

**DIGITAL TECHNOLOGY SKILLS NEEDED BY GRADUATE LIBRARIANS FOR  
EMPLOYMENT AND EMPLOYABILITY CAPABILITIES IN NIGERIA**

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**Abstract**

The paper examined digital technology skills needed by graduate librarians for employment and employability capabilities in Nigeria. The paper is a reflective piece examining the skills needed by graduate librarians for employment and employability with the use of digital technology and digital media to shape for effective information service delivery. The paper argued that skills in digital technology services such as computer, Internet, electronic resources, mobile technology, cloud computing, social media and web content management have brought easy access that connects cyber, virtual and physical space in advancing information service delivery in libraries. However, literature shows disparities as many Library and Information Science Professionals in developing countries are still lagging behind to demonstrate skills in computer operation, search engine strategies, interacting and marketing library services with the use of social media and download relevant electronic resources. The paper maintained that in spite of these gaps in acquiring skills among library and information science professionals, empirical studies have indicated that skills in cloud computing, big data, social media, smart phones, digital cameras, sensors and Internet of Things are contributing significantly in assisting library and information science professional in the provision and dissemination of information. The paper concluded that digital technologies in the 21st century are meant to bridge the prevailing information provision gaps in the delivery of information by library and information science professionals.

**Keywords:** *Skills, digital technology, Electronic Resources, Internet, Cloud Library*

**Introduction**

Digital technology has influenced contemporary societies in all sectors of life; such as social, political, economic, personal and professional spheres. Today, Digital technologies such as robotic technology, artificial intelligence, cloud computing, big data, social media, smart phones, digital cameras, sensors and Internet of Things (IoT) are contributing significantly in the teaching and learning process (Singh, 2019). The emergence of digital technology has improved

the quality research, learning and community service/. In order word, the performance and effectiveness of teaching and learning process is fundamental in today's world of digital technology.

Globally, the advent of ICTs and the evolution of World Wide Web (WWW), smartphones, tablets, robots, e-books and game machines have enabled librarians to develop quality digital technology in order to improve communication, collaboration, education, research and learning (Howe, 2016). Many academic libraries in the United States of America, the United Kingdom, Canada and France have increased their level of performance and quality of research to ensure efficient and effective information resources provision in the technology driven environment library (Raju, 2014; IFLA, 2017 and Coldwell-Neilson, 2017). Digital technology has assisted academic librarians in assuming a thinking and innovation towards timeliness in research as well as increase discovery and creation of new fields of inquiry (Hussaini, 2019).

Despite these positive trends, recent research conducted indicates that skills in quality of information service delivery in academic libraries from developed countries was high as compared to the counterpart from developing countries which are still battling with low skills required for interacting with digital technology to accomplish library tasks as well as enhance access to quick information for research activities (Hussain 2019; Singh, 2019). Bernard, (2017) also stresses that academic librarian's performance was not up to expectation because of inability to use digital technology and inadequate computerization experience. Similarly, Yacob in Obidike and Mole (2015) revealed that inadequate computerisation, insufficient infrastructure, and scarce human capacity were some of the major challenges towards the use of ICT and other digital technologies among librarians in an educational institution in South East Nigeria. In spite

the challenged, the intervention of digital technology has given rise to new modes of organizing, processing and accessing information resources in the academic libraries.

The 21<sup>st</sup> century libraries are characterized by digital and virtual environments where wireless and digital technology have grown rapidly in the past decade and users search for information via digital devices to retrieve information from across the world (Davies, 2016; Howe, 2016; International Telecommunication Union, 2017). Digital technologies are those information resources that can only be accessed by the use of computers and other ICT devices. These materials may require the use of a peripheral device directly connected to a computer or computer network (Hallam, 2016). There are different types of digital resources such as, Digital video Disc (DVD), the Internet, Online Public Access Catalogues (OPAC), electronic books, electronic journals and electronic index (Hallam, 2016). Digital resources are materials that can be conceived and created digitally or by converting analogue materials to a digital format (State Library of Victoria, 2018).

Despite the importance of digital technology to foster access to networked information resources such as bibliographic databases, remote library catalogues, bulletin boards, discussion groups, downloading remote files, acquiring software, ordering and subscription of online information materials and communication with other libraries (Ayoku and Okafor, 2015). Study conducted by Anunobi and Emezie (2016) indicate that the influence of digital technology skills on graduate librarians to enhances quality access to digital collection of information resources is still a challenge in Nigeria. This problem according to Odu and Omosigho (2016) is due to poor penetration of digital technology in Nigeria. Echezona, Ibegbulem and Nwegbu (2015) observed that lack of steady growth of online access to information to transform the whole concept of

libraries into a global-information-connected community is still a serious concern in Nigeria. Therefore, the provision of cutting edge digital technology in library services facilitates research output among library users and access to information resources in academic libraries in Nigeria.

### **Digital Technology Skills Needed by Graduate Librarians for Employment**

Literature review identifies major Skills for graduate librarians for employment as follows:

**Skills in Cloud Computing:** Cloud computing is an Internet-based computing where different services such as servers, storage and application are delivered to an organization's computers and devices through the Internet. Cloud computing are a form of information technology with massive embodiment of infrastructural packages by cloud providers and a wealth of information provided to an organization based on demand via networks and web facilities (Ibrahim, 2015). Skills in cloud computing offers graduate librarians the opportunity to drive technologies towards virtual and network environment. However, gaps still exists as some graduate librarians lack skills to provide library services with the knowledge of cloud computing to meet the ever changing information demands.

**Skills in Web 2.0 and 3.0 Technologies:** A digital technology skill in 2.0 and 3.0 technologies requires LIS professionals to share information, communication, collaboration, interaction and feedback mechanism. Ohaji (2010) and Ezeani and Eke (2011) state that skills in Web 2.0 and 3.0 technologies in reading blogs, group postings, and message boards helps LIS professionals to keep abreast library services within the consciousness of users as well as potentially increasing interaction. Jain and Jorosi (2015) maintain that the dynamic nature of Web 2.0 and 3.0 technologies enables users to have an open access to knowledge and contribute local content on

the social network space. Graduate librarians require skills in digital technology to assist in communication, interaction and sharing information on library services and operations. Research has shown that web 2.0 and 3.0 technologies have brought unprecedented technological advancement which assists LIS professionals to advance the frontier of information service delivery in the library (Onuoha, 2013). Even though, gaps still exist as some graduate librarians still found it difficult to demonstrate skills with the use of web 2.0 and 3.0 technologies to create a mechanism for communication and marketing of library services to the general public.

**Skills in Mobile Technologies:** Mobile technology is a cellular telephone with an integrated computer and other features such as Internet access, web browsing, software application, and operating system capable of downloading applications. Skills in mobile technology is required by LIS professionals in operating mobile devices like cell phones to communicate, create, access and share information with the general public on the activities of the library. Skills in mobile devices also help graduate librarians to improved communication and enhanced effective information creation, delivery and accessibility. The 21st century LIS professionals provide effective library services through mobile telephones like the GSM (Global Systems for Mobile Communication) to support of teaching and research, the use of SMS (Short Message Services) which can be employed to answer reference queries, and alert users on new arrivals and upcoming events in the library such as information on new arrivals of information materials in the library.

**Skills in Social Media:** Social media platforms in libraries have become an indispensable phenomenon in global information provision and dissemination. This is because in a world driven by technological advancement, there is need for graduate librarians to equip themselves

with the skills needed to meet the information needs of 21<sup>st</sup> century library users especially in the area of marketing and promotion of information products and services (Onuoha, 2013). Social Media has become a platform that everybody, organizations and institutions cannot do without (Harvard Business Review Analytics Services, 2017). Before the advent of social media platforms, library holdings were predominantly in print, but, the evolution in ICTs, digital technologies, digital resources in electronic formats where library collections has changed from local contents to global networks (Davies, 2016). Bullas (2017) clarifies that the emergence of social media platforms has affected virtually every sphere of human endeavor as it revolutionized information communication.

Skills in social media have become an increasing familiar tools employed by graduate librarians in sharing information and marketing services and resources to current and prospective patrons. Social media applications offer boundless opportunities for graduate librarians to learn while also contributing to the knowledge of others. Skills in social media are an evolutionary development of online participation where people of common interest communicate, share and contribute content on the social cyberspace. It is a viable tool for cooperation and sharing of knowledge in an open access platform. In the Social Network, people with common interests are able to share information with each other via a huge variety of social network sites (sites created specifically to make sharing, communicating, and creating information as simple and efficient as possible). However, studies have indicated that many graduate librarians are finding it difficult to use skills in social media platforms for collaboration and sharing of ideas which are becoming an integral part of library services.

**The Internet Skills:** The Internet is the high –speed fiber-optic network of networks that use TCP/TP protocols to interconnect computer networks around the world. The Internet according to Howe (2016) enables users to communicate via e-mail, transfer data and programme file via file transfer protocol (FTP), find information on the world wide web, and access remote computer system such as online catalogue and electronic databases easily. Over the last decade, a significant transformation has been noticed in the libraries and the roles of librarians have changed as well. Skills in Internet services in libraries are meant to assist graduate librarians in bridging the prevailing information provision gaps in the teaching, learning and research needs of the users (Elizabeth & Ronke, 2015). The emergence of the Internet has opened opportunities for LIS professionals to quickly reaching out to many users at the same time (Adeyinka, Akanbi-Ademolake & Olufemi, 2017). Graduate librarians from developed countries have acquired skills of the Internet to facilitate teaching, learning and research which are the core mandate of academic institutions. Similarly, graduate librarians from developing countries have also joined their counterparts from the developed countries to acquire skills in Internet to provide effective library services with the view to remain relevant in the digital era (Rose, Eldridge & Chapin, 2015). However, despite the growth of Internet which is currently transforming library services from building, size and physical collections to digital and networked services, gaps still exist as some LIS professionals lack the skills to use the Internet to provide effective library services (Echezona and Chigbu 2015)

**Skills in Computer Application:** A computer is an electronic and magnetic device that is capable of accepting and receiving data in a particular form and performing tasks in a logical manner. Skills in computer application according to ITU (2015) assist graduate librarians to accept data in form of coded electronic signal, storing the data and applying prescribed processes

to the data on the basis of predetermined instruction called program. Annunobi and Emezie (2016) describe skills in computer application as ICT components in the library profession which assist graduate librarians to process information related activities. Computer has high storage capacity; large volume of data can be stored and retrieved when the need arises. These features put together makes computer an indispensable tool for increase productivity and effective decision making process.

### **Challenges of Skills Needed by Graduate Librarians for Employment and Employability**

Literature review reveals numerous challenges of digital transformation and innovations in academic libraries which have led to a wide gap in the way information is delivered with digital technologies (Odu and Omosigho, 2017). However, in the context of this study, the major challenges identified are as follows:

**Poor Digital Technology Competence:** Digital technology competence enables graduate librarians to make use of digital resources to participate in new social and intellectual order (E-safety Support, 2013). Poor digital technology to access computers and databases led to serious resentment of academic libraries in the delivery of information services. Digital transformation and innovations has become a requirement for deriving maximum benefit from digital technology development without which academic libraries would be confronted with a wide gap in meeting with the changes of modern society in information delivery (Shopova, 2014). The benefit of digital transformation and innovations to enable academic libraries to demonstrate ability to evaluate and use information critically from relevant and authoritative sources online (Coldwell-Nelson, 2013). However, failure of some academic libraries to develop digital



technology competence poses a big challenge in achieving the goals of digital transformation and innovations.

**Inadequate Digital Literacy Training:** Inadequate digital training and re-training have become a huge problem affecting academic libraries in developing countries to carryout library functions in a digital environment (Echezona, 2015; IFLA, 2017). According to Uwaifo and Azonobi (2014), poor digital transformation and innovations of academic libraries as a result of inadequate training has hindered the effective use of digital technology in academic libraries. Many academic libraries in developing countries still find it difficult to integrate digital technology to transform skills with the traditional method of information service delivery due to poor training (Rose, Eldridge and Chapin, 2015).

**Lack of Digital Technology Awareness:** Lack of awareness and understanding of new digital technologies such as mobile Internet access, cloud-based computing, the ‘Internet of Things’, digital data, artificial intelligence and an increase in computer-driven decision-making and other forms of automation have become a big challenge for librarians in recent times (IFLA, 2017; UNESCO, 2017).

Digital transformation and innovations evolved as a result of change that has continually taken place in a technology-driven environment. Librarians require awareness and understanding of digital technologies as well as interaction with these technologies for decision-making (Baharuddin, Izhar, Mohamad and Hasnol, 2016). Amid these changes in digital technology, academic libraries are expected to continuously upgrade digital technologies to serve twenty-first century library users. According to Ochezona (2015), lack of digital technology awareness is

still observable among librarians in developing countries including Nigeria in transforming digital content and technology for proper use.

### **Conclusions**

Skills requirement for digital technologies have continued to assist librarians to develop and refresh new thinking in order to keep abreast with the constant innovations and new developments in the digital world. The exploration in digital technologies require skills of graduate librarians in Internet, computer, mobile technology, electronic resources, cloud computing and computer application to deliver quality library services in an environment that is constantly changing with technology. These issues must be examined because evidence suggests that many graduate librarians are still lagging behind with regard to provide digital technology services in a competitive world. Literature review also indicated that gaps still exist as not all library and professionals are equipped with the right skills to deliver quality information services with the digital technologies. Therefore, graduate librarians has a greater role to play in bridging the prevailing information gaps through virtual/digital technology services, Internet, social media services and digital references services as a strategies to widen their skills in new normal.

### **Way Forward**

- \* there is the need for graduate librarians to demonstrate skills with the use of digital technology to improve information service provision
- \* There is a need for graduate librarians to be proactive in developing new skills that would improve library services with the digital technology services

- \* There is the need for graduate librarians to close the gaps identify in the literature through acquisition of new skills and knowledge to handle the ever-changing digital technology
- \* There is need for constant training on digital technology to enable librarians to be more relevant in the digital era

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