STUDY OF LIBRARY STAFF ICT SKILLS POSSESSEDFOR IMPLEMENTATION OF DIGITIZATION OF INFORMATION RESOURCES IN FEDERAL UNIVERSITY LIBRARIES IN NIGERIA

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Abstract

Purpose: The study surveyed library staff ICT skills possessed for implementation of digitization of information resources in federal university libraries in Nigeria.

Design/Method and Approach: In order to carry out this research three research questions and two hypotheses were formulated to guide the study. The population for the study was 250 library staff of Federal University Libraries in Northern and southern Nigeria that have involved in digitization of library materials in their university libraries. The census (purposive) sampling technique was employed hence the entire population was used for the study. Frequency counts, percentages and mean scores were used to analyze data for the research questions. In order to determine the hypotheses, compare mean using independent sample t-test was used to analyse the data and t-test was used to compute the repossess of the staff gender to determine if the is significant difference in their mean score at 0.05 level of significance.

Findings: The study revealed that five Federal University in Nigeria are involved in digitization of information materials in their libraries. These include Ahmadu Bello University library, Zaria; University of Jos library, Plateau state; University of Nigeria, Nsukka library, Enugu state; Obafemi Awolowo University library, Ile-Ife, Osun state and Federal University of Technology library, Owerri. The study revealed that 203 library staff who answered the questionnaire administered was involved in the exercise of digitization of information resources in their libraries. The five federal university library staff used has the ICT skills possessed for the implementation of digitization. Such ICT skills include Internet surfing, scanning; cataloguing of digital resources; signing of digital signature; content conversion; downloading technique; digital preservation and storage skill; interpersonal teamwork; and critical thinking skill. There is significant different in the mean score of the responses of the male and female library staff.

Implications: The study established that there is significant difference in the responses of male and female library staff on ICT skills for digitization of information resources across the five federal university libraries involved in digitization in Nigeria. The study also established that there is significant difference on the responses of age ranges of the staff ICT skills for digitization of information resources in federal university libraries involved in digitization in Nigeria. The study therefore recommended that materials that are useful at the present and the future should be digitized. Also, library staff should be involved in practical training and retraining on the ICT skills require for digitization as indicated in the study. It also recommends that Tertiary Education Fund (TetFund) should continue to support the tertiary institutions through its yearly and regular intervention, which has made things easy in universities in Nigeria.

Originality/value: This study is virtually a new empirical research that addresses comparative study of library staff ICT skills possessed for implementation of digitization of information resources in federal university libraries in Nigeria.

Keywords: Comparative study of library staff ICT skills, digitization, training, university, federal, Nigeria.

Introduction

It is nice to know that in recent times especially in this dispensation of information age, universities in Africa have started embarking on integration of technology into their operations. This integration enables them to provide digital materials to the users. Be it as it were, university libraries are also involving in this development as they are the organs of the university, which house the intellectual contents of the institutions. Information resources are information bearing materials that can be made available to users of libraries. The resources can be in print or digital formats. Information materials that are in analogue (paper) form can be digitized for such resources to be uploaded into the computer hard disk and

share to make such materials accessible through the Internet. Thus sharing of information resources such that information seekers can have access to remote areas has brought a remarkable increase in searching and requesting for information (Ngulube, 2004). This development is reliant on information and communication technology (ICTs) for preservation and accessibility. The libraries try to convert the printed information resources of the institution to digital format. According to Eke (2011) the process of capturing and converting analogue (print) format to digital format is known as digitization. Digitization refers to all the steps involved in the process of making collection of materials available online. It is the process of converting analogue (print) materials into computer compatible formats. It is the process by which physical or manual records such as texts, videos, and images are converted into digital format which are accessible and shareable.

Digitization refers to all the steps involved in the process of making collection of materials that are in analogue format to be in digital format accessible online. It is the process of converting analogue (paper) materials into computer compatible formats. It can also be defined as a process in which materials are converted from the hard copies to electronic or soft copies. Witten and David (2003) defines digitization as the process of taking traditional library materials that are in book form and papers and converting them to the electronic format where they can be stored and manipulated by a computer.

Similarly, Jagboro, Omotayo and Aboyade (2012) define digitization as all the steps involved in the process of making collections of historical and other materials available online. Pandey and Misra (2014) describe digitization as the course of converting analogue information to a digital format. While Fabunmi, Paris, and Fabunmi (2014) asserted that the major purposes of digitalization are: to enhance access and improve preservation of library materials. To do this the librarians need certain skills. In this digital era the librarians need skills in conversion of the analogue materials, processing the materials, preserving of the materials and its accessibility in order to make them online so that they can meet their work as time become important.

To commence digitization of information resources in university libraries, there is need for library staff to acquire certain skills. Skill is the ability to do something efficiently. Therefore to carry out the role of digitization of materials, library staff need these skills as identified by (Ezeani and Ezema (2009); UsmanandIyun (2009); Amaoge (2015) These includes surfing skill, scanning, book marking, cataloguing of digital resources, signing of digital signature, web linking, database management skills, library site web creation, web publishing, troubleshooting, metadata creation of library resources, checking and verifying digitized resources, content conversion, checking among others.

Research Questions

The researchers therefore employed the following three research questions and two hypotheses to guide the study.

i. What are the types of materials digitized in the university libraries?

ii. What are the facilities used for digitization in the library?

iii. What are the ICT skills library staff possess for digitization of information resources in university libraries?

Hypotheses

i. There is no significance difference between the responses of male and female library staff on ICTskills possessed for digitization of information resources in university libraries in Nigeria.

ii. There is no significance difference the responses of the age range of the library staff, and the ICT skills possessed for digitization of information resources in university library in Nigeria.

Population of the Study

The population of this study consists of 250 library staff (librarians, library officers and library ICT staff) involved in digitization of information resources in their university library.

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This consists of the five federal university libraries in Northern and Southern Nigeria that involved in digitization.

Review of Related Literature

Theoretical Framework

This study is anchored on the Theory of Diffusion of Innovation (DOI) developed by Rogers in 1962. The theory seeks to explain how innovations are taken up and accepted among group of people. Rogers (2003) defines diffusion as the process in which an innovation is communicated through certain channels over time among the members of the society.

Everett Rogers, a professor of communication studies, popularized the theory in his book Diffusion of Innovations; the book was first published in 1962, and is now in its fifth edition (2003). Using his synthesis, Rogers produced a theory of the adoption of innovations. Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. Rogers proposed four main elements that can influence the spread of new idea: the innovation itself (the technology), communication channels (means of accessibility), time (speed of access), and a social system (which is the sharing process). This digitization process relies heavily on ICT and human capital to be able to digitize, preserve and make them available for usage through good means of accessibility which make it relevant model for this study.

Rogers (2003) stated that, peoples' attitude towards a new technology is a key element in its diffusion. This implies that attitude can only be positive when the people have the skills for the new technology and when the resources are preserved digitally, made available and accessible online for easy sharing. Rogers (2003) further stressed that individual characteristics like awareness, attitude towards change will affect either positively or negatively the adoption of new technology. Rogers (1995) developed five variables which affect the adoption rate of any particular innovation. These include: perceived attributes of innovation, types of innovations – decision, communication channels and nature of social system (which is the good means of accessibility

and digital preservation). Since these variables are elastic according to Cauros (2003), and Rogers (2003), the present study, therefore adopts the Diffusion of Innovation Theory in the study of accessibility and digital preservation as influencing factors in the digitization of information resources in university libraries in Nigeria. The study view digitization in libraries as an example of innovation adoption which reflects a shift from the traditional system of manual to modern library system that need the use of ICT hardware and software in rendering resources and services globally through modern system of using Internet which require ICT skills, accessibility and digital preservation among others as influencing factors. This therefore is compelling the university libraries technologically into digitization and online offering of recourses and services to enable remote access of the digitized materials and databases that are either in Internet, or the local server or the library software. Consequently, Cauros (2003) affirmed that the variables of the Rogers' Diffusion of Innovation Theory are very elastic (flexible) and this factor makes it very easy for other researchers to either adopt or adapt it for their studies such that staff can be trained and retrain for the new technology to diffuse and made easy for users. On this bases are ICT skills of library staff possess for digitization has to be addressed too. The efforts to search information in traditional ways are reduced automatically with the use of new technology where digitized information resources are preserved digitally and made available in public domain and accessible online, provided the library staff have possessed the skills for its digital preservation and accessibility, and the users also have the skills for accessing the digitized resources remotely. The researcher adopted this theory because of its relationship to the problem under investigation where ICT skills of library staff (librarians, library officers and library ICT staff) towards digitization, accessibility and digital preservation of library resources are being examined. The following conceptual model therefore, relates accessibility, digital preservation, ICT skills and other expedient influencing factors as a component that can help in influencing digitizing materials which would also help in

preserving them digitally and making them accessible online.

In the final analysis, this study dwells on accessibility and digital preservation as influencing factors in the digitization of information resources in university libraries in Nigeria which helps to promote digitized resources online. The five elements of Rogers as regard the new technology address relative benefit of digitization, which helps to influence the attitude of library staff to either accept or reject the innovation in their university libraries because if digitization is not beneficial to libraries they would not involve in it. Similarly, compatibility of the hardware and the software with the new technology of offering and sharing information resources online becomes prominent when digitized but when the hardware and software becomes obsolete, then it cannot be compatible with new innovation in technology as regard digitization. Complexity has correlation with library staff ICT skills, digital preservation and accessibility of resources because if the means of accessing the materials and preserving them digitally are complex, the libraries may not want to digitize the resources and if the staff do not possess the ICT skills they would not be able to digitize, preserve them digitally and make them accessible online. In the

same vein, trialability and observability have influence on the ICT skills of library staff because if the technology is tried and observed but meet the need of the library in terms of the hardware and software then it is accepted and if it could not meet the needs then it would be rejected. Therefore, the use of digitization for library professional needs is a new innovation in technology of offering library materials online which is now pushing the libraries to make information resources available and accessible online, this therefore requires digitization as a new trend in technology of diffusion of innovation in the library system and the society. This therefore requires ICT skills, accessibility and digital preservation in order for this new technology of digitization to diffuse into the library operations and the general society that is currently demanding the library globally for online operations in rendering resources and services.

Conceptual Model of digitization of information resources in libraries

Accessibility and digital preservation as influencing factors in the digitization of Information Resources in University Libraries in Nigeria (ALISDIRQ)
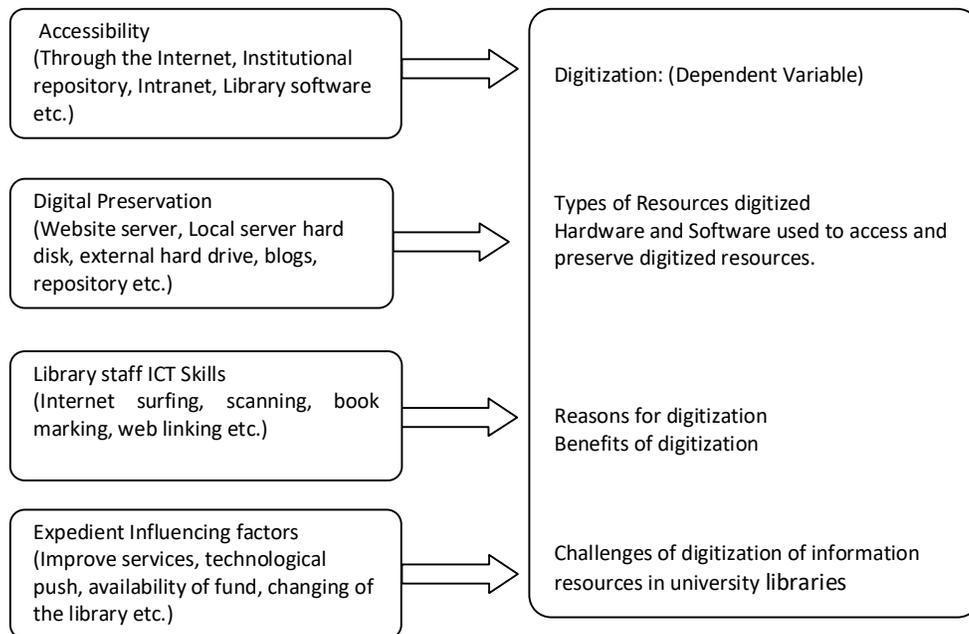
Influencing factors: (Independent Variable

Figure 1. Conceptual workable Model for this Study

The Figure 1 provides the research model. The objectives are to examine key factors that influence digitization. Therefore, the factors theorized as having influence in digitization were then associated to actual good means of accessibility, good means of digital preservation, library staff ICT skills and other expedient factors such as technology push such as desire to improve services and to offer resources and services online in order to enable easy access to resources in teaching and research. It is a model relating accessibility, digital preservation, library staff ICT skills, and other expedient influencing factors of digitization such as technological push, availability of fund, changing nature of the library among others. The study will also consider the types of materials digitized, the reasons for digitization, the hardware and software used for the exercise. It projects the notion that influencing factors have a relationship with digitization in university libraries in Nigeria as this study intends to verify. The influencing factors include accessibility, digital preservation, library staff ICT skills, other influencing items, are the independent variables while digitization is the dependent variable.

Dependent Variables: The dependent variable which is digitization is the variable that is being measured in the experiment. It is the variable that is being tested in this research. The dependent variable depends on the independent variables.

Independent Variables: The independent variable is the variable that is changed in an experiment. Changes in the independent variables cause changes in the dependent variable. Accessibility, digital preservation, ICT skills and other expedient influencing factors such as improve services, technological push, availability of fund, changing of the library can change while digitization (conversion) remains the same.

Library staff ICT Skills possessed for digitization of information resources, in university libraries

In the process of implementing digitization, there is need for the librarians and the library staff to acquire certain skills. Usman andIyun (2007) highlighted some skills ICT which include

surfing skills, scanning, book marking, cataloguing of digital signature, web linking, database management, library site creation, web publishing, troubleshooting, metadata creation management, metadata creation of library resources, content conversion among others. The competency of digital librarian is represented by different set of librarians' skills, which will enable him or her to work as digital information professional or digital knowledge worker and communicator. Sreenivasulus (2000) is of the opinion that librarians are expected to develop the ability to manage knowledge and digital library. He went further to provide the following as the skills and competencies required for digital librarian:

Internet:

The ability to navigate browsers, filter, retrieve and access digital documents. The skill to provide digital reference, search network databases in number of digital sources and website. The competency to create home pages, content conversion, downloading techniques, web publishing, archiving, electronic messaging, web authoring, preservation and storage among others. In the same manner Ezeani and Ezema (2009) advocated for training of Librarians in the technical knowhow of the digitization process to acquire the required competencies such as technical skills in metadata, checking and verifying of digitized resources for quality control and selection of hard and software. Usman and Iyun (2009) and (Amaoge, 2015); posit further that the digital librarians are required to acquire skills and sophisticated competencies to: Manage the digital libraries; organize digital knowledge and information; disseminate digital information from the computer – held digital information; provide digital reference serviced and electronic information services; providing knowledge mining from the emerging knowledge warehouses; handle the tasks of massive digitization, digital storage process and digital preservation; and provide universal access and retrieval of digital knowledge.

In the same development a study carried out by Uzoamaka (2010) shows that librarians have not yet acquired all the skills

needed for digitization especially skills on creation and management of library website, database management skill, troubleshooting, metadata creation of library resources, and web publishing. In the same vein, scholars are of the view that skilled personnel are a major requirement for digitization projects Masakazi (2009) and Shibanda (2001) noted that lack of skilled manpower is a major challenge militating against digitization projects in Africa. In line with this observation, Jagboro, Omotayo and Aboyade (2012) pointed that many librarians lack the basic computer training, not to mention specialized training required for digitization. Therefore, there is need for continuous training to build library staff capacity in equipment maintenance and software management. Chukwu, Emezie, Emerole and Nwakuo (2018) observed that digitization is a complex process which requires specialized skills. However, a good number of staff involved in the digitization process in the Federal University of Technology library Owerriare not adequately skilled as they do not possess adequate knowledge or competence in the handling of digitization equipment. This is one of the reasons the researcher wishes to examine digitization in line with skills needed so that proper training can be organized for the staff that are involved in digitization.

Kyrian and Kyrian (2018) carried out a study on digitization of academic library resources at the University of Port Harcourt Library (Donald E. U. Ekong Library). This study investigated the digitization of library resources. The total population for this study was thirteen (13) library staff involved in digital library practices. The study revealed that the needs for digitization of library resources are majorly to preserving endangered collections, increasing the visibility of institutional outputs, enhance timeless. The skill to provide digital reference, search network databases in number of digital sources and website. The competency to create home pages, content conversion, downloading techniques, web publishing, archiving, electronic messaging, web authoring, preservation and storage. These skills are actually needed in making materials available online.

Adeleke (2016) studied digitization: an examination of the capacity and skills of academic librarians in Nigeria. The result of the study showed that Librarians possessed limited skills to implement digitization projects as well as Librarians were weak in technical and metadata skills. However, Fabunmi, Paris and Fabunmi (2014) studied digitization of library resources: challenges and implication for policy and planning. The researchers discovered that the task of carrying along all the staff and guiding library users can be challenging. Some of the staff resisted change, particularly those that are not skilled in the use of information communication technology. From the users' point of view, some users find it difficult to search for information in the digital terrain. This is why skills acquisition is necessary for digitization.

The study of Ezeani and Ezema (2011) on digitizing institutional research output of University of Nigeria, Nsukka. The findings of the study revealed that the librarians' computer literacy skill is very high at 95%, however, the computer literacy skills of the technical assistants is higher. In fact, the entire technical assistants have very high level of computer literacy skill. The study also shows that the librarians have low rasterization and book-marking skills at 45% and 50% respectively while these skills are high among the technical assistants at 95% each. Similarly, signing of digital signature, web linking and internet surfing skills are high among librarians (90%, 70% and 75% respectively) but low among technical assistants (55%, 35% and 35% respectively).

Igwesi (2010) studied status of digitization of Federal University Libraries in South-Eastern Zone of Nigeria. The result shows that the skills possessed include internet surfing skill, scanning skills, book-marking skills, cataloguing of digital resources, signing of digital signature, and web-linking. The result also shows that the library staff lack skills on database management (2.39), creation and management of library website (2.31 web publishing (2.20).), trouble-shooting (2.20), and metadata creation of library resources (2.06). Mohammed (2013) did an Overview of Digitization Project in University Libraries in Nigeria: A Perspective from the

Literature. The study revealed that technical know-how was a major challenge as majority of staff in Nigerian university libraries are poorly trained in technology based services handling, majority of them are not computer literate not to talk of mounting computer based services. It can therefore be asserted that there is digitization skills among the library staff as depicted above.

Kavishe and Dulle (2016) carried out a study on Preservation Skills and Strategies of Electronic Information Resources in Digital Era: Case of University of Kwazulu-Natal Libraries in South Africa. He discovered that when respondents were asked whether they considered themselves as being adequately skilled in the preservation of Electronic Information Resources only 16 (57.1%) respondents indicated that they do see themselves adequately skilled in doing so. Accordingly, a significant 42.9% of respondents did not consider themselves adequately skilled. This finding contradict previous researchers study like that of Lefuma (2004) which argued that many information centres do not have competent and expert information professionals and that ICT training should be significant to local conditions and also be of high quality. This is because with insufficient ICT training, an Electronic Information Resources (EIRs) preservation programme is assured to fail. It is recognized in the literature that there is a need for librarians who are well trained in ICT and particularly in the EIRs preservation activities to be involve in digitization of library materials (Asongwa and Ezema, 2012).

Okongo (2014) studied access and utilization of digital information services in academic libraries: the case of University of Nairobi. The study sought to establish whether respondent had been trained on the use of digital information services in the library. The majority of the respondents (57.1%) agreed of being trained on the use of digital information services in the library, while 42.9% indicated of not being trained on how to use the electronic resources. The study displayed that the majority of the respondents had been trained on the use of digital information services in the library.

Chukwu, Emezie, Emerole and Nwakwuo (2018) studied digitization in a Nigerian university of technology: issues, challenges and way forward. The study revealed that many librarians lack the basic computer training, not to mention specialized training required for digitization (Jagboro, Omotayo and Aboyade, 2012). There is a need for continuous training to build library staff capacity in equipment maintenance and software management. Also, digitization is a complex process which requires specialized skills. However, a good number of staff involved in the digitization process are skilled but still need to possess adequate knowledge or competence in the handling of digitization equipment. It therefore calls for training of the staff in handling digitization equipment. This is the reason the hardware and the software utilized for digitization are examine.

Khan and Bhatti (2017) studied Digital competencies for developing and managing digital libraries: An investigation from University librarians in Pakistan. The results show that a majority of the respondents rated their overall level of digital competencies in using digital tools, software and various digital applications as intermediate (n=51) and beginner (n=47). This suggests that university librarians in Pakistan only possess a basic level of digital competencies in developing and managing digital libraries.

Okoye (2012) studied assessment of competencies of Library and Information Science Educators in Nigeria. The findings of the study revealed that the respondents lack skills in copyright and intellectual property law, evaluation of information communication tools' interfaces, virtual librarianship and digital technologies. Shidi and Nwachukwu (2015) studied Acquisition of Digital Library Skills by Library Staff in Benue State, Nigeria. Mean and charts were used for the analysis of data in answer to the research questions. It was found that, the staff acquired all the basic skills required to work in a digital library through self-efforts and sponsorship by the library.

Yeasmin (2014) studied Librarians' Attitude towards Library Digitization. The study revealed that 85.7% librarians is expert in library software packages. Almost 100% assistant

librarian is expert in operating system. 77.8% assistant librarian is expert in Microsoft Office, 71.4% librarian is expert in design and implementation on ICT.

Iqbal and Khan (2017) examined the ICT skills of university librarians in a developing country: a study from the University of the Punjab, Lahore, Pakistan. The study revealed that Librarians use different methodologies to acquire ICT skills. This was examined and found out that 42 (62.7%) respondents go for formal education/training' while acquiring ICT skills; followed by other methods such as getting help from colleagues and self-learning.

Pandey and Misra (2014) studied digitization of library materials in academic libraries: Issues countries, human resources with appropriate skills, competences and attitude are not readily available to initiate, implement and sustain digitization project, and most African states are still lagging behind in technological and telecommunications infrastructure. Choi and Rasmussen (2009), through content analysis of job advertisements in the United States of America (USA), found that key disciplinary knowledge required for the digitally oriented environment included understanding metadata, and knowledge and experience in digital content creation and management. Nonthacumjane (2011) found that Generic skills such as effective communication and interpersonal skills, critical thinking, problem solving and teamwork are required by information professionals in a digital library environment in both Norway and Thailand.

The first skill and competency that a digital librarian is expected to develop is the ability to manage the knowledge and digital library in terms of digital knowledge and digital library management, (Srennivasulus, 2010).Littman (2001) affirm that another skill needed by library staff in digitization include digital right management (DRM). This is defined as a collective name for technologies that prevent you from using a copyrighted digital work beyond the degree to which the copyright owner wishes to allow you to use it. The study of Usman and Lyun (2007) revealed that the competency of librarian is represented by different set of skills, attitudes and values that

will enable him or her to work as digital information professional or digital knowledge worker and communicator.

Yadav and Sawant (2017) studied Knowledge and Skills required by academic librarians in digital era. The findings of the study revealed that in order to play a useful role in supporting teaching, learning and research, librarians need to develop special knowledge and skills for information services in the digital era.

In the same vein Musa and Safiyanu (2015) studied Digital Preservation in Nigeria Universities Libraries: A Comparison between University of Nigeria Nsukka and Ahmadu Bello University Zaria. The result revealed that librarian's computer skill is 91% in UNN and 100% in ABU Zaria. In fact, the entire ABU Zaria librarians acquired computer literacy skill before digitization. The result also shows that ABU librarians acquired higher skills in signing of digital signature, book-marking, web linking and internet signing compared to UNN librarians.

Nnenna and Emenike (2015) studied Digitization of Library Resources in Academic Libraries: Challenges and Implication. The study revealed that due to inadequate skills on information technology many traditional librarians and activists are conservative and have phobia for computers because of generation gaps between the new and old professionals, computers are perceived as a threat to their status as experts.

Bhardwaj (2018) studied Digitizing the Modern Library and the Transition from Print to Electronic. The study revealed that change from print to digital environment have giving librarians the greater roles and responsibilities to teaching students and faculty information retrieval skills in the digital environment, responsible for research outcomesof their institutions and the community at large. To be relevant, librarians are required to acquire the necessary technology skills.

Adamou and Ntoka (2017) revealed that Librarians by having the appropriate knowledge and technology skills concerning the digital material can guide library users on how to use the information in the right way. Librarians can teach users on how to use the OPAC catalogue of the library, the e-journals, e-books and

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generally to direct them with the use of the digital material, to facilitate them with the searching, evaluation and retrieval of the electronic material even when they are at distance from their houses or from a cafeteria.

Chiware (2007) carried out a study on Training librarians for the digital age in African university libraries. The findings of the study revealed that one of the challenges facing digital library projects in Africa has been the readiness of the university libraries in terms of skills and knowledge to implement the digital and electronic library services. Similarly, Rosenberg (2006) notes that skills in e-resources management, e-services development, full text digitization and teaching skills are lacking in African university libraries. Jagboro, Omotayo and Aboyade (2012) studied Digitization of Library collection in Developing Countries: The Hezekiah Oluwasanmi Library Experience. The study revealed that a majority of the librarians lack the basic computer skills, not to mention specialized skilled required in the art of digitization. The study suggests that there is need for continuous training to build library staff capacity in equipment maintenance and Software management.

Digitization of information resources has become such a global issue that university libraries cannot avoid it. There are numerous influencing factors that compelled libraries to involve in the digitization activities, these includes the changing nature of the library, the standards wars, information retrieval and metadata, higher education needs, technology push to make information resources to be available in digital format etc (Yeates, 2002); (Koechler, 2004); (Byamugisha 2010), (Vrana, 2010). Others includes the availability of grant funding, addition of new staff with related skills in digitization, staff receiving training on digitization, decision to use digitization as a preservation option, availability of gift (donation) of monies, the need to improve access to library resources, support to research, support to distance learning, promoting the library and its collection (Mugridge, 2006). A study carried out by Mugrigbe (2006) revealed that the primary factors that influence the start of digitization activities in Malaysia was the availability of grant funding (39 responses or 59%), addition of new staff with related skills (50%). Others include Staff receiving training on digitization (44%), decision to use digitization as a preservation option (42%), and the availability of gift monies (29%). Mugridge stressed further that the situation in the United States is the same or similar factors could still influence digitization in Nigeria.

Digitization helps to ensure global access and utilization of information found within an organization. This equally allows libraries to create metadata to describe the digitized information materials, ease the uploading of the resources on the Internet and make the resources accessible globally through the world wide network. This study therefore wishes to address library staff ICT skills possess for digitization and how the ICT skills relate with gender and age range across the five university libraries in Nigeria. Here below is the outcome of this research.

Findings of the Research

Table 1: Distribution of the university library staff according to Gender (Male and Female)

S/N	Gender	Frequency	Percentage
1	Male	95	46.8%
2	Female	108	53.2%
	Total	203	100%

Table 2: Distribution of the library staff according to Age range

S/N	Age range	Frequency	Percentage
1	20 – 40 years	64	31.5%
2	Above 40 years	139	68.5%
	Total	203	100%

Table 1 above showed that out of the two hundred and three library staff involved in the study, the male were 95 (46.8%) and female were 108(53.2%).

Table 2 above showed that 64 (31.5%) of the library staff (librarians, library officers and library ICT staff) were of the age of 20-40 years were 64 (31.5%) and above 40 years were 139 (68.5%).

Table 3: Distribution of the library staff according to Awareness of Digitization of information resources

S/N	Awareness response	Frequency	Percentage
1	Aware	203	100%
2	Not Aware	0	0
	Total	203	100%

Table 4: Library staff ICT skills possess for Implementation of digitization of information resources in Nigerian university libraries

S/N	Library staff (Librarians & Library officers, library ICT staff) ICT skills possessed	N	$\bar{x}$	%	Remarks
1	Internet surfing	203	3.60	90	Very High extent
2	Scanning	203	3.60	90	Very High extent
3	Book marking	203	2.90	72.5	High extent
4	Cataloguing of digital resources	203	3.10	77.5	Very High extent
5	Signing of digital signature	193	2.70	67.5	High extent
6	Web linking	199	2.70	67.5	High extent
7	Web publishing	195	2.40	60	Low extent
8	Database management	201	2.80	70	High extent
9	Troubleshooting	199	2.80	70	High extent
10	Content conversion to digital	185	3.30	82.5	Very high extent
11	Navigation in the web accessing resources	179	3.50	87.5	Very high extent
12	Downloading Techniques	199	3.50	87.5	Very high extent
13	Preservation and storage skills	181	3.50	87.5	Very high extent
14	Ability to browse, filter, retrieve and access digital resources	195	3.60	90.5	Very high extent
15	Interpersonal skills and team work	191	3.40	85	Very high extent
16	Critical thinking skill	177	3.30	82.5	Very high extent
		133	3.16	79.25	

Table 3 above showed that all the 203 (100%) library staff were aware and involved indigitization of information materials in the university libraries studied.

In Table 4 above each of the items 1- 16 had a mean (ẋ) score above the criterion mean (ẋ) of 2.50 except web publishing that had 2.40 mean score. The mean (ẋ) scores had a range of 2.40 to 3.60. Also the range of percentage library staff ICT skills was from 60 to 90%. Both the high mean (ẋ) scores and the high percentage value for each item show that all the items 1- 16 were rated as ICT skills for implementation of digitization of information resources in university libraries in Nigeria. The study reveals the ICT skills possessed by library staff (librarians, library officers and library ICT staff) involved in digitization of information resources in university libraries. The research identified to high and a very high extent all theICT skills possess by library staff for implementation of digitization of information resources in libraries.

In the same vein Musa and Safiyanu (2015) studied Digital Preservation in Nigeria Universities Libraries: A Comparison between University of Nigeria Nsukka and Ahmadu Bello University Zaria. The result revealed that librarian's computer skill is 91% in UNN and 100% in ABU Zaria. The result also shows that ABU librarians acquired ICT skills in signing of digital signature, book-marking, web linking and internet signing as pointed by (Sreenivasulus, 2000; Usman and Iyun, 2009; and Amaoge, 2015). In the same manner (Ezeani and Ezema, 2009) advocated for training of Librarians in the technical knowhow of the digitization process to acquire the required competencies such as technical ICT skills in metadata, checking, verifying of digitized resources for quality control, selection of hardware/ software.

Table 5: Types of resources digitized in the university libraries in Nigeria

S/N	Types of resources digitize	Yes		No		Total	
		Freq.	%	Freq.	%	Freq.	%
1	Abstracts of staff publications	158	77.8	45	22.2	203	100
2	Postgraduate Theses and Dissertations	203	100	0.0	0.0	203	100
3	Newspaper	2	1	201	99	203	100
4	Senate reports / bulletins	32	15.7	171	84.3	203	100
5	Inaugural Lectures papers	75	36.9	128	63.1	203	100

The study showed that Postgraduate Dissertations and Theses (100%), and abstracts of staff publications (77.8%) are the major resources being digitized in the five university libraries. In this study, it reveals that Postgraduate Theses and Dissertations and abstracts of staff publications are the main resources being digitized in the university libraries sampled for the study. This is in line with (Jagboro, Omotayo and Aboyade, 2012) that materials of high demand by patrons especially when such materials are available in limited copies or are on restricted access, materials that are of local and unique needs, items that are of immediate and curricular importance and materials that are difficult to handle are being digitized. (Ogusola, 2004; Ezeani and Ezema, 2009; Ibinaye, 2012) study also support this finding that libraries embarking on digitization projects do so with selected materials such as abstracts of staff publications, dissertations, and theses as applicable to the University of Nigeria, such as UNN Nsukka, University of Jos; Obafemi Awolowo University, Ile-Ife, ABU Zaria.(Eke, 2011) identified some materials which include theses, dissertations, projects, inaugural lectures, university newspaper, lecturers' scholarly articles and publications, text books, term papers, past question papers, and other materials belonging to the university. Moreover, theses, and other pieces of history such as books, newspapers, postcards, journals (Liu 2004;Vrana, 2010).(Liu, 2004) posited that libraries digitized newspapers, maps, art, music, children's literature, historical records and images of international/cultural interests in the USA.

Table 6: Hardware Used for digitization of library information Resources in university library

S/N	Hardware used for digitization	Yes		No		Total	
		Freq.	%	Freq.	%	Freq.	%
1	Desktop computer	203	100	0.0	0.0	203	100
2	Laptop	176	86.6	27	13.3	203	100
3	Scanner	203	100	0.0	0.0	203	100
4	Book Scanner	186	91.6	17	8.3	203	100
5	Digital Camera	70	34.5	133	65.5	203	100
	Digital Phone or Digitizer	58	28.6	145	71.4	203	100
	Photo smart with three in one	84	41.4	119	58.4	203	100

Table 7: Software Used for Management of Digitized Resources in university libraries in Nigeria

S/N	Hardware used for digitization	Yes		No		Total	
		Freq.	%	Freq.	%	Freq.	%
1	Dspace	196	96.6	7	3.4	203	100
2	E-Print	17	8.4	186	91.6	203	100
3	Green Stone Library Software	0.0	0.0	0.0	0.0	0.0	0.0
4	Fedora	0.0	0.0	0.0	0.0	0.0	0.0
5	Endnote	20	9.9	183	90.1	203	100
6	KOHA	68	33.5	135	66.5	203	100
7	Enda Image	0.0	0.0	0.0	0.0	0.0	0.0
8	Photo essential software	0.0	0.0	0.0	0.0	0.0	0.0

In table 6 above the study identified that desktop computer (100%), scanner (100%) book scanner (91.6%), digital camera (34.5%) digital phone or digitizer (28.6%). The study identifies that desktop computer 100%, scanner 100%, book scanner, digital camera or digitizer are the

mostly require facilities for digitization of information resources. This is in support of (Jagboro, Omotayo and Aboyade, 2012) identified various hardware in digitization projects to encompass the use of certain equipment such as computer, scanners, and digital cameras.

In table 7 above the study reveals that Dspace and KOHA are the Software mainly use in the management of digitized library resources. These are Dspace (96.6%), Endnote (10%) and KOHA (33.5%).

Table 8a: Library staff ICT skills possess for digitization of information resources in university libraries in Nigeria

S/N	ICT Skills possessed for implementation of digitization:	Male			Female		
		Freq.	$\bar{x}$	Sd.	Freq.	$\bar{x}$	Sd.
1	Internet surfing	77	3.60	0.5	126	3.60	0.5
2	Scanning	77	3.50	0.5	126	3.60	0.5
3	Book marking	77	3.80	0.5	126	3.10	0.5
4	Cataloguing of digital resources	75	3.10	0.8	118	3.10	0.6
5	Signing of digital signature	75	3.10	0.8	118	2.40	0.6
6	Web linking	77	2.70	0.6	122	2.70	0.6
7	Web publishing	75	2.40	0.7	122	2.40	0.6
8	Database management	77	2.80	0.8	124	2.80	0.6
9	Troubleshooting	75	3.00	0.7	124	2.70	0.7
10	Content conversion from analogue to digital	67	3.40	0.6	118	3.30	0.6
11	Navigating in the web accessing resources	69	3.50	0.6	110	3.50	0.5
12	Downloading techniques	75	3.50	0.5	124	3.50	0.6
13	Preservation and storage skill	73	3.70	0.4	108	3.50	0.6
14	Ability to browse, filter, retrieve and access digital resources	73	3.70	0.4	108	3.50	0.6
15	Interpersonal and teamwork skill	75	3.60	0.6	120	3.50	0.6
16	Critical thinking skill	61	3.50	0.5	116	3.30	0.5
	Grand – Total :	**1178**	**52.9**	**9.5**	**1910**	**48.1**	**8.6**
	Average:	**74**	**3.30**	**0.59**	**120**	**3.00**	**0.54**

Benchmark or Criterion of mean (ẋ) 2.50

The study showed that there are so many skills require for the implementation of digitization of information resources in university libraries. From this understanding, the study is revealed that among such skills include the prominent one such as include Internet surfing skill; scanning skill; book marking; cataloguing of digital resources; signing of digital signature; web linking; web publishing; database management; downloading techniques skill among others. The research showed an average mean (ẋ) score of (3.30) and standard deviation of (0.59) for male and mean (ẋ) (3.00) and standard deviation of (0.54) for female as indicated in Table 9 above.

Table 8b: Hypothesis 1: There is no significant difference between the responses of male and female library staff on the ICT skills possess for digitization of information resources in university libraries in Nigeria at 0.05 level of significance

Groups (Gender)	N	df	Mean (ẋ)	Sd.	t-value (t- cal)	t-critical	Level of Sign	Remarks
Male	74	192	3.30	0.59			0.05	Significant
					30			
Female	120		3.00	0.54		1.96	0.05	Significant

Table 8bshowed the independent samples t-test analysis to examine the difference in ICT skills possessed by library staff in the implementation of digitization of information resources in university libraries in Nigeria. The study showed that the calculated t-value 30.00 is more than the critical value of 1.96. Therefore, the null hypothesis which states that there is no significant difference in the responses of the

library staff on the ICT skills possessed by library staff for the implementation of digitization of information resources in the university libraries in Nigeria is rejected. This showed that there is significant difference between the mean (x̄) responses of the male and the female library staff on the ICT skills possessed by the library staff for digitization of information resources in the university libraries in Southern and Northern Nigeria.

Table 9a: Library staff ICT skills for implementation of digitization of information resources in university libraries in Nigeria according to age

S/N	ICT Skills possessed for implementation of digitization:	20-40 years			Above 40 years		
		Freq.	$\bar{x}$	Sd.	Freq.	$\bar{x}$	Sd.
1	Internet surfing	64	3.70	0.4	135	3.60	0.5
2	Scanning	64	3.60	0.6	135	3.60	0.5
3	Book marking	64	2.80	0.6	135	2.90	0.5
4	Cataloguing of digital resources	64	3.10	0.5	135	3.10	0.5
5	Signing of digital signature	60	2.40	0.6	129	2.80	0.7
6	Web linking	64	2.60	0.6	131	2.70	0.5
7	Web publishing	60	2.60	0.7	131	2.30	0.6
8	Database management	64	2.80	0.6	133	2.70	0.7
9	Troubleshooting	60	3.00	0.7	135	2.70	0.7
10	Content conversion from analogue to digital	58	3.30	0.6	123	3.30	0.6
11	Navigating in the web accessing resources	58	3.50	0.6	117	3.50	0.5
12	Downloading techniques	60	3.60	0.4	135	3.40	0.4
13	Preservation and storage skill	58	3.50	0.4	119	3.50	0.6
14	Ability to browse, filter, retrieve and access digital resources	62	3.50	0.4	129	3.60	0.6
15	Interpersonal and teamwork skill	64	3.40	0.5	123	3.40	0.5
16	Critical thinking skill	60	3.40	0.4	113	3.3	0.5
	Grand – Total :	**984**	**50.8**	**8.60**	**2058**	**50.4**	**8.4**
	Average:	**62**	**3.20**	**0.54**	**129**	**3.15**	**0.53**

The study showed that there are so many skills require for the implementation of digitization of information resources in university libraries among age from of library staff of 20 – 40 years and above 40 years of age. The study showed that among such skills include the prominent one such as include Internet surfing skill; scanning skill; book marking; cataloguing of digital resources; signing of digital signature; web linking; web publishing; database management; downloading techniques skill among others. The research showed an average mean (x̄) score of (3.20) and standard deviation of (0.54) for male and mean (x̄) (3.15) and standard deviation of (0.53) for female as indicated in Table 4.18a above.

Table 9b Hypothesis 2: There is no significant difference between the responses of the younger (20-40 years) and those of above 40 years library staff in the use of ICT skills for implementation of digitization of information resources in university libraries in Nigeria at 0.05 level of significance

Table 9b: t-test of mean scores rating of the age range ((20 – 40 years - younger), and (above 40 years - older staff)) library staff on the ICT skills for implementation of digitization of information resources in university libraries resources

Groups (Age Ranges)	N	df	Mean (x̄)	Sd	t-value (t- cal.)	t-critical	Level of Sign	Remarks
20–40 years – younger	62	189	3.20	0.54	5.12	1.96	0.05	Significant
Above 40 years – older	129		3.15	0.53				Significant

Table 9bshowed the independent samples t-test analysis to examine the difference in the ICT skills possessed by library staff for implementation of digitization of information resources in university libraries in Nigeria. The study showed that the calculated t-value 5.12 is more than the critical value of 1.96. Therefore, the null hypothesis which states that there is no

significant difference in the responses of the library staff on the ICT skills possessed by library staff for the implementation of digitization of information resources in the university libraries in Nigeria is rejected. This showed that there is significant difference between the mean (ẋ) responses of the younger staff (20 – 40 years) and the older (above 40 years) library staff on the ICT skills possessed by the library staff for digitization of library information resources in the university libraries in Southern and Northern Nigeria.

Summary of findings of the research

The research was carried out to ascertain library staff (librarians' and library officers) ICT skills and influencing factors of digitization of information resources in university libraries in Nigeria. Three research questions and two hypotheses guided this study. The conceptual framework of the study was anchored on the Diffusion of Innovation Theory (Rogers, 2003) which stipulates (implies) that for new technology to diffuse into the society, there is need to have the skills required for that technology and also understand the factors that can influence its use, and induce the diffusion of it.

The study adopted a total enumeration sampling technique where a total population of 250 library staff was used. Two hundred and fifty copies of the questionnaire was administered to library staff in five federal university libraries in Nigeria that are digitizing and the researcher was able to retrieve 203 questionnaires, hence there was 81.2% return rate. The data collected for the study were analyzed with SPSS using simple percentage and statistical mean score were used to answer the research questions and to test the hypotheses. Based on the analysis of the data the following findings were made from the study.

i) The study discovered that there are five federal university libraries that are currently involved in the digitization of library information resources in Nigeria. These include Ahmadu Bello University Library, Obafemi Awolowo University Library, University of Jos Library, University of Nigeria Library, Nnsuka

and Federal university of Technology Library, Owerri.

ii) The study revealed that all the library staff (librarians, library officers and library ICT

staff) used for the study is aware of digitization of information resources in the university libraries that are digitizing library resources.

iii) That in the university libraries studied most of the library staff used, possessed the ICT skills required for the implementation of digitization of library information resources which includes Internet surfing, scanning skill, cataloguing of digital resources, signing of digital signature, content conversion from analogue to digital, downloading techniques, digital preservation and storage skill, interpersonal and teamwork skill and critical thinking skill.

iv) The study established that there is significant difference between the mean (ẋ) responses of the male and the female library staff on the ICT skills possessed by the library staff for digitization of information resources in the university libraries in Southern and Northern Nigeria.

v) The study also established that there is significant difference between the mean (ẋ) responses of the younger staff (20 – 40 years) and the older (above 40 years) library staff on the ICT skills possessed by the library staff for digitization of library information resources in the university libraries in Southern and Northern Nigeria.

Conclusion

In line with the findings of this study, the researchers conclude that digitization of information resources in university libraries is an important component of information resource management. The study has revealed that accessibility, digital preservation, library staff ICT skills and other factors can influence the digitization of information resources in university libraries in Nigeria. To involve in

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digitization, library staff should possess such ICT skills such as Internet surfing, scanning skill, book marking, cataloguing of digital resources, signing of digital signature, web linking, web publishing, database management, troubleshooting, downloading techniques, preservation and storage skill, interpersonal and teamwork skill, and critical thinking skill among others. The research concludes that there is significant difference between responses of male and female on the ICT skills possessed by the library staff for the implementation of digitization of information resources in university libraries in Nigeria. Similarly, there is also significant difference in the repossess of the age range of the library staff on the ICT skills possessed for digitization of information resources in university libraries in Nigeria. Funding of the university and the library is a great challenge in Nigerian universities except Tertiary Education Fund (TetFund) yearly and regular intervention, which has made things work in the universities in Nigeria. This research has been able to confirm that library staff needs some relevant ICT skills in order to succeed in the role of implementing digitization of information resources regardless of the gender and the age of the staff. This become important as deduced from this study that every keen staff in digitization assignment should be properly train and retrain in order to move forward in this assignment of digitization in Nigerian university libraries and other Africa countries that are yet to embark on such, as information resources and services are becoming more digital and online.

Recommendations

It is therefore important to recommend that university library staff whether teaching (librarians) or non-teaching (library officers and library ICT) staff, whether male or female should be properly and frequently train and retrain on ICT skills require for new assignment of digitization that is technologically pushing the libraries into such demand duties of digital resources offer and online service rendering. It also recommends that Tertiary Education Fund (TetFund) should continue to support the tertiary institutions through its yearly and regular financial intervention, which has made things easy in universities in Nigeria.

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