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Technology-Driven Information: Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria

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ABSTRACT

The study adopted a correlational research design to find out the relationship between the roles of Technology-Driven and Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria. The study covered six higher institutions with twelve Departments. 252 Lecturers and 3,720 students formed the population of 3,972. A self-design instrument was used; a random sampling technique adopted as well as Krejcie and Morgan method was used to determine the sample size of 354. Mean statistics was used to analyse the research question and Pearson Product Moment Correlation (r) was adopted to test the only hypothesis. It was noted that Technology-Driven information Plays High Level of Roles in Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria. Among other things, the study recommended the recruitment and retention of technical support staff in academic libraries. The availability of technical staff helps to maximize systems accessibility and efficiency. Staff and students also need to be trained on how to use these facilities towards achieving academic excellence. This may be through continuous orientation and the inclusion of such courses like: Use of computer for Information retrieval, Use of Internet/world wide web and IT applications.

Keywords: *Technology-Driven, Information Creation, Access, Storage, Dissemination and Academic Libraries.*

1. INTRODUCTION

Higher institutions academic libraries have been the major access points for information/knowledge by staff, students and others towards quality teaching, learning and research. The role of libraries in this regard cannot be realized without the use of technology for library and information service delivery (Omosor, 2014). Information and Communication Technology (ICT) is a term used to describe the various technologies that are used in the processing of information including coding, creation, storage, retrieval, manipulation, dissemination and transmission (Zulu, 2011). Jones, Kenny and Qiang (2004) described ICT as tools that facilitate the production, transmission and processing of information. In a broader context, ICT encompasses array of networks, hardware and applications of communication and information creation, management, processing, storage and dissemination.

The use of technology for library and information service delivery has undergone various levels of development. Automated cataloguing, circulation and acquisition systems have led to better management of library operations and improved services. Today, ICT is providing libraries with powerful new tools to meet their patrons' information needs beyond their traditional printed materials. With internet connectivity, academic libraries can reach beyond their walls to provide patrons with resources available in their libraries. Social media as typified in library 2.0 model are increasingly becoming part of libraries and they are tools for enhancing library services and resources (Tiemo & Edewor, 2011). Many libraries are effectively using twitter to communicate services like opening times, new arrivals etc., while others have developed applications that enable users to search catalogues from within facebook (Baro & Asaba, 2010). There is no doubt that the application of ICTs have provided one of the best innovations in the history of libraries and it is changing the shape of libraries and role of librarians at an unprecedented shape. Technology-

driven has greatly enhanced library and information service delivery. That technology has undergone various level of development is an understatement. Today, the library goal of providing information services and access to information resources is greatly improved by the use of information communication technology (ICT).

1.2 Statement of the Problem

Academic Libraries are the centre of information creation, access, storage and dissemination to users. This is a tedious task that requires modern ways of information management. The olden day's academic libraries seems not been able to meet the information need of the patrons, and not only that technology make life easy today, but also it is an all-round world sectors economic best driver. Therefore, the need for technology-driven information creation, access, storage and dissemination in academic libraries in Nigeria cannot be over emphasised.

1.3 Purpose of the Study

The purpose of this study is to investigate the role of Technology-Driven Information: Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria. The study specifically sought to:

1. Find out the roles of Technology-Driven Information: Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria

1.4 Research Question

The under stated research question was posed to guide this study:

1. What are the roles of Technology-Driven Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria?

1.6 Hypothesis

One null hypothesis was formulated and tested at 0.05 level of significance

1. There is no significant relationship between the roles of Technology-Driven and Information

2. REVIEW OF RELATED LITERATURES

2.1 ICT and Academic Libraries: Impacts

Onuoha and Obialor (2015) defined academic libraries as those libraries that are mainly found in tertiary institutions that are established to support learning, teaching and research processes. Over the past twenty seven years, academic libraries have been affected by changes in information and communication technology. The rate of changes is still accelerating in this area. The introduction of various information technology (ICT) trends has led to reorganization, change in work patterns, and demand for new skills, job retraining and reclassification positions. Technological advancement of the past twenty five years, such as the electronic database, online services, CD-ROMs and introduction of internet has radically transformed access to information. Onuoha et al (2015) opined that ICT holds the key to the success of modernizing information services. Applications of ICT are numerous but mainly used in converting the existing paper-print records in the entire process of storage, retrieval and dissemination. ICT has impacted on every sphere of academic library activity especially in the form of the library collection development strategies. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital-based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries and initiate ICT based capacity building programmes for library users. In some academic libraries, ICT has brought a special library service to the clients known as embedded librarianship whereby all departments in schools are provided online products/journals mainly for their faculty. The faculty concerned is given a password to access it. Other e-journals available in academic libraries are DOAJ (Directory of Open Access Journal) and AEJP (African E-Journal Project).

The impact of ICT characterized on information services by changes in format, contents and method of production and delivery of information products. Emergence of internet as the largest repository of information and knowledge, changed role of library and information science professionals from intermediary to facilitator; new tools for dissemination of information and shift from physical to virtual services environment. Omekwu (2004) observed that, Information Technology has brought about various forms of libraries and mode of disseminating information. There are now available such libraries as Automated Library, Poly-media Libraries, Electronic Libraries, Virtual Libraries and Digital Libraries. Each of these forms of IT induced Library System has its own specific features, requirements, service mode, and associated problems. Mosuro (2000) reiterated the relevance of IT to library functions and services: Over the years, advances in the area of IT have offered Library and Information Centres more efficient ways of acquiring, organizing, storing and disseminating information. New Information Technologies

are becoming an integral component of and have the potential of changing the status quo of libraries and librarianship. Computers as well as other information technology have come to play prominent roles in information management. It is unthinkable that any academic library can function effectively without the appropriate use of IT.

2.2   Applications of ICT in Academic Libraries
Nowadays there are several information communication technologies for various housekeeping, management and administrative functions of the library. Different electronic and digital media, computer aided electronic equipment, networks and internet have provided significant roles in the retrieval and dissemination of information and ICT plays a vital role in the modernization of libraries which includes:

2.3   Library Automation: Library Automation is the concept of reducing the human intervention in all the library services so that any user can receive the desired information with the maximum comfort and at the lowest cost. Major areas of the automation can be classified into two-organization of all library database and all housekeeping operations of libraries.

2.4   Library Networking: Library networking means a group of Libraries and Information Centres that are interconnected for some common pattern or design for information exchange and communication with a view to improve efficiency

2.5   Digital Library: A digital library is an assembled digital computing, storage and communication machinery together with the content and software needed to reproduce, emulate and extend the services provided by conventional libraries based on paper and other material means of collating, cataloguing, finding and disseminating information. A full service digital library must accomplish all essential services of traditional libraries and also exploit the well-known advantage of digital storage, searching and communication. It provides access to part of or all its collection, such as plain texts, images, graphics, audio and video materials and other library items that have been electronically converted, via the internet and "URL" (Uniform Resource Locator)

2.6   Impact of ICT on Libraries and Librarians
Computer has brought in a new impact to the library and information usage. In libraries, information technology has assisted library professionals to provide value added quality information service and give more remote access to the inter-nationally available information resources. Today's highly sophisticated information technology facilitates the storage of huge amounts of data or information in a very compact space. Information technologies promise fast retrieval of stored information and revolutionize our concept of the functions of a traditional library and a modern information centre. Technological developments have dramatically changed the mode of library operations and services.

ICT in libraries has changed the mode of information storage and retrieval, acquisition, cataloguing and classification, circulation of materials, serials control, management statistics and administrative activities such as budgeting. This achieved the provision of more efficient information services to the users and the overall improvement in the performance of the libraries and other related information institution (Chisenga, 2004)

2.7   Factors that Affect Information Technology in Modern Librarianship
According to Onuoha, and Obialor (2015), the under mentioned and explained are factors affecting technology-driven information management in the academic libraries:

a)   Cost: The impact of cost upon libraries and publishers has recently received much publicity; one should not disregard the impact upon users who may now be asked to pay in order to access an online database or to search an optical disc file and print out abstracts.

b)   Lack of standards: Until recently the hardware manufacturers used differing standards. Now the High Sierra standard seems to be making it easier for software publishers to deal with CD-ROM equipment, but standards remain to be developed in other areas such as tele-facsimile.

c)   Lack of perceived market: Publishers do not perceive library market for new products based upon new technologies. As an example, relatively few libraries and hardly does any individual own optical disc or CD-ROM drives for their PCs. The originators of Bibliophile sold the product with the drives, and this technique of selling hardware as well as software now has several imitators. It is still not a large market.

d)   Content of disc: Even a 5 inch CD-ROM contains more than 500 megabytes. That is a lot of information, and publishers are having some difficulty determining logical groupings of information to assemble on a disc. Graphics and colour are only now beginning to be widely available.

e)   Users are not yet ready to move from the printed page exclusively to electronic data.

f) Articles solely in electronic form are not yet perceived as valid contributions in the publish-or-perish cycle; these may not receive the same stringent scholarly review, and electronic articles are not yet trusted by scholars.

g) Copyright: The 1976 copyright law did not address emerging information technologies, and the library and publishing communities are attempting, with only some degree of success, to affect promise between the interests of the two groups. The copyright issue will become even more intense as full-text documents become increasingly available in electronic form.

2.8 Merits and Demerits of Technology-Driven in Libraries

According to Omosor (2014), the following are merits and demerits of technology-driven information in the libraries:

1. Makes work easier
2. Speed of work increases
3. Accuracy in work

2.10 Benefits and Challenges of Using ICT Based Products and Services in the Libraries.

In the view of Eghworo, Ogo, Paul and Ayomanor (2015), ICT products and services are beneficial to the libraries and patrons in the following ways:

1. It provides efficient and accurate services.
2. It helps for controlling the tremendous escalation of information.
3. It assists to provide high quality of services and increases the range of services.
4. It has invented the ways of resource sharing by operation and coordination.
5. Helps to manage information overload as information retrieval is made easier in computerized systems.
6. Remote access is enabled through networked systems
7. Computerization saves space and reduces paper work.

The Challenges of Using ICT in library.

1. Constant changes of software and hardware,
2. Erratic power supply, Insufficient bandwidth,
3. Lack of technical knowledge by library staff and
4. Copyright and intellectual property rights management

2.11 Demerits of Technology-Driven in the Libraries

According to Omosor (2014), the following are the demerits of technology-driven information in the libraries:

- Dearth of technical staff,
- Inadequate training,
- Lack of equipment (computers, scanners, slow network/bandwidth.
- Growing user demands

3. METHODOLOGY

The study adopted a correlational research design to find out the relationship between the roles of Technology-Driven Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria. The study covered Ignatius Ajuru University of Education (IAUE) with Departments of (Political Science and Biology), University of Port Harcourt (UNIPORT) with Departments of (Computer Science and Sociology), National Open University (NOUN) with the Department of Law and Mathematics, Captain Elechi Amadi Polytechnic (CEAPOLY) with the Departments of Office Technology and Management and Science and Laboratories Technology (SLT), University of Uyo (UNIUYO) with Department of Business Education and Mass Communication, University of Calabar (UNICAL) with Department of Sociology and English and Literary Studies, Rivers State University (RSU) with Departments of (Business Education and Mass Communication). 252 Lecturers and 3,720 students from twelve Departments of the six universities and polytechnics were carefully selected to form the population of 3,972 ranging from Years 1, 2, 3 and 4, National Diploma I, II and Higher National Diploma I and II. The lecturers range from the categories of Graduate Assistants to Professors. A random sampling technique was adopted and Krejcie and Morgan method was used to determine the sample size of 354. Krejcie and Morgan (1970) method is a technique used in determining the sample size of a known population

The instrument used was tagged "Roles of Technology-Driven and Information Creation, Access, Storage and Dissemination in Academic Libraries". Very High Level of Role was seen as (VHLR; 4 Points), High Level of Role (HLR; 3 Points), Moderate Level of Role (MLR; 2 Points) and Very Low Level of Role (VLLR; 1 Point). The

instrument was validated by five experts and a field trial of test retest was done to know the internal consistency which yielded 0.77 co-efficient. 354 copies of questionnaire items were face-to-face administered to the respondents and 250 successfully retrieved. Mean statistics was used to analyse the research question and Pearson Product Moment Correlation (r) was adopted to test the only hypothesis. The decision point was that any calculated grand mean from 2.5 and above was accepted and any ground mean below 2.5 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 will be rejected and vice versa.

4. RESULTS

Research Question 1: What are the roles of Technology-Driven Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria?

Table 1: Computed Mean on the Roles of Technology-Driven Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria

SN	N = 250, TNR = Total Number of Response							
	Items statements	VHLR 4	HLR 3	MLR 2	VLLR 1	TNR	X	Remarks
1	It provides efficient and accurate information creation	150(600)	100(300)	0(0)	0(0)	900	3.6	HLR
2	It gives access to enable user and Liberian network and share resources	200(800)	100(300)	0(0)	0(0)	1100	4.4	VHLR
3	Helps to manage stored information overload and information retrieval easier in computerized systems.	200(800)	50(150)	0(0)	0(0)	950	3.8	HLR
4	ICT makes library information dissemination easier, faster, cheaper and more effective	230(920)	20(60)	0(0)	0(0)	980	3.9	HLR
5	It assists to provide high quality of services and increases the range of services	220(880)	30(90)	0(0)	0(0)	970	3.9	HLR
6	Computerization saves space and reduces paper work	230(920)	20(60)	0(0)	0(0)	980	3.9	HLR
7	It saves the time, space, energy and resources	240(960)	10(30)	0(0)	0(0)	990	4.0	HLR
8	Speed of work increases	230(920)	20(60)	0(0)	0(0)	980	3.9	HLR
	Grand mean						**3.9**	**HLR**

Researcher's Field Survey 2019

The grand mean on Table 1 showed 3.9, representing high level of roles. This means that Technology-Driven Information plays high level of roles in Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria.

Table 2: Computed (r) Between the Roles of Technology-Driven and Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria

	Variable	N	X	Df	Alpha level	r-cal.	r-crit.	Remark Decision
1	The Roles of Technology-Driven	250	3.9					
				248	0.05	1.821	0.113	**Significant Rejected**
2	Information Creation, Access, Storage and Dissemination in Academic Libraries	250	3.9					

Field survey, (2019)

The result on table 2 revealed that the (r) calculated value is greater than r-critical value. Since the r-calculated value of 1.821 is greater than the r-critical value of 0.113, therefore, the null hypothesis which stated there is no significant relationship between the roles of technology-driven information and information creation, access, storage and dissemination in academic libraries in Nigeria is rejected. This means that there is significant relationship between

the roles of technology-driven Information and information creation, access, storage and dissemination in academic libraries in Nigeria.

5. DISCUSSION OF THE FINDINGS

From the analysis of research question 1, respondents agreed that Technology-Driven Information plays high level of roles in Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria. The opinions of the respondents are in agreement with the view of Eghworo, Ogo, Paul and Ayomanor (2015); Omosor (2014) who saw ICT products and services as beneficial to the libraries and patrons as they provide efficient and accurate services. It saves time, space, energy and resources. It helps for controlling the tremendous escalation of information. It assists to provide high quality of services and increases the range of services. It has invented resource sharing by operation and coordination. ICT makes library work easier, faster, cheaper and more effective. It also helps to manage information overload as information retrieval is made easier in computerized systems. Remote access is enabled through networked systems. Computerization saves space and reduces paper work. It also makes work easier and more accuracy in work is achieved.

6. CONCLUSION

Based on the findings of this study, it is concluded that Technology-Driven Information plays high level of roles in Information Creation, Access, Storage and Dissemination in Academic Libraries in Nigeria, and that there is significant relationship between the roles of technology-driven information and information creation, access, storage and dissemination in academic libraries in Nigeria.

7. RECOMMENDATIONS

The following recommendations are hereby proffered
   a) There is the need for recruitment and retention of technical support staff in academic libraries. The availability of technical staff helps to maximize systems accessibility and efficiency.
   b) Provision of relevant equipment for library and information service delivery. Inadequate workstation and printers to meet patron needs causes discontentment for the users, thereby creating tension for librarians. Academic libraries must take practical measures to constantly provide and upgrade equipment and software.
   c) Provision of funds on a regular basis. The mandatory 10% of the budgetary allocation of the University set aside for the University Library should be so disbursed and monitored for judicious utilization. If this is realized, the Library Management should make automation top on its priority list, pursued conscientiously to a logical and beneficial end.
   d) There should be provision for alternative power supply by having a dedicated generating plant for the library use to offset the adverse effects of constant power outage that has come to stay in Nigeria. This is especially important because of the total dependence of the IT use on electric power supply.
   e) Staff and students also need to be trained and retrained on how to use these facilities towards achieving academic excellence. This may be through continuous orientation and the inclusion of such courses like: Use of computer for Information retrieval, Use of Internet/World Wide Web and IT applications.

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