not originally meant for libraries. One can affirm that libraries started experiencing the introduction of ICT in 1450 as a result of the invention of movable types by Johann Gutenberg, a German scholar (Ezeani, 2010). From that period till now, Mensah (2015) believes there have been increases in the application and use of ICTs in academic libraries. Furthermore, ICTs have been applied in the processes of teaching the users the rudiments of the library and to effectively utilize the library's resources. According to Sharma (2009), ICTs have created new concepts for teaching and learning process and a recasting of the roles played by the librarians.

This takes place through the application and use of blogspots and other social networking sites to showcase the services of the library and inform the users on how to harness them. Jegede, Monu and Okunnu (2011) opine that the application of ICTs in academic libraries offers the potential to strengthen convectional knowledge of library's products and services while rapidly transforming distant knowledge about the library and its usage. In their view, ICTs application in academic libraries have gone a long way in strengthening academic libraries with access to an unlimited body of digital information globally and bringing considerable efficiency and effectiveness to its parent institution (university, polytechnic or college of education).



Edem (2008) observes that based on the importance of computers to information flow (information generation to utilization), the use of ICTs to facilitate research in libraries has become vital. These ICTs makes it possible for academic libraries to carry out varieties of library functions without frowning and stress (Achebe, 2005). However, such routine service as circulation, reference services and serial control can be done through electronic documents delivery, outstanding, out-searching mechanism of the virtual and digital libraries and reference dialogue mode of the Internet search engines (Nnadozie, 2016). This made Onyeneke (2007) to assert that the coming together of computing and telecommunication for the purpose of handling information has made it possible for information seekers to meet their information needs rapidly and easily. Without doubt, ICTs are impacting on various aspects of academic libraries and information profession. Its application in all functions of the academic library has resulted to digitization of information sources and digital media replacing and becoming the dominant form of information storage and retrieval (Islam & Islam, 2006).

According to Nwali (2010), there is no doubt that ICTs such as computers, CD-ROMs, Internet and GSM (Global Satellite Mobile) also called Global System of Communication have positive influence on reading and circulation services of the library. They provide innumerable opportunities for enhancing the quality of services provided in the technical divisions of the library. The application of ICT has given rise to new modes of cataloguing and classifying information materials. Some of these ICT in cataloguing include the use of Online Public Access Catalogue (OPAC), Strategic Library Automation Management (SLAM), online cataloguing, copy cataloguing and union cataloguing among other ICTs (Ansari, 2008; Harris, 2008). In their views, Islam and Islam (2006) went ahead to argue that libraries and information centres can hardly function today without computers and information technologies. Thus, Nkanu (2007) contends that ICTs provide libraries with capabilities for the location of information, storage and retrieval, and dissemination.

It was posited that ICTs have revolutionized various aspects of the library service from the simple clerical work to the acquisition, organization and dissemination of information and information materials. According to Edem (2008), the emergence of ICT has repositioned the frontiers of academic library resources, operations and services as well as expectation of user group. To her, academic libraries no longer restrict themselves to print/analogue services such as collection development, cataloguing and classification, current awareness services (CAS), selective dissemination of information (SDI) and other bibliographic services but have extended their effort to inter-disciplinary concepts, computer software, hardware and telecommunication engineering and technology.

The rapid development and influx of ICTs to operations and services of academic libraries have made commensurate impact and has led to series of innovations (Nitin, 2015). Ezeani (2010) and Mensah (2015) observe that before the emergence of ICT, the functioning of the libraries in Nigeria has been cumbersome, time-wasting, without giving any room for flexibility. However, with the introduction of ICT in Nigeria, particularly in the libraries there is simultaneous access for many users at the same time and it has further led to the closure of the global information gap that existed between the librarians and the users and further created a brighter future for users of the library resources and services (Onyeneke, 2007).

Consequently, the application of ICT in library service delivery, with no doubt will advance the libraries and further lead to breakthrough and developments, rapidly reshaping the ways libraries and librarians store, manipulate, retrieve and disseminate information needs of users (Adigun, 2015). Studies carried out by some researchers such as Esohe (2005), Ramzan and Singh (2009) and Nitin (2015) on application of ICT to academic libraries in Nigeria reveal inadequacy of the ICT facilities (inadequate



computers, lack of internet connectivity or network failure); under-utilization; technologies not being effectively applied to essential library operations, and also the poor computer skills of some of the academic library staff; unstable power supply; and lack of requisite knowledge and community acceptance.

Therefore, the effect of ICT application in libraries, according to Esohe (2005), includes elimination of duplication in data entry operation in the control of operations; improvement in the control of operations; error reduction in data handling operations, improvement in the speed of operation, enhanced capability to share bibliographic data and resources with other libraries and improved staff morale and prestige, while the benefits to users was articulated as follows: speedy access to information without having to wade through large volumes of paper, computer allow searching by combining different criteria thereby leading to retrieval of specific relevant information, user can access information remotely in a network environment, user can access information with other people who have similar interest with whom they share information and ideas and it helps to speed up the process of document delivery from remote sources.

ICT application in academic libraries, according to Adetimirin (2007), could provide university students, lecturers, and researchers in the developing countries the opportunity to bridge the knowledge gap between them and their counterparts in developed countries. The author further stressed that ICTs facilitate communication between teachers and students, as well provides students with additional opportunities to write, edit, and undertake multimedia project. Amidst its numerous effects, some academic libraries are yet to fully apply ICTs to drive their operations and services (Mensah, 2015; Igwebuike & Agbo, 2015; Adigun, 2015). According to Aguolu and Aguolu (2002), the position of ICT application to libraries in developing countries is, however, a far cry from that in developed countries. Esohe (2005) states that poor electricity supply, unfavorable government policy, lukewarm attitude towards the alleviation of the suffering of the users of such libraries, high cost of importation of ICT facilities and insufficient fund allocation are some the problems that hinder ICT use in the library.

Ayo (as cited in Nnadozie, 2016) indicates lack of telecommunication/telephone facilities and internet accessibility of ICT facilities in Nigeria libraries as among the challenges facing the application of ICT in libraries. Esohe (2005) opines that lack of budget provision for the purchase and maintenance of ICT facilities by parent organizations and library management have greatly hindered the libraries. Similarly, Adigun (2015) confirms that the poor state of the library and library services in Nigeria is no longer news. The empty library shelves or the outdated books on the shelves say it all. The dilapidated library buildings complete the story. These cases depict the funding problems being experienced by all Nigerian libraries. Sharma (2009) informs that the use of ICT facilities such as networking, trucking, cabling, networking cards software administration and the maintenance of the file servers are capital intensive. The funds are usually not available for libraries.

Akporhonor and Akpojotor (2016) found out lack of training, poor infrastructure and high cost of usage as the obstacles to proper and full application of ICT in libraries. Furthermore, Nwachukwu and Asom (2015) observed in their findings that inadequate funds, inadequate power supply, lack of government sponsorship, time constraint, irregular organization of IT programmes, inadequate Internet cafes, among others are the challenges facing the effective use of computer systems and technologies in libraries. Ezeani (2010) identified lack of ICT policies, lack of sufficient monetary allocation to e-resources in libraries, lack of human resource capacity and lack of affordable technologies as challenges to effective applications of ICT to library service delivery. She further stressed that lack of effective consortia efforts by libraries in Nigeria, lack of adequate basic infrastructure, lack of appropriate maintenance culture and technophobia are part of factors militating effective application of ICT.



Furthermore, Nwabueze and Urhiewhu (2015) identified epileptic power supply, non-availability of online databases, inadequate or slow band width, inadequate computers, network problems, lack of ICT skills, and lack of formal training in Internet use, server slowness and frequent breakdown as the factors hindering the use of ICT in libraries. According to Nitin (2015), inadequate funds, shortage of human resources, lack of training of staff, low bandwidth and irregular power supply are some challenges facing the use of ICT in libraries.

To overcome most of the challenges, Mensah (2015) states that seminars, conferences, workshops and in service training are to be invigorated as to extend librarians knowledge based and information of ICT education programme. Nnadozie (2016) in his paper provide the following as the solution to the challenges facing the application of ICT: Provision of adequate fund by the various levels of government authorities in the country for the procurement, installation and maintenance of the ICTs; organization of re-orientation programs to change the librarians and users' negative attitude to ICT and the prevalent perception of these technologies as a threat to jobs; formulation of strong regulatory framework that will stipulate the quality of ICT required, discourage the dumping of substandard and unserviceable ICT in the country, set a timeline for public and corporate organizations to migrate to e-platform/services, establish and streamline the regulatory structure and stipulate the quality of ICT training for library staff.

The issue of ICTs in academic libraries cannot be over flogged, literature reveal the importance roles played by it. For effective application of these ICTs, efforts need to be made by both the library managers, librarians and the users of academic libraries. With this, the application of ICTs in academic library services delivery will not be a mere story. Thus academic libraries must reinvent themselves as dynamic engines for the knowledge and information society, adopt and apply the ICT systems that provide the cutting edge tools so as to provide the leading edge and quality library services.

### **Methodology**

The study is a descriptive survey. The population consists of fifty-five (55) library staff from Michael Okpara University of Agriculture Library, Umudike. Furthermore, there was no need for sample as the entire population was used, given rise to a complete census. A 4-point researcher-made instrument titled: "Questionnaire on Application of Information and Communication Technologies in Academic Library Services Delivery in Nigeria (QAICTALSDN)" was used to generate raw data for the study. The researchers personally distributed copies of the questionnaire to the library staff. This strategy accounts for the return of all copies of the questionnaire, giving a return rate of 100%. Data collected were analysed using descriptive statistics of mean score and standard deviation. A four point Likert scale method was used to determine the degree of agreement/acceptance or otherwise in each of the item statements. The criterion mean of 2.5 was used which indicated the level of acceptance, while any mean score less than 2.5 were considered rejected.

### **Data Analysis**

Below are the analyses of the responses to the research questions and the interpretation of the findings.

Research Question 1: What are ICTs applied for Services Delivery MOUAU Library?

**Table 1: ICTs Applied in MOUAU Library Services Delivery**

S/n	ICTs	Applied	Not Applied
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1	Computers	√	-
2	Tablet device	-	√
3	Telefascmile facilities		√
4	Photocopiers	√	-
5	Printers	√	
6	Visualizer or document camera	-	√
7	Robot	-	√
8	Presentation clicker	-	√
9	Closed Circuit Television (CCTV)	√	-
10	USB or Wifi Access	√	-

**Source: Researchers’ Field Survey, June, 2019**

Table 1 above presents the result of ICTs applied in MOUAU Library. This assessment was carried out using an observation checklist. Data generated shows that out of ten (10) ICT facilities being investigated, MOUAU Library was found to have applied five (5) in their services delivery. These ICTs include computers; photocopiers; printers, Closed Circuit Television (CCTV); and USB or Wifi access. Furthermore, the result shows the non-application of tablet device; telefascmile facilities; visualizer or document camera; robot; and presentation clicker, in the services delivery of MOUAU Library

Research Question 2: To what extent are the ICTs applied in the services delivery of MOUAU Library?

**+Table 2: Extent of ICTs Application to Services Delivery in MOUAU Library**

S/N	ICTs	VHE	HE	LE	VLE	Mean	St. Dev.	Decision
1	Computers	26	29	0	0	3.47	0.504	Accept
2	Tablet device	8	9	21	17	2.15	1.026	Reject
3	Telefascmile facilities	0	14	19	22	1.85	0.803	Reject
4	Photocopiers	13	26	10	6	2.84	0.918	Accept
5	Printers	17	23	9	6	2.93	0.959	Accept
6	Visualizer or document camera	6	8	23	18	2.04	0.962	Reject
7	Robot	0	0	0	55	1.00	0.000	Reject
8	Presentation clicker	7	6	24	18	2.04	0.981	Reject
9	Closed Circuit Television (CCTV)	14	29	6	6	2.93	0.900	Accept
10	USB or Wifi Access	16	20	13	6	2.84	0.977	Accept
<b>Grand Mean</b>						<b>2.41</b>	<b>0.803</b>	<b>Low Extent</b>

**Source: Researchers’ Field Survey, June, 2019**

Table 2 shows the responses of the respondents on the extent of application of ICTs to services delivery. Result showed that extent of application of computers (Mean = 3.47; St. Dev. 0.504) was ranked highest, while extent of application of telefascmile facilities (Mean 1.85; St. Dev. 0.803) was ranked lowest among the ICTs applied for services delivery in the library. Applying the criterion Mean of 2.50, the table shows that the respondents accepted items 1, 4, 5, 9, and 10 (computers, photocopiers, printers, CCTV, and USB or Wifi access) and rejected items 2, 3, 6, 7, and 8 (tablet device, telefascmile facilities, visualizer or document camera, robot, and presentation clicker), in the services delivery of MOUAU Library. Finally, the grand mean and standard deviations of 2.41 and 0.803, respectively indicated a low extent of ICTs



application in the services delivery of MOUAU Library. The reason is because the grand mean falls below the criterion mean of the study.

Research Question 3: In what areas of services are these ICTs applied in MOUAU Library?

**Table 3: Areas of Services in which ICTs are applied in MOUAU Library**

S/N	Areas of Service	SA	A	D	SD	Mean	St. Dev.	Decision
1	Reference services	4	35	12	4	2.71	0.712	Accept
2	Collection development	22	27	2	4	3.22	0.832	Accept
3	Charging and discharging of library resources	0	6	38	11	1.91	0.554	Reject
4	Registration of users	2	25	24	4	2.45	0.689	Reject
5	Cataloguing and classification	13	26	10	6	2.84	0.918	Reject
6	Current Awareness Services (CAS)	6	4	32	13	2.05	0.870	Reject
7	Selective Dissemination of Information (SDI)	8	6	23	18	2.07	1.016	Reject
8	Library exhibition and display	2	4	34	15	1.87	0.695	Reject
9	Indexing and abstracting	26	19	4	6	3.18	0.983	Accept
10	Bibliographic search	30	16	7	2	3.35	0.844	Accept
<b>Grand Mean</b>						<b>2.57</b>	<b>0.811</b>	<b>Accept</b>

**Source: Researchers' Field Survey, June, 2019**

Table 3 shows the responses of the respondents on the areas of services where ICTs are applied in MOUAU Library. Data generated indicated that bibliographic search (Mean = 3.35; St. Dev. 0.844) was ranked the highest, while library exhibition and display (Mean 1.85; St. Dev. 0.803) was ranked lowest among the areas of services where ICTs are applied. Considering the criterion Mean of 2.50, result shows that the respondents accepted the application of ICTs in the following areas: reference services; collection development; cataloguing and classification; indexing and abstracting; and bibliographic search, and rejected of application of ICTs in charging and discharging of library resources; registration of users; CAS; SDI; and library display and exhibition. Finally, the grand mean and standard deviations of 2.57 and 0.811, respectively, indicated that the respondents accepted that ICTs are applied in different areas of services in MOUAU Library. This is due to the fact that the grand mean is above the criterion mean of the study.

Research Question 4: What are the effects of the application of ICTs on services delivery in MOUAU Library?

**Table 4: Effects of ICT Application on Services Delivery in MOUAU Library**

S/N	Effects of ICT Application	SA	A	D	SD	Mean	St. Dev.	Decision
1	Makes for delivery of quality library services	16	15	11	13	2.62	1.147	Accept
2	Reduction in cost of library service delivery	20	29	4	2	3.22	0.738	Accept
3	Guarantees easy access to library services	20	20	8	7	2.96	1.018	Reject



4	Saves the librarians' time	37	5	9	4	3.36	1.007	Accept
5	Saves the users' time	4	41	4	6	2.78	0.738	Accept
6	Brings about library patronage	17	23	8	7	2.91	0.986	Accept
7	Generates revenue for the library	22	17	10	6	3.00	1.018	Accept
8	Reduces wastage of resources	15	20	9	11	2.71	1.083	Accept
<b>Grand Mean</b>						<b>2.88</b>	<b>0.964</b>	<b>Accept</b>

**Source: Researchers' Field Survey, June, 2019**

Table 4 presents the responses of the respondents on the effects of ICTs application on the services delivery of MOUUAU Library. Result showed that saving the librarians' time bibliographic search (Mean = 3.36; St. Dev. 1.007) was ranked as the highest effect, while makes for delivery of quality library services (Mean 2.62; St. Dev. 1.147) was ranked lowest among the effects of ICTs application on MOUUAU Library services delivery. Applying the criterion Mean of 2.50, result shows that the respondents accepted the all the effects which include: makes for delivery of quality library services; reduction in cost of library service delivery; guarantees easy access to library services; saves the librarians' time; saves the users' time; brings about library patronage; generates revenue for the library; and reduces wastage of resources. Finally, the grand mean and standard deviations of 2.88 and 0.964, respectively, indicated that the respondents accepted that application of ICTs for services delivery in MOUUAU Library has numerous positive effects.

Research Question 5: What are the challenges facing application of ICT in services delivery of MOUUAU Library?

**Table 5: Challenges Facing Application of ICTs**

S/n	Challenges Facing Application of ICT	SA	A	D	SD	Mean	St. Dev.	Decision
1	Inadequate funding	27	18	6	4	3.24	0.922	Accept
2	Inadequate infrastructural facilities	16	20	12	7	2.82	1.002	Accept
3	Incompetent personnel	1	12	26	16	1.96	0.769	Reject
4	Unstable power supply	15	40	0	0	3.27	0.449	Accept
5	High cost of ICT acquisition	43	8	2	2	3.67	0.721	Accept
6	High cost of ICT maintenance	31	12	8	4	3.27	0.971	Accept
7	Frequent changes in technology	18	25	6	6	3.00	0.943	Accept
8	Inadequate technical support	31	8	12	4	3.20	1.026	Accept
9	Inadequate number of staff	2	3	31	19	1.78	0.712	Reject
10	Technophobia	23	17	4	11	2.95	1.145	Accept
<b>Grand Mean</b>						<b>2.91</b>	<b>0.866</b>	<b>Accept</b>

**Source: Researchers' Field Survey, June, 2019**

The Table above presents the responses of the respondents on the challenges facing the application of ICTs in the services delivery of MOUUAU Library. Result indicated that high cost of ICT acquisition (Mean = 3.67; St. Dev. 0.721) was ranked as the highest challenge, while inadequate number of staff (Mean 1.78; St. Dev. 0.712) was ranked lowest among the challenges facing the application of ICTs in MOUUAU Library for their services delivery. Applying the criterion Mean of 2.50, result shows that the respondents accepted challenges such as: inadequate funding; inadequate infrastructural facilities; unstable power



supply; high cost of ICT acquisition; high cost of ICT maintenance; frequent changes in technology; inadequate technical support; and technophobia. Furthermore, result shows that the respondents rejected inadequate personnel; and inadequate number of staff as among the challenges facing the application of ICTs for services delivery in MOUAU Library. Finally, the grand mean and standard deviations of 2.91 and 0.866, respectively, indicated that the respondents accepted that application of ICTs for services delivery in MOUAU Library is faced with numerous challenges.

### **Discussion of the Findings**

From the observation checklist and the table of analyses on the ICTs applied in the services delivery of MOUAU Library as captured in Table 1, showed the application of few ICTs in the academic library studied. It was found out from the study that only five out of the ten ICTs investigated were applied. These ICTs include: computers, photocopiers, printers, CCTV, and USB or Wifi access, while ICT facilities such as tablet device, telefacsimile facilities, visualizer or document camera, robot, and presentation clicker were not applied. However, the result clearly shows that ICTs were not adequately applied in MOUAU Library. This finding partially contradicts the study of Sokari, Gama, Haliru, Olayemi and Yemi-Peters (2017) which found out that considerable level of ICTs application have been achieved in the operations of academic libraries. Furthermore, the findings of this study supports the assertion of Arinola, Adigu and Oladeji (2012) that many academic libraries in Nigeria have adopted the use of ICT for services delivery.

Consequently, the findings showed that there is low extent of application of ICTs in the services delivery of MOUAU Library. Although, it was revealed that ICTs have been applied in numerous areas of services in the library such as reference services, cataloguing and classification, collection development, indexing and abstracting services, and bibliographic search, this low extent of application seems to be a barrier to the efficiency of services delivery in this library. However, the implication of this low extent of application can be disastrous to the academic community and library stakeholders, especially users of the library who are potential researchers and scholars. The low extent of ICTs application in this library is tantamount to no provision of adequate library services to meet users' daily information needs and this could affect the users' academic performance which in turn could affect the quality of research and scholarly activities carried out in the University because users need prompt, current, and quick library services that can meet their information needs without delays and with less stress.

This is based on the findings on the effect of ICTs application in services delivery of the library. However, the findings correlate with the findings of Mensah, 2015, Igwebuike and Agbo (2015) and Adigun (2015); in which Mensah (2015) revealed the low application of ICTs in libraries. However, Igwebuike and Agbo (2015), Nitin (2015) and Adigun (2015) found that amidst ICTs numerous effects, some academic libraries are yet to fully apply ICTs to drive their operations and services.

The application of ICTs in services delivery at the MOUAU Library, led to delivery of quality library services; reduction in cost of library service delivery; easy access to library services; saving the librarians' time; saving the users' time; library patronage; generation of revenue for the library; and reduction in wastage of which brings along with it numerous benefits not meant for users alone but also institutions and library administrators too. When these ICTs are applied, they will facilitate easy access and retrieval of library services. This was supported by the findings of Sokari, Gama, Haliru, Olayemi and Yemi-Peters (2017) which revealed the application of ICTs in several areas of services of academic libraries. The finding of this study equally supports the opinion of Edem (2008) which holds that academic



libraries no longer restrict themselves to print/analogous services but have gone ahead to incorporate ICTs into their services.

Furthermore, the findings show that high cost of ICT acquisition was a major challenge faced by MOUAU Library in attempt to apply ICTs to their services delivery. It was also found out that inadequate funding as a result of the poor funding of libraries and absence of means for generating additional income in libraries, as well as unstable power supply were also among the challenges to ICT application in MOUAU Library. Thus, this library undoubtedly had functional Internet connectivity (USB or Wifi access), yet ICTs application in services delivery may not be maximized because each time there was power failure, the Internet Server (IS) went off. Also, inadequate infrastructural facilities, high cost of ICT maintenance, frequent changes in technology, inadequate technical support; and technophobia were indicated as some challenges facing application of ICTs in services delivery in MOUAU Library.

In a way, these challenges had affected the ICTs applied and their extent of application in the services delivery of MOUAU Library. This is not far from the findings of Mensah (2015) and Esohe (2005) which indicated that poor electricity supply, unfavorable government policy, lukewarm attitude towards the alleviation of the suffering of the users of such libraries, high cost of importation of ICT facilities and insufficient fund allocation are some the problems that hinder ICT use in the library. It also correlates with the findings of Esohe (2005), Ramzan and Singh (2009), and Nitin (2015) on the application of ICT in Nigerian academic libraries which revealed inadequacy of the ICT facilities (inadequate computers, lack of Internet connectivity or network failure); under-utilization; technologies not being effectively applied to essential library operations, and also the poor computer skills of some of the academic library staff; unstable power supply; and lack of requisite knowledge and community acceptance as among the challenges facing ICT application in academic libraries

### **Conclusion and Recommendations**

Based on the findings of this study, it is concluded that even though the application of ICT in services delivery at the MOUAU Library is still bedeviled with a number of challenges, the benefits from it sustained application for more effective services delivery cannot be in doubt. Therefore, the study recommends that:

1. the MOUAU Library should develop means of generating additional funds to finance most of their projects and purchases. This is because findings have revealed that academic libraries suffer from inadequate funding and this hinders the application of ICTs in these libraries.
2. it should build on the infrastructural facilities available presently. This is due to the fact that most of these ICTs require some infrastructure such as strong desk, and air-conditioned rooms for their application and functioning.
3. the Library Management should develop strategies of improving supply of power. This could be through purchase of a standby generator or building of solar energy panels among other means of generating additional power supply.
4. technicians should be mounted at each area of the library where ICTs are applied. This is to ensure the maintenance of the ICT facilities to avoid its frequent breakdown or misuse either by the library staff or the library user. Also academic library staff should be provided with basis technical knowledge, especially, in relation to some precautionary measure in the ICT application and use.



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