

LIBRARY STAFF KNOWLEDGE OF INFORMATION AND COMMUNICATION TECHNOLOGY SKILLS FOR DIGITISATION OF INFORMATION RESOURCES IN FEDERAL UNIVERSITIES IN SOUTH EAST NIGERIA.

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ABSTRACT

This study examined library staff in the federal universities in South East, Nigeria to find out their knowledge of ICT skills for digitisation of information resources. Five research questions guided the study. The research design adopted for the study was descriptive survey design. The population for this study comprised 287 professional and paraprofessional library staff in the five federal universities in South East Nigeria. The instrument used for the study was a test of ICT skills designed by the researcher based on literature review and expert opinion. Data were analyzed, simple percentages were used to answer the research questions. The study revealed that majority of the library staff in Federal University libraries in South East Nigeria have good knowledge of computer skills for digitization. On the other hand, majority of the library staff have poor knowledge of scanning, editing, document analysis and archival skills. The study concludes therefore, that library staff do not have knowledge of all the ICT skills required for digitization and strongly recommends training to strengthen knowledge of ICT skills of library staff in order to improve their abilities for managing digital resources.

Keywords: Library staff, Knowledge, ICT skills, Digitization, Metadata, University Libraries

Introduction

Digitisation of information resources has witnessed an increasing awareness for advanced ICT skills. It is an essential library operation which requires that library staff possess requisite knowledge of ICT skills to effectively take up the complex processes. That is why Riley-Huff and Rhoads (2011) assert that modern libraries require those in technology-related roles to have broad or specialized knowledge and skills in areas such as web development, database design, and management paired with a good working knowledge of classification formats such as XML, MARC, EAD, RDF and Dublin Core. Also, Ademodun and Adepoju (2009) agree that the issue of skill acquisition and competence in the use of ICTs is essential especially in this information age. With specific reference to the digitization of library operations, it is recognized that skilled personnel are essential for a successful digitization project.

Digitization is gradually gaining grounds in many university libraries in Nigeria. Adeleke (2014) asserts that digitization is popularized among academic libraries because of the opportunities and benefits which it accrues to them such as making their institutional resources available thereby increasing their visibility and better performance in ongoing web ranking of world universities. The benefits of digitization cannot be over emphasized. Suffice it to say that it is one of the strategies university libraries are using to respond to the paradigm shift in information access and retrieval. Though some university libraries in Nigeria are in

different stages of digitization, researchers agree that most have not made significant progress (Adeleke, 2014; Baro, Oyeniran & Atebo, 2015) as a result of various challenges among which is poor ICT skills of library staff (Igawesi, 2010).

Possession of skills for digitization will greatly depend on knowledge of the type of ICT skills needed in this area. Thus library staff need to understand the various skills required at each stage to function effectively. Digitization does not only mean scanning but involves a range of other activities which function in systematic manner to convert print to digital or web ready formats. These activities involve the use of computers, scanning machines, editing applications, document analysis such as metadata description and archival/digital preservation methods (Messmer, 2011, Mohammed 2013; Bandi, Angadi & Shivarama, 2014). Library staff need to understand the techniques of creating, converting, organizing and disseminating information in a digital environment. Hence, this study seeks to investigate library staff knowledge of the ICT skills required for digitization of information resources in Federal Universities in South East Nigeria.

Statement of the problem

Digitization is reshaping the context in which information resources are being delivered. However, digitization is an extremely complex activity which could sometimes prove very challenging, requires commitment, qualified and experienced staff to do the job efficiently. Since library staff are the major players in digitization of information resources in university libraries, they have to use computer systems, scanning machines, digital cameras and software to make prints in hard copy format available online. Also, they have to keep up with new information formats, media and sources. Undoubtedly, library staff would require relevant knowledge of ICT skills for digitization to be initiated, implemented and sustained. Several empirical studies (Igawesi, 2010; Anyoku, 2012; Adeleke, 2014) have been carried out on ICT skills of library staff for digitization. These studies agree on common grounds that poor ICT skills of library staff is an impediment to digitization. However, there appear to be no study known to the researcher on library staff's knowledge of the ICT skills required for digitization, to enable them effectively carry out digital conversion processes. Hence the need for the present study.

Objectives of the study

1. What are library staff knowledge of computer skills required for digitization of information resources in Federal Universities in South East Nigeria based on their scores?
2. What are library staff knowledge of scanning skills required for digitization of information resources in Federal Universities in South East Nigeria based on their scores?
3. What are library staff knowledge of editing skills required for digitization of information resources in Federal Universities in South East Nigeria based on their scores?
4. What are library staff knowledge of document analysis skills required for digitization of information resources in Federal Universities in South East Nigeria based on their scores?
5. What are library staff knowledge of archival skills required for digitization of information resources in Federal Universities in South East Nigeria based on their scores?

Conceptual definitions

Library staff – The Online Dictionary of Library and Information Science [ODLIS] defines library staff as the entire group of paid employees responsible for the operation and management of a library or library system including its director, librarians, paraprofessionals, technical assistants, clerical assistants and student assistants. Be that as it may, this study defines library staff as personnel employed in a library whose sole aim is to connect users to their information need through provision of information resources and services.

Knowledge is defined as information acquired through sensory input such as reading, watching, listening, touching, etc. (Boulet, 2015). The online Oxford English Dictionary (“Knowledge,” n.d) defines knowledge as facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. Knowledge is also the act of knowing, it is embodied in human beings and has been recognized as a vital factor of production in today’s world of advanced technology (Chigbu & Idoko, 2013). According to Bolisani and Bratianu(2018), Knowledge could be both explicit and tacit which means experiences existing in our subconscious zone and manifesting especially as intuition. With regard to this study, knowledge is the accumulation of information, facts, ideas and experiences in the human brain which is expressed in practical or verbal terms whenever the need arises.

ICT Skills are those skills that enable an individual to use computers, software applications, databases and other technologies to achieve a wide variety of academic, work-related, and personal goals (College and Research Libraries [CARL], 2006). Isreal and Edesiri (2014) state that ICT skills deal with the application of ICT to specific purposes, ICT skills is not just about using software package or operating systems, neither is it concerned only with keyboarding skills and ability to copy type or follow instructions rather ICT skills is the ability to use knowledge about ICT to find, develop and present information whether it is text, image or number or all of these in an integrated task. The current study defines ICT skills as the proficiency to use computers, software and related technologies to perform specific tasks in order to provide information, generate knowledge and solve attendant problems.

Digitization is generally defined as the conversion of print materials from analogue (traditional) to electronic formats. According to Fatoki (2007), digitization is a process towards building digital libraries, which involves taking traditional library materials, typically in the form of books and papers and converting them to electronic form, where they can be stored and manipulated by a computer. Itsekor and Ugwunna (2014) state that digitization involves a process whereby library print based resources are converted into a form that can be easily accessed and used on the basis of application of information technologies. It enables analog records to be converted into a form – digitized such that computer or computers can transmit these records in a digital format that is in bytes represented by binary digits 0 and 1. For the purpose of this study, digitization is converting traditional print resources to digital formats using computers, scanners, related software technologies and, processing the images to produce semblance copies of the original which can be hosted via internet, intranet or preserved in electronic storage devices.

Information resources - Information resources constitute a range of materials and equipment gathered by the library in order to meet the information needs of both intended and anticipated users (Bitagi & Garba, 2014). This study provides that information resources are primarily print and non- print materials in various formats which are processed and stored in the library with the purpose of satisfying the information needs of users. Information resources come in several formats and include print such as books and periodicals; non print such as images, realia; multi-media resources such as audios-visuals and electronic resources

such as e-journals, e-books, databases and CD-ROM, Memory stick etc. which are carriers of electronic resources.

Theoretical underpinnings

ICT skills required for digitization of information resources have been derived from the work of Bandi, Angadi & Shivarama, (2014) where they detailed the process of digitization using a workflow. Hence the ICT skills for digitization upon which the current study is structured were extracted from that process workflow and developed into the model shown below. These skills include computer skills, scanning skills, editing skills, document analysis skills, archival/digital preservation skills.



Figure 1: Model of ICT Skills for Digitization of Information resources

The model provides the various skills required at each stage of the digitization process. It shows that computer skills are required for all the other functions such as scanning, image editing operations, metadata descriptions and archival or preservation methods. It is reasoned that knowledge of these ICT skills will enable library management develop suitable training programmes on digitization.

With regard to knowledge of computer skill, Umeji, Ejedafiru and Oghenetega (2013) studied ICT literacy skills among librarians in Madonna University and found that librarians were very poor in areas of information /ICT literacy skills and this had affected the type of services given to patrons over the years. However, Ayoku and Okafor (2015) studied the ICT skills acquisition and competences of librarians in some university libraries in Nigeria. Findings revealed that majority of the respondents are able to create and compose emails, forward and reply to an email and attach files to emails. However, the paper concludes that many librarians in Nigeria are lacking IT skills. Ahmed and Rehman (2016) studied ICT competencies of librarians in Pakistan and discovered that majority of the professional librarians possessed good level of knowledge of MS Word, MS Excel, MS PowerPoint, and Library electronic tools whereas their knowledge of MS Access was fair, and they had limited knowledge of software such as Photoshop, CorelDRAW and other general purpose application soft wares. Also the study revealed that maximum number of professional librarians possessed limited knowledge of Greenstone, DSpace and E print while they possessed no knowledge of Fedora or any other digital library and institutional repository software.

Scanning entails the conversion of print to electronic or digital copies using the scanner. However, Ngorngor (2012) in her study findings reveal that staff have low level of skills in using scanners, printers, use of magnetic tapes and CD-ROM. Ansari (2013) found that library professionals had high proficiency in using various types of hardware such as laptops, multimedia, digital cameras, OCR devices, printers, scanners, barcode readers and word processing tasks. Also, respondents had low proficiency for image digitization. Igbal

and Khan (2017) investigated the awareness level of librarians about various ICT applications in University of the Punjab and found that most of the librarians are computer literate, having good knowledge of library automation and digitization. However, majority of the professionals have less knowledge of programming languages, whereas, HTML (Hyper Text Markup Language) is comparatively more popular programming language. Furthermore, Oyedokun, Oyewumi, Akanbi and Laaro (2018) study found that librarians demonstrated high level of ICT competency in basic skills such as word processing, data analysis, electronic presentation as well as digitization of library information resource through scanning and uploading. They were also found to be proficient in intermediate ICT skills such as use of internet, library management software, search engines, database management.

When information resources have been scanned, various image processing operations take place to clean up the images and enhance appearance on the web. This image enhancement process is known as editing. There are several types of image editing applications such as Director, Photoshop, GIMP among others. With regard to this critical activity, Baruah and Hangsing (2012) found a limited knowledge and skill of librarians on editing/digital imaging software. Ahmed and Rehman (2016) indicated that library professionals in Khyber, Pakistan had limited knowledge of software such as Photoshop, CorelDRAW and other general purpose application software. On the other hand, Mahatan (2016) pilot study revealed that professionals in Assam are aware of ICT based applications such as Windows Operating System, MS Office, and Photoshop which is an image editing software.

Metadata creation is related to cataloguing of print materials hence, it is an intellectual activity that requires that librarians analyze documents to extract information (keywords) that will aid easy access to digitized materials on the web. Adeleke (2014) indicated that librarians had below average in metadata creation skills. Abbas (2014) study uncovered that majority of the academic librarians in selected Nigerian universities had their ICT knowledge as „Some What Knowledgeable“ that is peripheral, while few claimed to be „Knowledgeable“. The author stated that librarians lack the requisite expertise to maneuver ICT facilities thus buttressing skills inadequacies of the librarians in many critical areas for their survival and efficiency.

Archival/digital preservation skills entails preservation of digital records to ensure their longevity and easy access on demand. Library staff require knowledge of digital preservation strategies in order to prolong the shelf life of digitized resources. However, Ezema, Ugwuanyi and Ugwu (2014) found that librarians were not skilled in digital curation which entails understanding the practices of selection, preservation and description of digital collections. Adeleke (2014) revealed that librarians' score on digitization skills were below average. Ntoka & Adamou (2017) showed in their study that many of the librarians do not have knowledge about digital materials preservation.

From literature so far reviewed, poor ICT skills of library staff appear to be a recurring decimal which never goes away. This could stem from the gap in library staff's knowledge of the skills needed to carry out digitization work. Like the biblical statement, my people perish for lack of knowledge - inadequate knowledge of the ICT skills needed for digital conversion will likely stifle digitization projects. Hence knowledge of the required skills is needful and a panacea to successful projects. This gap is what the present study seeks to fill.

Method

The study employed a descriptive survey design. Data collection instrument used for this study was a test of Knowledge of ICT Skills for Digitization designed by the researchers based on review of related and relevant literature and expert opinion. The instrument was

designed to establish library staff knowledge of ICT skills for digitization of information resources. The instrument was given both face and content validation by three (3) experts well versed in the topic under study.

To ascertain reliability, the instrument was administered to twenty library staff in University of PortHarcourt who are not part of the actual study. Data collected were analyzed using the Kuder-Richardson Formula 20, (KR-20). The overall coefficient of the instrument yielded 0.96. This shows adequate internal consistency with Kuder-Richardson formula 20 (KR-20). A total of 353 copies of the test instrument were distributed to professional and paraprofessional staff of the five federal university libraries in South East Nigeria by the researchers with the help of five research assistants who are also library staff in the universities. Out of this number, 287 were returned and found usable for the study thus representing 81% return rate. Completed tests were analyzed using descriptive and inferential statistics. Percentages were employed to answer the research questions. Decision rule: where the number of library staff with good knowledge is 50% and above, it is deemed that library staff have knowledge of the ICT skills for digitization.

Results

Research Question 1

What are library staff knowledge of computer skills required for digitization of information resources in Federal University libraries in South East Nigeria based on their scores?

Table 1: Range of scores of library staff on their knowledge of the computer skills required for digitization of information resources

Range of scores	N	%	Remarks
11 – 20	204	71.1	Good Knowledge
0 – 10	83	28.9	Poor Knowledge

Table 1 shows that 204(71.1%) of the library staff with the scores ranging from 11 to 20 have good knowledge of the computer skills required for digitization of information resources while 83(28.9%) library staff whose scores range from 0 to 10 have poor knowledge of the computer skills required for digitization of information resources.

Research Question 2

What are library staff knowledge of scanning skills required for digitization of information resources in Federal University libraries in South East Nigeria based on their scores?

Table 2: Range of scores of library staff on their knowledge of the scanning skills required for digitization of information resources

Range of scores	N	%	Remarks
11 – 20	137	47.7	Good Knowledge
0 – 10	150	52.3	Poor Knowledge

Table 2 indicates that 137(47.7%) of the library staff with the scores ranging from 11 to 20 have good knowledge of the scanning skills required for digitization of information resources while 150(52.3%) library staff whose scores range from 0 to 10 have poor knowledge of the scanning skills required for digitization of information resources.

Research Question 3

What are library staff knowledge of editing skills required for digitization of information resources in Federal University libraries in South East Nigeria based on their scores?

Table 3: Range of scores of library staff on their knowledge of the editing skills required for digitization of information resources

Range of scores	N	%	Remarks
11 – 20	81	28.2	Good Knowledge
0 – 10	206	71.8	Poor Knowledge

In table 3, it was observed that 81(28.2%) of the library staff with the scores ranging from 11 to 20 have good knowledge of the editing skills required for digitization of information resources while 206(71.8%) library staff whose scores range from 0 to 10 have poor knowledge of the editing skills required for digitization of information resources.

Research Question 4

What are library staff knowledge of document analysis skills required for digitization of information resources in Federal University libraries in South East Nigeria based on their scores?

Table 4: Range of scores of library staff on their knowledge of the document analysis skills required for digitization of information resources

Range of scores	N	%	Remarks
11 – 20	54	18.8	Good Knowledge
0 – 10	233	81.2	Poor Knowledge

Table 4 indicates that 54(18.8%) of the library staff with the scores ranging from 11 to 20 have good knowledge of the document analysis skills required for digitization of information resources while 233(81.2%) library staff whose scores range from 0 to 10 have poor knowledge of the document analysis skills required for digitization of information resources.

Research Question 5

What are library staff knowledge of archival skills required for digitization of information resources in Federal University libraries in South East Nigeria based on their scores?

Table 5: Range of scores of library staff on their knowledge of the archival skills required for digitization of information resources

Range of scores	N	%	Remarks
11 – 20	117	40.8	Good Knowledge
0 – 10	170	59.2	Poor Knowledge

Table 5 reveals that 117(40.8%) of the library staff with the scores ranging from 11 to 20 have good knowledge of the archival skills required for digitization of information resources

while 170(59.2%) library staff whose scores range from 0 to 10 have poor knowledge of the archival skills required for digitization of information resources.

Discussion

This study revealed that library staff in federal universities in South East Nigeria had good knowledge of computer skills for digitization of information resources. The finding is in line with Oyedokun, Oyewunmi, Akanbi and Laaro (2018) who found that library staff demonstrated a high level of competency in basic skills such as word processing. Also, the finding corroborates that of Ayoku and Okafor (2015) who found that more than half of the librarians can perform word processing tasks, and Anyoku (2012) who discovered that a large majority of librarians rated themselves as having some knowledge and skills in basic computing which is the use of word processing software. The findings of the current study could be attributed to the increased awareness and deployment of ICT related operations in many university libraries in the south east. However, the study did not agree with the finding of Ayoku and Okafor (2015) who identified poor level of computer skills among staff of Nigerian university libraries. While ICT is impacting library operations, the environment in which library staff work is gradually changing. There is increased ICT consciousness in most university libraries which could be responsible for improved knowledge of computer skills by the staff.

The study discovered that 137(47.7%) of the library staff had good knowledge of the scanning skills required for digitization of information resources. This means that less than 50% of the library staff have good knowledge of the scanning skills. Hence, It can be inferred that majority of the library staff have poor knowledge of scanning skills for digitization. The study is in tandem with the findings of Ngorngor (2012) who found that library staff did not possess skills in using scanners. However, the findings of the study did not agree with Oyedokun, Oyewumi, Akanbi and Laaro (2018) who discovered that library staff had skills in digitization of library information resource through scanning and uploading. Whereas digitization consciousness has increased among university libraries, it is observed that knowledge of the skills required for conversion of materials from analogue to digital format is still low among library staff.

Further finding from the study revealed that few library staff 81(28.2%) had good knowledge of the editing skills required for digitization of information resources. This provides evidence that majority of the library staff do not have good knowledge of editing skills for digitization of information resources. This finding corroborates with that of Baruah and Hangsing (2012) who found a limited knowledge and skill of librarians on editing/digital imaging software. It also agrees with Ansari (2013) and Adeleke (2014) who revealed that respondents had low proficiency for image digitization. Furthermore, the finding is in line with Ahmed and Rehmah (2016) who indicated that library professionals in Khyber, Pakistan had limited knowledge of software such as Photoshop, CorelDRAW and other general purpose application software. Library staff's poor knowledge of editing skills may be due to lack of training and awareness of editing tools required for digitization.

The study also showed that very few library staff 54(18.8%) have good knowledge of the document analysis skills required for digitization of information resources. By extension, majority of the library staff do not have knowledge of document analysis skills for digitization of information resources. This finding tallies with that of Adeleke (2014) who indicated that librarians had below average in metadata creation skills and, Ahmed and Rehmah's (2016) study which revealed that maximum number of professional librarians possessed limited knowledge of Greenstone, DSpace, E print and, no knowledge of Fedora or any other digital library and institutional repository software. The poor knowledge of

document analysis skill which the current study presents could be attributed to negative impressions on the difficulties of creating metadata and, lack of interest towards cataloguing.

Another finding reveal that few library staff 117(40.8%) have good knowledge of the archival skills required for digitization of information resources. This suggests that majority of the library staff have poor knowledge of the archival skills required for digitization. This finding corroborates that of Ezema, Ugwuanyi and Ugwu (2014) that librarians were not skilled in digital curation which entails understanding the practices of selection, preservation and description of digital collections. This finding also agrees with Adamou and Ntoka (2017) that many of the librarians do not have knowledge about digital materials preservation. The reason for this may be attributed to lack of awareness of the intricate processes associated with preservation of digital materials.

Conclusions and recommendation.

The study has shown that majority of the library staff in Federal University libraries in South East Nigeria have good knowledge of computer skills for digitization. This is not surprising as library staff are transforming in their operations as they use computers daily to render services. However, having knowledge of the operations of a computer is not a guarantee to effective digitization as the study revealed. Library staff had poor knowledge of digital conversion techniques, image processing applications and basic procedure for image editing. They also do not have good knowledge of metadata descriptions and schemas and digital preservation methods. It is worthy to reiterate here that digitization is complex and requires a combination of activities as the present study has shown. As a result, the study recommends that library staff should acquaint themselves with the various ICT skills required for digitization and then endeavor to acquire these skillsthrough training in order to change the status quo and retain jurisdiction in digital information provision.

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