



Influence of ICT on Teaching and Learning of Library and Information Science in Rivers State Higher Institutions

Okpokwasili, Nonyelum P. (PhD)

**Department of Library and Information Science
Rivers State University, Port Harcourt, Nigeria**

ABSTRACT

The study adopted a correlational research design. The study covered Rivers State University, Ignatius Ajuru University of Education and Captain Elechi Amadi Polytechnic as the three higher institutions offering the course. The population of the study was numbered 422 and a purposive sampling technique was adopted by using the entire population. The instrument used was tagged “Influence of ICT on Teaching and Learning Library and Information Science (IICSTALLIS)”, with a five point scale of Very High Level of Influence, High Level of Influence, Moderate Level of Influence, Low Level of Influence, and Very Low Level of Influence. 422 copies of questionnaire items were face-to-face administered to the respondents and 340 successfully retrieved. Arithmetic mean was used to analyse the research questions, and Standard Deviation used to find out the extent in which scores in the distribution clustered around the means. Pearson Product Moment Correlation (r) was adopted to test the two hypotheses. The decision point was that any calculated grand mean from 3.0 and above was accepted and any ground mean below 3.0 was rejected. Also, any calculated value of (r) that was greater than $>$ the critical table value of 0.113 at 0.05 significant levels such null hypothesis (H_0) will be rejected and vice versa. It was concluded there were high level of influence of ICT on teaching and learning of Library and Information Science and there were high level of ICT skills and functioning as a prospective Library and Information Sciences in the areas of creation of OPAC, Networking, Resource Sharing, Institutional Repositories and Computer skills (hardware, system software, application software), General purpose programming, Database management system, Webpage development and content management. Among other things it was recommended that more ICT skills courses should be incorporated into Library and Information Science curriculum and students should be exposed to more ICT practical skills to function as prospective Library and Information Science professional.

Keywords: Influence of ICT, Teaching and Learning and Library and Information Science

INTRODUCTION

Teaching is an attempt to assist people to acquire some skills, attitudes, knowledge or ideas. Teaching is also an interaction between teachers and students under the auspices and responsibilities of the teacher in order to bring about the expected change in the students' behavior (Awotua-Efebo, 1999). It involves the process of assisting the learner to gain useful skills, attitudes, knowledge, ideas; values in an arranged or unarranged environment that will assist the learner become an acceptable person to the society as well as be independent in life. Thelearningcoach.com (2018) posited that learning is the relatively permanent change in a person's knowledge or behaviour due to experience. This definition has three components: 1) the duration of the change is long-term rather than short-term; 2) the locus of the change is the content and structure of knowledge in memory or the behaviour of the learner; 3) the cause of the change is the

learner's experience in the environment. These are the processes Library and Information Science learners go through to acquire the needed skills to function in life.

Library and Information Science (LIS) is an interdisciplinary field which combines the principles and practices of library administration. The disciplines that are associated with library science are education, management, and information technology. The main objective of any library is to accumulate, organize, preserve and disseminate information resources. Teaching and learning of LIS cannot be successful in this modern age without Information and Communication Technology (ICT) as instructional technologies. ICT has greatly revolutionized the world. Since its invention a few decades ago, librarians have adopted various types of technologies to render different types of services. As observed by Mairaj & El-Hadi (2012), using ICT, libraries have not only observed changes in their daily operations and services, but also identified a new and active role for librarians. Information and communication technologies (ICTs) have affected the way information is being handled resulting in speed and accuracy at which information is accessed, retrieved, stored, manipulated and disseminated to users in different formats. Computer, telecommunication and mass storage technologies are major areas of tremendous development that have reshaped the manner librarians acquire, store, process, retrieve and disseminate information to their clientele.

Statement of the Problem

The educational system in Nigeria is faced with the challenges of transforming from the traditional to an enhanced technological method of imparting knowledge to the diversified learners in the 21st-century information age. Information and communication technology facilities are the major aspect in determining the express information managers to be trained with information and communication facilities for effective service delivery and this call for an opportunity to explore diverse ICT facilities during the period of training our learners. Since Information and Communication Technology (ICT) has greatly revolutionized the world. Library and Information Science has the main objectives of accumulating, organizing, preserving and disseminating information resources in exceptional way during teaching and learning. Therefore, this study seeks to find out the influence of ICT on teaching and learning of Library and Information Science in Rivers State higher institutions.

Purpose of the Study

The purpose of this study is to find out the influence of ICT on teaching and learning of Library and Information Science in Rivers State higher institutions. The study specifically sought to:

1. Determine the level of influence of ICT on teaching and learning of Library and Information Sciences in Rivers State higher institutions
2. Determine the types of ICT skills needed to function as a prospective Library and Information Science professional in Rivers State higher institutions

Research Questions

The under stated research questions were posed to guide this study

1. What are the influence of ICT on teaching and learning of Library and Information Sciences in Rivers State higher institutions?
2. What are the types of ICT skills needed to function as a prospective Library and Information Science professional in Rivers State higher institutions?

Hypotheses

Two null hypotheses were formulated and tested at 0.05 level of significance

1. There is no significant relationship between the influence of ICT and teaching and learning of Library and Information Sciences in Rivers State higher institutions
2. There is no significant relationship between the types of ICT skills needed to function as a prospective Library and Information Science professional in Rivers State higher institutions

Review of Related Literature

Meaning/ICT Facilities Expected to be Operated by Learners.

Enang, Ukpanah, & Ebong (2016) described ICT facilities to include access to electricity, computer, the Internet, overhead projector, fax machine, multi-media equipment etc. Therefore, the use of information technology facilities for educational instruction in the teaching of LIS has become the bedrock for academic success in the profession. They observed that teaching with ICT enables students to work at their own pace with continuous assessment, in contrast to the traditional post-secondary education method, which can be described as batch-processing with intermittent assessment. ICT facilities strengthen the relationship between the lecturers and the students through interactive facilities at any time of the day.

The educational system in Nigeria is faced with the challenges of transforming from the traditional to an enhanced technological method of imparting knowledge to the diversified learners in the 21st-century information age. Information and communication technology facilities are the major aspect in determining the express information age and the need to be trained for effective service delivery. As such, this calls for opportunity to explore the diverse ICT facilities during the period of training and be adapted for usage. ICT facilities are the major foundations needed in library schools in this information age. For example, many library school curricula now include courses on web design, networking, software application, systems design and management, electronic publishing, the internet and other on-line databases access to reflect the changing competency needs of their graduates.

According to Kumar (2016) over past few decades with the advancement of information communication technologies (ICT's) the nature of library and information environment and the mode of services have changed drastically in a dynamic way. The library has shifted from the traditional library to automated library, then hybrid library to digital library and virtual library and presently, it has shifted to Library 2.0 and Library 3.0. Whatever may be the structure of the library, its philosophy is the same but the actions are changing. They normally act as an important centre of cultural heritage, to promote thinking ability, to educate people, to enlighten people, to know the world and helps to build-up human networking.

ICT has facilitated the flow and effective means of communication. It allows the provision of accurate data collection as well as strategies for achieving objectives, which would otherwise be inhibited by organizational structures. ICTs have become a way of life the world over even though libraries and librarians in Nigeria are still struggling with the traditional methods of information processing, storage and delivery. Incidentally, libraries and librarians in advanced countries have long adopted ICT skills in their day to day operations in the service delivery to their clientele. It has become imperative that Nigerian institutions, libraries and librarians rise and embrace the technological changes that have engulfed the world.

Some Library Services to be done with ICT

It may be mentioned that in the twentieth century the library services were responsive because they were rendered at the request of the library users. However, by the beginning of the twenty first century, the library services have become more positive and proactive because these are now offered not only on the users' request but also at the initiative of the library personnel. The impact of ICT is seen in providing efficient and effective services, helping to control the rapid growth of information, facilitating cooperation, etc. Information and communication technology has not only changed but also influenced the services in the following areas (Ansari, 2003) :

- i. Format of documents: The books, periodicals, etc. are now available in non-print format also. The technology has been transforming printed books and journals into digital format and storing them for posterity.
- ii. Operational activities: ICT has its impact on housekeeping activities such as circulation control, acquisition, cataloguing, serials control, etc. Automation of these activities has made them more efficient and effective. The routine activity of issue and return of documents has

- become faster than earlier situation.
- iii. Library OPAC: The Online Public Access Catalogue (OPAC) of the library can provide improved access to information retrieval system. It can be placed on the library website and users can have access to the library databases from any part of the world.
 - iv. Management processes: Information technology has been helping libraries in managing the library stock, financial management, and so on.
 - v. User orientation: User orientation activities have been changing for the benefit of the users with the application of ICT. The interaction between the user and librarian/information personnel has speeded up and making library resources and services more accessible.
 - vi. Access to Information Resources: ICT has impacted to broaden the access points of the users to the library /information resources to their advantage. It has made possible online, easy, and continuous access with multiple user access facility to the entire range of collection including the electronic resources.
 - vii. Online Databases: With the growing demand of computer- savvy users, ICT has helped to make available more and more e-databases in bibliographic as well as full text sources. The web enabled databases are easily accessible from the user desktops and other gadgets.
 - viii. Current Awareness Services: Libraries can generate current awareness services by using internet data in combination with existing information resources. These can be delivered in a form compatible to user requirements.
 - ix. Library Networks: Many library and other networks have been made possible by ICT and its applications in libraries. These include INFLIBNET, DELNET, ERNET, NICNET, UGC-INFONET, INDEST, and so on. They have helped in widening the mechanism of library cooperation, resource sharing, and library consortia.

ICT Skills Needed by Learners in LIS

According to (Gashaw, 2002) the following are tasks librarians can perform with ICT

- Familiarity with integrated library systems
- Cataloguing and metadata; electronic collections management, including born digital
- Ability to lead and complete digitization, data migration/conversion, repository and database tasks
- Creation or sourcing of digital tools applications, databases etc.
- Support for distance and virtual patrons.
- Evaluation and improvement of current systems and workflow; tracking and reporting data
- Anticipating future or emerging needs and changes
- Troubleshooting for hardware and software across all levels of patrons; instruction; digital access
- Providing data and technical services, such online research support
- Ability to work collaboratively and as a principal liaison
- Budgeting; participating in strategic or best practices
- Encouraging or enabling resource discovery
- Implementing or assisting with emerging technology

Technical ICT Knowledge Required by Learners

According to Biswas (2009) the following are the ICT skills needed by prospective Librarian

- Computer skills (hardware, system software, application software)
- General purpose programming
- Database management system
- Webpage development and content management
- Information retrieval software

- Web discovery tools
- Reference management tools
- Library software (for automation and digital repository)
- International standards (NISO standards, MARC, Metadata standards etc.)
- National and international networks, major consortiums etc.
- Digital technology, archival and preservation of e-resources
- Capacity to use free and open source software

ICT Skills Required of Learners

- Management skills; managing projects & partnership, publicity and promotion etc.
- Technical skills; large technologies, OCT mark-up language, metadata, multimedia, Digital technology, digital media processing, user interface design, programming, internet/web technology, project management.
- Subject skills; information environments, users environment, digital information system, online optical information
- Additional skills; internal networks, personal networks, and external networks.

Influence of ICT on Libraries

Umeji, Efe & Lucky (2013) stated the ICT can have influence on libraries in the following ways:

- Creation of OPAC: Online Public Access Catalogue (OPAC) is the computerized form of the library catalogue (that is the library holdings). OPAC is very easy to use, saves space and can be used to access even catalogues of other libraries.
- Networking: ICT enables libraries to network. Networking can be local (LAN) or wide (WAN). Libraries will be able to access information from different types of on line databases, in various disciplines. We have on-line magazines and newspapers, e-journals and e-books.
- Resource Sharing: ICT can enhance the creation of a central union catalogue which allows libraries to share from their resources.
- Institutional Repositories: Institutional repositories are compilation of publications that originate from scholars within an academic institution. These include theses, dissertations, conference and seminar papers, curriculum vitae, reports, inaugural lectures and any other publication emanating from individual scholars within academic institutions. With ICT other libraries would be able to access the information therein.
- Library Electronic Security System: ICT enhances library security through the use of Radio Frequency Identification Detector (RFID). RFID is the latest technology used in libraries for theft detection. RFID is a combination of radio frequency and microchip technology.
- Creation of a virtual library: ICT promotes the establishment of a virtual library.

METHODOLOGY

The study adopted a correlational research design to find out relationship between the influence of ICT on teaching and learning of Library and Information Science in Rivers state higher institutions. The study covered Rivers State University (RSU), Ignatius Ajuru University of Education (IAUE) and Captain Elechi Amadi Polytechnic (CEAPOLY) as the three higher institutions offering the course. The population of the study was numbered 422 of National Diploma I (NDI), National Diploma II (NDII), Year 1 and Year 2 and a purposive sampling technique was adopted by using the entire population. The instrument used was tagged “Influence of ICT on Teaching and Learning Library and Information Science (IICTTALLIS)”, with a five point scale of Very High Level of Influence (VHLI; 5 Points), High Level of Influence (HLI; 4 Points), Moderate Level of Influence (MLI; 3 Points), Low Level of Influence (LLI; 2 Points), and Very Low Level of Influence (VLLI; 1 Point). The instrument was validated by three experts and a field trial of test retest was done to know the internal consistency which yielded 0.89 coefficient. 422 copies of questionnaire items were face-to-face administered to the respondents and 340

successfully retrieved. Arithmetic mean was used to analyse the research questions, and Standard Deviation used to find out the extent in which scores in the distribution clustered around the means. Pearson Product Moment Correlation (r) was adopted to test the two hypotheses.

The decision point was that any calculated grand mean from 3.0 and above was accepted and any ground mean below 3.0 was rejected. Also, any calculated value of (r) that was greater than > the critical table value of 0.113 at 0.05 significant levels such null hypothesis (H_0) will be rejected and vice versa.

RESULTS

Research Question 1: *What are the influence of ICT on teaching and learning of Library and Information Sciences in Rivers State higher institutions?*

Table 1: Mean and Standard Deviation Computations on the Influence of ICT on Teaching and Learning of Library and Information Science

N = 170											
SN	Items Statements	VHLI (5)	HLI (4)	MLI (3)	LLI (2)	VLLI (1)	T N R	X	SD	Remark	
1	Creation of OPAC: Online Public Access Catalogue (OPAC)	150 (750)	20 (80)	0 (0)	0 (0)	0 (0)	830	4.8	0.96	HLI	
2	Networking: ICT enables libraries to network (LAN) or wide (WAN)	140 (700)	20 (80)	10 (30)	0 (0)	0 (0)	810	4.7	0.96	HLI	
3	Resource Sharing: ICT can enhance the creation of a central union catalogue	155 (775)	10 (40)	5 (15)	0 (0)	0 (0)	830	4.8	0.96	HLI	
4	Library Electronic Security system: ICT enhances library security through the use of Radio Frequency Identification Detector (RFID)	165 (825)	5 (20)	0 (0)	0 (0)	0 (0)	845	4.9	0.98	HLI	
5	Creation of a virtual library: ICT promotes the establishment of a virtual library.	120 (600)	45 (180)	5 (15)	0 (0)	0 (0)	795	4.6	0.95	HLI	
6	Access to Information Resources: ICT has impacted to broaden the access points of the users to the library /information	160 (800)	10 (30)	0 (0)	0 (0)	0 (0)	830	4.8	0.96	HLI	
7	Management processes: Information technology has been helping libraries in managing the library stocks.	155 (775)	15 (45)	0 (0)	0 (0)	0 (0)	820	4.8	0.96	HLI	
8.	Operational activities: ICT has its impact on housekeeping activities such as circulation control, acquisition, cataloguing, serials control	120 (600)	30 (120)	10 (30)	0 (0)	0 (0)	750	4.4	0.93	HLI	
Grand mean								4.7		HLI	

Source: Field Survey (2018)

In analysing research question one, based on items on Table 1, the least mean was 4.4 and the least SD was 0.93 representing high level of influence and closeness in the opinions of the respondents. The highest mean on the table was 4.9 and SD = 0.98, representing high level of influence and also closeness in the views of the respondents. The grand mean was 4.7, representing high level of influence in the opinions of the respondents. This means that ICT has high level of influence on teaching and learning of Library and Information Science

Research Question 2: *What are the types of ICT skills needed to function as a prospective Library and Information Science professional in Rivers State higher institutions?*

Table 2: Mean and Standard Deviation Computations on the Types of ICT Skills Needed to Function as Prospective Library and Information Science Professional

N = 170

SN	Items Statements	VHLICTS (5)	HHLICTS (4)	MHLICTS (3)	LLICTS (2)	VLLICTS (1)	TNR	X	SD	Remark
1	Computer skills (hardware, software, application software)	150 (750)	10 (40)	10 (30)	0 (0)	0 (0)	820	4.8	0.97	HHLICTS
2	Familiarity with integrated library systems	160 (800)	10 (40)	0 (0)	0 (0)	0 (0)	840	4.9	0.98	HHLICTS
3	Cataloguing and metadata; electronic collections management, including born digital	155 (775)	15 (60)	0 (0)	0 (0)	0 (0)	835	4.9	0.98	HHLICTS
4	Ability to lead and complete digitization, data migration/conversion	165 (825)	5 (20)	0 (0)	0 (0)	0 (0)	845	4.9	0.98	HHLICTS
5	Creation or sourcing of digital tools applications, databases	120 (600)	40 (160)	0 (0)	0 (0)	0 (0)	760	4.4	0.93	HHLICTS
6	Providing data and technical services, such online research support	130 (650)	30 (120)	10 (30)	0 (0)	0 (0)	770	4.5	0.94	HHLICTS
7	Database management system	155 (775)	10 (40)	0 (0)	0 (0)	0 (0)	815	4.9	0.98	HHLICTS
8.	Library software (for automation and digital repository)	120 (600)	40 (160)	0 (0)	0 (0)	0 (0)	815	4.9	0.98	HHLICTS
Grand mean								4.7		HHLICTS

Source: Field Survey (2018)

In analysing research question two, based on items on Table 2, the least mean was 4.4 and the least SD was 0.93 representing high level of ICT skills and closeness in the opinions of the respondents. The highest mean on the table was 4.9 and SD = 0.98, representing high level of ICT skills and also closeness in the views of the respondents. The grand mean was 4.7, representing high level of ICT skills

in the opinions of the respondents. This means that the outlined were the types of ICT Skills Needed to Function as Prospective Library and Information Science Professional.

Hypotheses

Two null hypotheses were formulated and tested at 0.05 level of significance

Hypothesis 1: There is no significant difference between the influence of ICT and teaching and learning of Library and Information Sciences in Rivers State higher institutions

Table 3: (r) Computation of the Relationship Between Influence of ICT and Teaching and Learning of Library and Information Sciences

SN	Variable	N	X	SD	Df	Alpha level	r-cal.	r-crit.	Decision
1	Influence of ICT (X)	170	4.9	0.98					
					168	0.05	2.989	0.113	Significant
2	Teaching and Learning of Library and Information Science(Y)	170	4.5	0.95					

Field survey, (2018)

The result in Table 3 revealed that the r-calculated value is greater than r-critical value. Since the r-calculated value of 2.989 is greater than the r-critical value of 0.113. Therefore, the null hypothesis which stated there is no significant relationship between the influence of ICT and teaching and learning of Library and Information Sciences in Rivers State higher institutions is rejected. This means that there is significant relationship between the influence of ICT and teaching and learning of Library and Information Sciences in Rivers State higher institutions

Hypothesis 2: There is no significant relationship between the types of ICT skills needed to function as a prospective Library and Information Science professional in Rivers State higher institutions

Table 4: (r) Computation of the Relationship between the Types of ICT Skills Needed to function as a Prospective Library and Information Science Professional

SN	Variable	N	X	SD	Df	Alpha level	r-cal.	r-crit.	Decision
1	Types of ICT Skills Needed (X)	170	4.4	0.93					
					168	0.05	2.887	0.113	Significant
2	Functioning as a Prospective Library and Information Science Professional (Y)	170	4.5	0.94					

Field survey, (2018)

The result in Table 4 revealed that the r-calculated value is greater than r-critical value. Since the r-calculated value of 2.887 is greater than the r-critical value of 0.113. Therefore, the null hypothesis which stated that there is no significant relationship between the types of ICT skills needed and functioning as a prospective Library and Information Science professional is rejected. This means that there is significant relationship between the types of ICT skills needed and functioning as a prospective Library and Information Science professional.

DISCUSSION OF THE FINDINGS

From the analysis of research question one, the findings showed that there are high level of influence of ICT and teaching and learning of Library and Information Sciences in Rivers State higher institutions. The finding was in agreement with Umeji *et al* (2013) whose empirical work titled “Information/ Ict literacy level and skills among librarians in Madonna University library, Okija.” revealed the following as ways ICT can have influence on libraries:

- **Creation of OPAC:** Online Public Access Catalogue,
- **Networking:** ICT enables libraries to network. Networking can be local (LAN) or wide (WAN).
- **Resource Sharing:** ICT can enhance the creation of a central union catalogue which allows libraries to share from their resources.
- **Institutional Repositories:** Institutional repositories are compilation of publications that originate from scholars within an academic institution.
- **Library Electronic Security system:** ICT enhances library security through the use of Radio Frequency Identification Detector (RFID).
- **Creation of a virtual library:** ICT promotes the establishment of a virtual library.

From the analysis of research question two, the findings showed that there was high level of ICT skills and functioning as a prospective Library and Information Science professionals in Rivers State higher institutions. This means that the outlined were the types of ICT Skills needed to function as prospective library and information science professional. The finding was in line with (Biswas, 2009) in which the following were stated as ICT skills needed by prospective Librarian:

- Computer skills (hardware, system software, application software)
- General purpose programming
- Database management system
- Webpage development and content management
- Information retrieval software
- Web discovery tools
- Reference management tools
- Library software (for automation and digital repository)
- International standards (NISO standards, MARC, Metadata standards)
- National and international networks, major consortiums etc.
- Digital technology, archival and preservation of e-resources
- Capacity to use free and open source software

CONCLUSION

Based on the findings of this study, it was concluded that there was high level of influence of ICT on teaching and learning of Library and Information Sciences and there was also high level of ICT skills to function as a prospective Library and Information Science Professional in the areas of Creation of OPAC, Networking, Resource Sharing, Institutional Repositories and Computer skills (hardware, system software, application software), General purpose programming, Database management system, Webpage development and content management and also Information retrieval software..

RECOMMENDATIONS

1. More ICT skills courses should be incorporated in to Library and Information Science curriculum.
2. Students should be exposed to more ICT practical skills to function as prospective Library and Information Science professional.
3. Lecturers should be exposed to training and retraining in ICT practical skills areas to enable them teach the learners effectively.

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