Retooling and re-skilling of cataloguing librarians in the digital era: An insight from Nigeria

Kemi Jummai Olayemi[1] , Olalekan Moses Olayemi[2] , Juliana P. Michael[2]

[1]*University library, Bayero University Library, Kano, Kano State, Nigeria*
[2]*Department of Library & Information Communication Technology, Nigerian Institute of Medical Research, Lagos, Nigeria.*

Abstract

Background of the study: The digital transformation of library resources and users has introduced significant changes to the cataloguing process, necessitating a retooling and re-skilling of cataloguing librarians to keep pace with evolving technologies and practices.

Purpose: The study was designed to investigate the issues associated with retooling and re-skilling cataloguing librarians in the digital era.

Method: This study adopted a mixed method, incorporating both quantitative and qualitative research approaches. The study population comprised cataloguers across libraries in Nigeria. For the quantitative component, a structured questionnaire was used, while the qualitative aspect involved semi-structured interviews with selected participants to gain deeper insights and clarification on certain responses provided in the questionnaire.

Findings: The findings demonstrated that the majority of the respondents indicated that they are already applying some digital tools, such as computers, the internet, and library software management to cataloguing library materials due to their availability, while a few are yet to. The findings showed that a majority of the cataloguers possess digital skills, but many still have low skills for creating metadata for digital resources. The study also revealed that respondents' perceived implications of the digital era for cataloguing practice can lead to new roles and responsibilities, organizational changes, copy cataloguing, and the introduction of non-professionals and non-cataloguers to cataloguing profession.

Conclusion: Based on the findings, the study concludes that a majority of Nigerian cataloguers have embraced the use of digital tools in cataloguing, and possess the digital skills required for the digital era.

Keywords: Retooling, Re-skilling, Cataloguers, Information and Communication Technology, Digital, Training.

Introduction

The digital age began with the introduction and use of computers and virtual networks, which have had a significant impact on libraries and their users. Many different terms have been used interchangeably to describe the library in the digital age, such as virtual library, hybrid library, electronic library, and digital library (Sharma & Chauhan, 2019; Dinazzah & Irawati, 2022). With the adoption of Information and Communication Technologies (ICTs) into library operations, the library has continued to witness unprecedented paradigm shifts in terms of increased access to a wide range of information while simultaneously making the tasks of locating, analyzing, and linking information more complex. In addition, there is the presence of new types of information resources as a result of digitization, the transition of scholarly publication from print to digital form, the exponential increase of online content on the web, and constantly changing technology (Saka, Ahmed & Akor, 2021). These presented new challenges to librarians and libraries in terms of managing digital information, coupled with the new trends of information-seeking behaviour among library users, resulting in a demand that could not be met using traditional methods of library services (Ayoku & Okafor, 2015). According to Ejiroghene (2020), this had a significant impact on cataloguing and classification because, with digital formats and the internet, the traditional model of book cataloguing became less useful, changing the roles and tools of the cataloguers.

Prior to the digital era, the cataloguers were able to individualize each material acquired by the library by assigning them a unique number for proper identification and thus providing an access point for each using traditional tools such as the AACR2/MARC, Library of Congress classification scheme, and Dewey Decimal Classification Scheme (Ejiroghene, 2020). However, the digital era has transformed and changed these processes to make them more effective and efficient, which has also influenced and necessitated an expansion in the cataloguers' roles, responsibilities, and skills. As such, the cataloguer is expected to be information technology proficient, be able to work outside the traditional environment, and be capable of using modern tools such as Resource Description and Access (RDA), creating and managing metadata for digital resources as well as linked data. Therefore, the changing formats of information resources, the needs of library users, and their application to cataloguing practices have necessitated the issues of retooling and re-skilling of cataloguers.

Olayemi and Olayemi (2019) defined retooling as the "process of re-equipping the cataloguing librarian with newer and modernized set of tools for the purpose of updating and improving services for efficiency." On the other hand, they defined re-skilling as the "process of training or teaching in order to acquire new and essential skills" (p. 399). These were made necessary because of advancements in information and communication technologies. In order to be relevant and cope with the changing environment, the modern cataloguer is expected to be multi-skilled, capable of managing information resources in new formats, creating numerous metadata for digital resources, and catalogue for a wide range of users. However, Amannah and Ojekudo (2015) stated that retooling the cataloguer has been challenging and difficult due to varying reasons and issues. The study of Okonkwo and Obiora (2022) showed that many university libraries in South-East, Nigeria still largely depend on manual cataloguing and classification practices. This outcome suggests a gap or overdependence on manual ways of processing their information resources.

Conversely, evidence from the study of Ajani et al. (2022) among library professionals in Kwara State, Nigeria, indicates a shift towards the integration of both manual and automated methods of cataloguing and classification practice. This hybrid approach reflects the adoption of technologies for processing library collections. This difference may be attributed to challenges encountered by cataloguers, such as inadequate knowledge of modern cataloguing practices and understaffing, as noted by Obiozor-Ekeze (2016). Supporting this view, John-

Okeke (2017) found that cataloguers demonstrated limited competence in the use of cataloguing tools and resources; thus, they performed poorly. Existing literature revealed a gap in the types of digital tools adopted for cataloguing in libraries. Similarly, there has been little or no study that combines both quantitative and qualitative approaches to provide adequate understanding of the discourse of perceived implications of the digital era as well as the adoption of needed tools and skills by cataloguing librarians amid the digital transformation in Nigeria. It is against this background that this study intends to examine the issues of retooling and re-skilling of cataloguers across libraries in Nigeria. It is anticipated that this exploratory endeavour will assist researchers and cataloguers in developing strategies that will effectively address the hitches associated with the digital age.

Statement of the Problem

Cataloguers have been responsible for creating and maintaining the Online Public Access Catalogue (OPAC), and the manual catalogue in their various forms, including accession, author/title, subject, serials, shelf list, and authority file catalogues. For generations, this has been the cataloguer's mission (Ejiroghene, 2020). However, the digital era has made this mission much more difficult and complex, particularly with the exponential growth of digital information. There is a continuous need to keep pace with the growth of these resources and provide access to them as they appear. Meanwhile, despite the swift transformations taking place in the information world, it is still startling to see that many libraries and librarians are yet to fully adapt to the changes. In fact, many librarians in developing countries still lack the necessary functional tools and skills to operate effectively in an ICT dominated environment (Arinola *et al.,* 2012; Akidi & Okezie, 2018; Yeboah, 2022). In today's digital age, any librarian who lacks skills in using information communication technologies (ICT) to manage information resources or who resists adapting to the rapid shift toward digital services risks becoming obsolete in the profession. With the world becoming more interconnected, digital skills is now a necessity rather than an option. The implication for the cataloguer is that, in addition to their professional expertise, they have to adapt to the realities of the digital and virtual library. Thus, they are required to be proficient in using new information technologies to create information retrieval access that can be accessed remotely, as users are no longer limited to those in the library's immediate environment.

The main objective of this study is to investigate the issues associated with retooling and re-skilling the cataloguing librarian in the digital era in Nigeria. The specific objectives are:
1. To identify the ICT tools applied for cataloguing in the digital era;
2. To ascertain the perceived implications of the digital era to cataloguing practice;
3. To find out the extent of digital skills possessed by cataloguing librarians;
4. To ascertain how often cataloguing librarians get access to/attend formal training and skill acquisition programs on their jobs;
5. To find out the challenges encountered by cataloguing librarians during the re-skilling process.

Literature review
Digital transformation and changing landscape of cataloguing

The digital era has been characterized as an era of ICT applications for information generation, transmission, and access to information, as well as the transition of scholarly publications from print to digital format and the surge of web content and new communication methods. One of the most evident impacts of this period is that it helps to connect the world through data gathering and sharing, or sharing other types of information. All of these factors

have a significant impact on librarianship in general and cataloguing in particular.

Cataloguing is the process of preparing a catalogue. It is an art that involves highlighting the bibliographical contents of library materials, such as the appearance, author, title, subject, call number, and other bibliographical details that serve as a key or access point for retrieval. Consequently, the cataloguing department is a key component of the technical services department, tasked with the organization and processing of library resources. They play an important role in both traditional and digital environments. The functions of catalogers that were readily carried out using traditional tools and skills are changing and expanding as a result of ICT. As such, Ekenna, Ezema, and Isiwu (2023) pointed out that the digital era has had an impact on catalogers' work because computers are now used to process, create, manage, display, preserve, and share information electronically. Cataloguing librarians have found themselves operating in a hybrid environment that incorporates both traditional and technological aspects of library service delivery, necessitating the use of both conventional (AACR, lists of subject headings, and classification tools) and new bibliographic control processes (Al-Hijji & Al-Busaidi, 2019).

Tools and skills needed for digital cataloguing

Frederick (2017) identified five transformative changes reshaping the world of cataloging and library data, serving as catalysts for significant shifts in library operations in the near future. These changes include the adoption of new cataloging principles, the 3R Project (RDA Toolkit Restructure and Redesign), the shift to cloud-based virtual library data, and the integration of linked (open) data for libraries. As these changes increasingly influence cataloging practices worldwide, library professionals must adopt new tools, skills, and practices to navigate the current trend of disruptive change in technical services. If libraries and librarians were to persist with outdated practices and workflows, they would be overwhelmed by a huge number of titles.

Accordingly, developing digital skills is crucial, but it is equally important to uphold standards in information organization by updating the tools and practices used by cataloguers to adapt to fundamental changes in cataloging methods in the digital era (Danladi & Patrick, 2016). While several studies have explored factors such as awareness, readiness, and the impact of information communication technology on libraries across various cultural contexts, there are few studies addressing the specific challenges of retooling and reskilling cataloguing librarians in Nigeria's digital landscape. Akidi and Okezie (2018) examined the use of information and communication technologies (ICTs) in cataloguing to improve bibliographic management, specifically at the National Library of Nigeria (NLN). The findings showed that the NLN highly employs several types of cataloging practices, such as quality, original, copy, and centralized cataloguing, but online cataloguing was not used. Moreover, the study revealed that the effectiveness of ICT applications in cataloguing practices at NLN is notably low.

Orbih and Aina (2014) assessed changes in cataloguing practices among the cataloguers at Lagos State University Library. The findings demonstrate that librarians under study have made a substantial move from original cataloguing to copy cataloguing, which they attributed to the significant impact of ICT on library services and operations. These shifts are evident in the information sources utilized and the tools adopted for managing cataloguing records. In South Africa, Monyela (2023) explored how well catalogers understand current and emerging cataloguing practices. The outcome revealed that the catalogers are knowledgeable about emerging cataloging practices. They are also engaged in creating both original and copy cataloguing.

Similarly, Akidi and Omekwu (2019) evaluated the cataloguing and classification practices used by the National Library of Nigeria in the context of the digital era. The outcome

of the study shows that, while cataloguing and classification of information resources are extensively practiced using standard methods, technological advancement has had no impact on their cataloguing practices. Robert and Edem (2016) investigated the impact of information communication technology on cataloguing and classification of library resources in university libraries in Akwa-Ibom State, Nigeria. The findings revealed that while a majority of library staff have embraced ICT for these tasks, the frequency of its application is low. This outcome suggested that cataloguer still perhaps largely engaged in traditional cataloguing. This, however, comes with a lot of issues. First, there is the issue with systems support for the new formats; the second is the cost of creating metadata.

Training and skills acquisition for effective cataloguing

As the role and responsibilities of cataloguers evolve with technological advancements, it is essential to re-skill practitioners to meet the changing needs of users effectively (Mu, 2023). Rahman, Rahman, and Chowdhury (2015) believe that the current digital system of information generation and dissemination proposes a paradigm shift for librarians to acquire new skills in managing digital information resources. Hence, Akidi and Omekwu (2019) and Ezeibe et al. (2021) buttressed that, as cataloguing tools are continuously updated, cataloguers must acquire necessary related skills in order to adequately process various types of information resources and perform bibliographic descriptions using appropriate tools so that users can easily and efficiently access the resources as well as demonstrate effectiveness and quality work output. Subsequently, Ngeme, Ajewole, and Ajayi (2022) believe that professional development, especially in the electronic and technological spheres, is critical to meeting the demands of technology-oriented users. Therefore, digital skills have become a necessity for cataloguers.

Mu (2023) investigated the skills and knowledge required for cataloging roles in academic libraries. The findings revealed that catalogers now need to possess knowledge and experience with bibliographic data standards and cataloging tools, the ability to create original MARC records, and skills in exporting and importing bibliographic records. In addition, proficiency with integrated library management systems, strong computer skills and automation, and knowledge of emerging technologies like linked data are essential. Al-Hijji and Al-Busaidi (2019) explored the roles and skills of Omani academic cataloguing librarians in the digital era. The study used both a quantitative and qualitative approach. The data for the study were gathered from thirty (37) academic libraries using a questionnaire. The study found that more than half of respondents have the necessary skills for working in groups and are familiar with cataloguing tools such as RDA rules and BIBFRAME. However, many cataloguing professionals were unfamiliar with computer languages (XML, PMH, OAI, and RDF) and metadata. Nweke, Omoadoni, and Omosekejimi (2022) findings revealed that cataloguers in university libraries in South-South Nigeria were deficient in key ICT skills, such as using the Windows and Macintosh operating systems and disk operating system commands. They also lack the ability to start software programs like RDA, mine data, develop metadata, and have the requisite ICT facilities to utilize RDA.

While surveying awareness, knowledge, and implementation of Resource Description and Access (RDA), which has become one of the core changes in cataloguing functions, Oguntayo and Adeleke (2016) discovered that over half of the study participants were aware of metadata, as they indicated that RDA is compatible with any metadata coding schema, which suggests that they only had a basic understanding of the concept but were unaware of its technicalities. Adeleke (2016), who assessed librarians' digital skills, reported a below-average situation, the least being metadata creation skills. These findings suggest that the training of librarians for digital operations and services is inadequate, given that only a limited number

have obtained formal professional training in technology practices along with their traditional library skills. However, it must be noted that various factors, such as gender, age, educational status, training, and organizational and environmental factors, amongst others, could influence individual digital skills and the application of modern digital tools. Previous studies have shown disparities in digital awareness, access, usage, and skills among different genders. For example, librarians who have access to high-quality ICT facilities and training are more likely to develop high digital skills. The results of Oyedipe (2020) revealed that library personnel in public universities in Southwestern Nigeria possess a high level of ICT skills. The study also showed a significant relationship between gender and ICT usage among library staff. On the contrary, the findings of Ansari (2013) showed that gender did not have a significant influence on the respondents' ICT proficiency.

Onuoha and Chukwueke (2022), and Bamise, Oluwaniyi, and Igbeneghu (2019), in assessing the adoption of ICTs and competencies of Nigerian cataloguers identified several challenges. These include no training opportunity for continuous professional development, obsolete equipment, and the inability to provide adequate tools and technologies required. Inyang and Agwunobi (2016) conducted a study to assess the training of cataloguers in the information and communication technologies (ICTs) era in Nigeria. The study revealed that most cataloguers acquire training through personal efforts, and only a few received university sponsorships. The findings also indicated that challenges hindering their participation include high training costs, a lack of organizational sponsorship, and poor implementation of the institutional staff development programmes. Ngeme, Ajewole and Ajayi (2022) revealed that training and equipping the cataloguer has been difficult and challenging due to a lack of infrastructure and funding. Issues hindering retooling and reskilling of cataloguers could largely be attributed to inadequate funding to libraries (Orbih & Aina, 2014). Adeleke and Olorunsola (2007) emphasized that employers must take the education, training, and re-training of cataloguers and indeed librarians very seriously because the basic training acquired from library school is not enough to equip one for life. To make this happen, an enabling environment that encourages staff development is required.

Hypothesis
The following hypothesis was formulated for the study:
Ho$_1$: There is no significant relationship between gender and digital skills of cataloguers across libraries in Nigeria.

Theoretical framework: Technology Acceptance Model (TAM)
This study is anchored on the Technology Acceptance Model (TAM), developed by Davis, Bagozzi and Warsaw (1989) as an information systems theory. The model provides a conceptual foundation on how individuals come to accept and use new technologies. TAM models suggest that when users are faced with new technological challenges, a number of factors influence their decision, notably the perceived usefulness and perceived ease of use. These perceptions then influence the intention to use, which eventually determines actual usage behavior (Musa, Fatmawati, Nuryakin & Suyanto, 2024). This framework is directly appropriate to this study, as it provides an insight into the adoption and attitudinal reactions of cataloguing librarians toward digital tools and skills. Therefore, the model is particularly relevant in investigating the transition of cataloguing librarians from traditional practices to digital tools in order to meet the demand of the digital era.

Method

Research type

The study utilized a mixed-methods research approach, integrating quantitative (surveys) with qualitative (semi-structured interviews), specifically employing an embedded design. This design is employed when the primary focus is on quantitative data, but there is a need to explore how qualitative data can further elucidate specific aspects of a larger phenomenon, thereby enhancing the understanding of both the specific and broader context of the main study (Scoulas & De Groote, 2022).

Population and sample

The study population comprises cataloguers across libraries in Nigeria. A purposive sampling technique was used to choose cataloguers based on their involvement with cataloguing practice; hence, they are in a better position to respond to the research questions.

Data collection

A combination of a questionnaire and a semi-structured interview was employed for data collection. The questionnaire was divided into two sections. Section A consists of the demographic information of the respondents. Section B focuses on information relating to the objectives of the study. The application of ICT tools, the perceived implications of the digital era, and the challenges encountered by cataloguing librarians were measured through a series of items in each of these sections, with the respondents asked to tick the appropriate response to suggest their agreement or affirmation. The extent of digital / ICT skills possessed by the cataloguers was measured using a four-point Likert scale, with responses ranging from Very High (4) to Very Low (1), while the frequency of training attended was measured using a ranking scale with the options: occasionally, frequently, and rarely. The online-based questionnaire was designed using Google Forms (https://bit.ly/3PAkTk8), and the link was forwarded/ administered to the WhatsApp Group of the cataloguers in the country. A total of fifty-five (55) respondents completed the questionnaire. For the semi-structured interviews, a purposive sampling approach was used to invite eight cataloguers from different institutions. The interviewees in the purposive sampling were selected based on the cataloguers' knowledge and experience. This purposive selection included cataloguers occupying positions such as head of the cataloguing units or having long years of working experience in the section. The semi-interview guide was sent to each participant electronically, and they responded by sending their responses in text form. However, only five participants responded. Among these, three were heads of cataloguing departments or units, and the remaining two were cataloguers with vast experience in the field. The goal of the semi-structured interview was to seek further clarification and get detailed situational perceptions, opinions, and experiences of cataloguers on some of the answers provided in the questionnaires.

Data Analysis

The quantitative data was downloaded into an Excel sheet from Google Forms and exported to SPSS version 21 for analysis. This data was analyzed using frequency counts, percentages, and charts, and the hypothesis was measured by applying a chi-square test. The interview was analyzed using thematic content analysis, which was grouped under the related theme of the research objectives. The participants that participated in the interview for the study are shown in Table 4.

Result and Discussion

Table 1. Demographic profile of respondents

Gender	Frequency (n=55)	Percentage %
Male	30	54.5
Female	25	45.5
Total	55	100
Highest academic qualification		
BLIS/BA or Equivalent Degree	16	29.1
MA / MLIS or Equivalent Degree	32	58.2
M. Phil./ PhD	7	12.7
Total	55	100

As shown in Table 1, the majority of the respondents of the study were male, with 30 (54.5%) and 25 (45.5%) were female. This shows that the number of males is slightly higher than that of females. This suggests that male are more likely to be found in cataloguing department in libraries in Nigeria. It could also mean that more males respond to the questionnaire than females. The majority of the respondents, 32(58.2%), had a master's degree in Library and Information Studies (MLIS) or equivalent, followed by 16(29.1%) with a with a BLIS/BA or equivalent degree, and 7(12.7%) had the least M.Phil./PhD. This suggests a well-informed and knowledgeable qualified workforce to answer the study research questions.
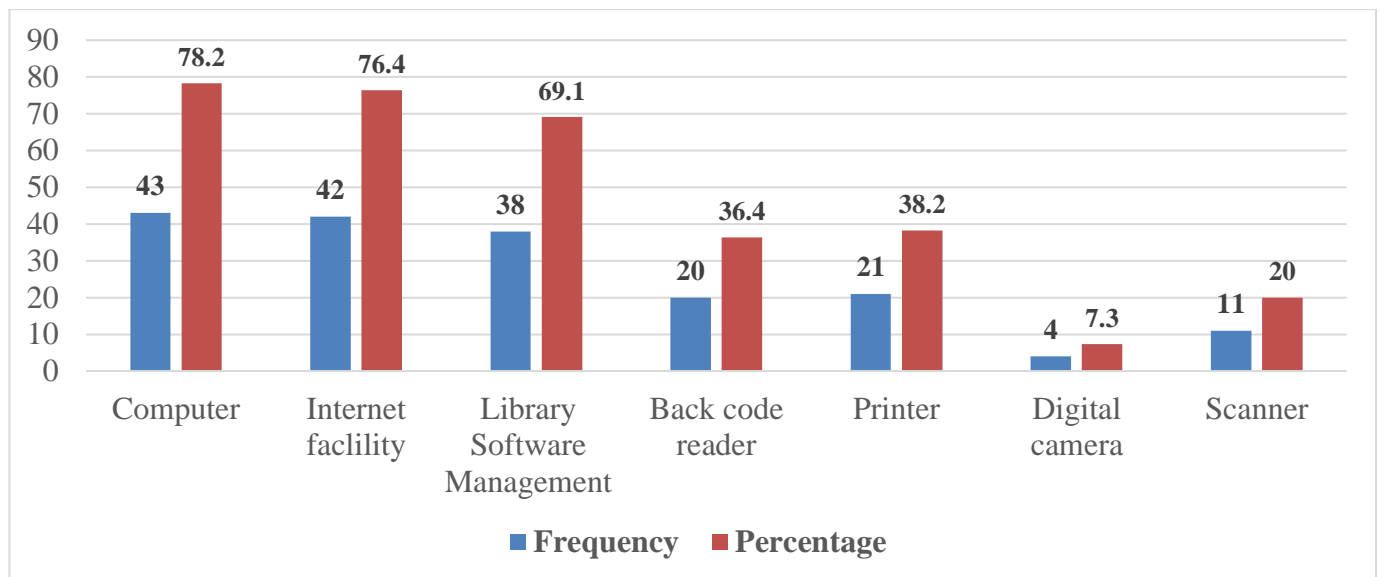

Figure 1. ICT tools

Figure 1 above indicates various digital tools available and used for cataloguing. The most used tools are computers (78.2%), followed by internet facility (76.4%), and library software management (69.1%). Printer (38.2%), back code reader (36.4%), scanner, (20%), and digital camera (7.3%) were rarely available.
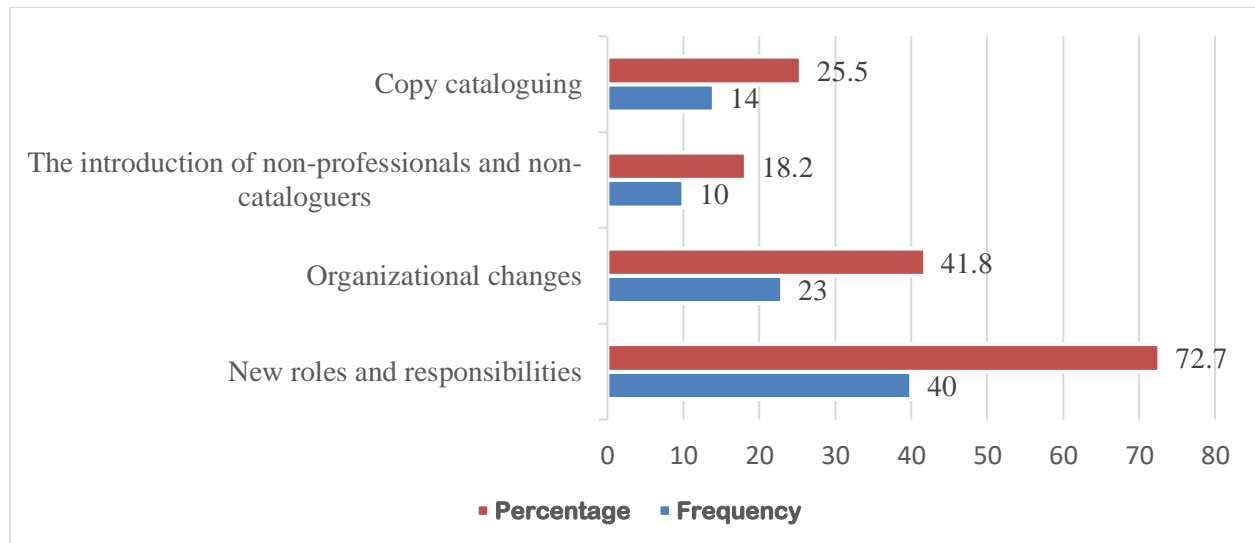
Figure. 2 Perceived implications

Figure 2 indicates the implications of the digital era for the cataloguing profession. The majority of the respondents (72.7%) said it leads to new roles and responsibilities. While few (41.8%) said it can lead to organizational changes, (25.5%) copy cataloguing, and (18.2%) introduction of non-professionals and non-cataloguers to cataloguing practices.

Table 2. Extent of digital / ICT skills possessed by cataloguers

S/N	Statement	VH	H	L	VL
1.	Computer skills	19(34.5%)	32(58.2%)	4(7.3%)	-
2.	Cataloguing of digital resources skills	9(16.4%)	35(63.6%)	11(20%)	-
3.	Library software management skills	10(18.2%)	34(61.8%)	10(18.2%)	1(1.8%)
4.	Creating metadata for electronic /digital resources	7(12.7%)	28(50.9%)	18(32.7%)	2(3.6%)
5.	Use of Web-Dewey	6(10.9%)	18(32.7%)	24(43.6%)	7(12.7%)
6.	Electronic library of congress classification scheme	13(23.6%)	28(50.9%)	12(21.8%)	2(3.6%)

Key: V - Very High; H - High; L – Low; VL - Very low

Respondents were asked to provide information regarding the extent of digital skills they possess regarding cataloguing tools. On table 2, the result shows that 35(63.6%) are "highly skilled" in cataloguing of digital resources, library software management skills 34(61.8%), computer skills 32(58.2%). Whereas, many 18(32.7%) have "low" skills for creating metadata for electronic /digital resources.
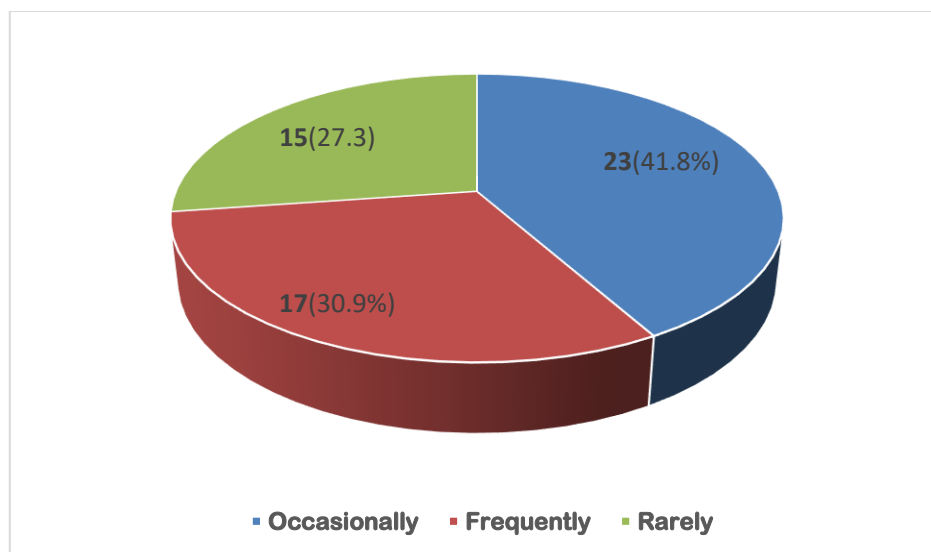
Figure. 3 Training and skill acquisition programs

Figure 3 shows the frequency of attendance by the respondents to training and skill acquisition: the majority 23 (41.8%), occasionally 17 (30.9%), and rarely 15 (27.3%).
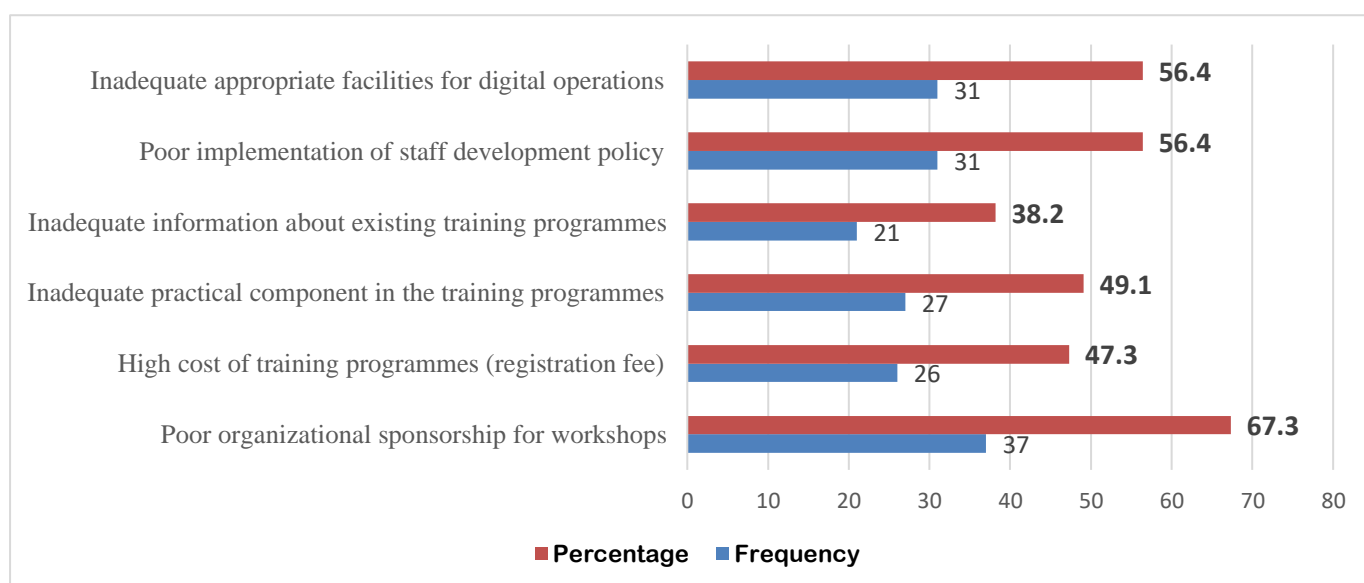

Figure. 4 Challenges

Figure 4 shows the challenges hindering the respondents from attending the required training. A majority (67.3%) of the respondents complained of poor organizational sponsorship for workshops, while (56.4%) attested to poor implementation of staff development policy, and (56.4%) inadequate appropriate facilities for digital operations, respectively.

Hypothesis Testing
Ho$_1$: There is no significant relationship between gender and digital skills of cataloguers across libraries in Nigeria.

Table 3. Results of the chi-square test to measure the relationship between gender of the respondents and digital skills

Variables	Chi-square value	df	Sig.
Gender Digital skills	0.657	02	0.720

Note: *Significant difference (at the 0.05 alpha level)

The table above shows the relationship between gender and digital skills of the respondents. The result showed that gender has no significant relationship with digital skills of cataloguers across libraries in Nigeria ($\chi^2 = 0.657$, Sig. = 0.720). Therefore, the null hypothesis is accepted. This outcome indicated that gender has no influence on digital skills.

Qualitative findings

Table 4. Participants for the interview

Institution	Specialization
Covenant University, Ota, Ogun State	Cataloguer
Federal University, Minna, Niger State	Cataloguer
Godfrey Okoye University, Enugu State	Cataloguer
Nile University, Abuja	Cataloguer
Prince Abubakar University, Anyigba, Kogi State	Cataloguer

The participants were further interviewed about the perceived implications of the digital era for cataloguing practice. Key themes that emerged from the qualitative analysis of the interviews were: 1) foundational knowledge; 2) user access and service quality; 3) training and skill development; 4) workflow efficiency; and 5) professional status. To corroborate the themes obtained from the participants' interviews, direct quotes were used to reinforce the related quantitative findings. Each theme is captured in the related outcome of the quantitative data under the discussions of the findings. For the qualitative approach, the study adopted thematic analysis methods to further elucidate the respondents' responses. To ensure the anonymity of the interviewees, as they were assured before the interview, the table will not include any numbers or reveal individual identities. The list of the institutions in the table were arranged alphabetically.

Discussion

This study examined issues in the retooling and re-skilling of cataloguers in the digital era in Nigeria. The findings revealed the availability and use of computers, internet facility and library software management for cataloguing practices. It can also be observed from the results that some of these ICT facilities are more readily available than others. The importance of having ICT tools for managing information resources cannot be overemphasized in the digital environment. It has become a catalyst and a driving force for information organization and retrieval. Therefore, it is important for libraries to consider a number of digital tools that may facilitate this change. This outcome suggested that the respondents using ICTs recognize that new technologies make it easier to fulfill conventional duties in a more dynamic and simple way, especially when it comes to information organization and retrieval. One of the participants interviewed noted that *"The digital era has made cataloguing more efficient and faster, but it also has its own technical aspects that require mastery through regular practice and skill acquisition"* (Interviewee 4). Another participant interviewed also noted that "Prior to the implementation of technological tools, almost all our operations were done manually. Today, our tasks that once took hours can be performed within minutes*"* (Interviewee 2). The outcome substantiated the findings of Alabi (2018) that Nigerian cataloguers have a positive mindset toward

ICT applications when performing cataloguing and classification tasks. The outcome of the present study also portrayed that a majority of the respondents are applying ICT tools to cataloguing library materials, although some may not have done so due to non-availability or non-functional tools. Retooling is crucial to maintaining and sustaining vibrant and responsive cataloguers as well as increasing job productivity. Effective cataloguing and classification services in any library in an electronic environment are dependent on the availability of modern tools and skills possessed by the cataloguers. Hence, the availability and use of digital tools for bibliographic management are no longer a luxury but a necessity in the digital era.

Cataloguers will undoubtedly continue to be important for information organization and retrieval, but they will need to upgrade their tools, skills, and relevance in the evolving digital landscape. Despite the benefits of applying technologies to the operations of information organization, it is nonetheless remarkable that many libraries have not yet adapted to a modernized set of digital tools for cataloguing. This closely corroborates the findings of Arinola et al. (2012), who established that many libraries in the country are leveraging ICT for cataloguing and classification services, while others are yet to adopt this new revolution. This finding also substantiates the findings of Akidi and Okezie (2018), who reported that most of the cataloguing and classification activities practiced are not ICT-driven but manually inclined. By implication, they still depend on traditional tools like the Library of Congress Classification Scheme (LCC), the Dewey Decimal Classification (DDC), and AACR2 to carry out their functions.

Apparently, the application of traditional methods or tools to library cataloguing is inadequate to fully describe and provide access to the digital resources that have characterized the digital era. Of a truth, a lot has changed in the profession; it is not the same world out there anymore, and cataloguers will be in a losing battle if they think they can turn back the clock in a digitally influenced information world to how things used to be. What is important now is how these changes can be managed to suit our peculiar needs and environment because, according to Mason (2016), this change has also influenced how and by whom, the cataloguing is done. Hence, to maintain professional ethics in providing timely and high-quality records, cataloguers need to develop a new mindset to deal with the rising complexities and emerging trends and issues in cataloguing.

On the perceived implications of the digital era for the cataloguing profession, the study revealed that the cataloguer alluded to the fact that it can lead to new roles and responsibilities, organizational changes, copy cataloguing, and the introduction of non-professionals and non-cataloguers to cataloguing practices. This indicates that the digital era has ushered in a range of changes and shifts in the functions of the cataloguers. On the perceived implication of the introduction of non-professionals and non-cataloguers to cataloguing practices, a response from one of the participants interviewed asserts that the "introduction of non-professional cataloguers to the cataloguing function will help to aid the work flow in the cataloguing unit, thereby having a large amount of information materials processed, but the implications is that if they are not well trained, they will turn out not-so good entries and make it difficult for the cataloguers, having to redo the process" (Interviewee 4).

Similarly, another participant opined that "non-professional cataloguers may lack the foundational knowledge and understanding of cataloguing standards, rules, and best practices"(Interviewee 2). In support of this view, another participant indicated that there is a "possibility of not abiding by the rules of AACR2, wrong determination of subjects, wrong determination of cutter numbers, inability to know the number of catalogue cards needed to be produced for a particular book, and wrong determination of the access point for the particular book in question" (Interviewee 3). However, one of the participants interviewed said that "though I allowed them to catalogue but with strict supervision and by assisting them in carrying out their duties effectively" (Interviewee 5). This outcome is in tandem with the earlier study carried out by Yusuf and Nikko (2010), who found out that the engagement of non-professionals in cataloguing practices

is increasingly becoming a reality. This has enthused discussion and fear among professional cataloguers as it is seen to constitute a threat to their jobs and status.

In support of this view, another participant interviewed averred that "when others are capable of doing everything you do, it will devalue the profession…it will affect the employment of librarians, because why employ highly skilled librarians when you can get anyone and even pay less" (Interviewee 1). Meanwhile, it is believed that non-professionals do not possess the requisite knowledge and skills to practice. This led Attar (2006) to assert that having intelligence alone does not guarantee proficiency in library tasks, as cataloguing involves complexities that cannot be intuitively grasped without appropriate training. This indicates that the use of non-professionals poses a lot of danger to the work of cataloguing, as it can lead to a lot of errors and spelling mistakes. This viewpoint is reinforced by the findings of Chandrappa and Harinarayana (2016), which illustrated and proved the inconsistency and error in many metadata records, affecting the general description and accessibility of the resources.

It is very important to ascertain cataloguer skills with ICT. This is because skills may influence the decision to adopt and use ICT, as well as their application to cataloguing activities. The acquisition of appropriate digital skills is required for employees to cope with the demands of digital information resources. Without adequate skills, it will be difficult to effectively use available contemporary tools. This was one of the issues faced by early libraries and librarians when automation and advanced tools were introduced in many developing nations. The application of ICT to cataloguing has challenged librarians to re-evaluate the core skills required for managing digital information resources. The findings of this study also show that the majority of respondents have high skills, as seen in the areas of computer usage, cataloguing of digital resources, library software management, and creating metadata for digital resources. Meanwhile, many still have low skills in the use of Web Dewey and creating metadata for electronic and digital resources. The low skills in the use of web Deway may be attributed to the fact that most academic libraries in Nigeria are using the Library of Congress Classification Scheme. This outcome contradicts the findings of Nweke, Omoadoni and Omosekejimi (2022), who reported a lack of requisite ICT skills among cataloguers in Nigeria. This finding is also in contrast with the results of Ezeibe et al. (2021), who found that library personnel did not possess the skills needed for effective cataloguing and classification services in libraries. However, their outcome may be attributed to the introduction of non-cataloguers, who likely lack the specialized skills required to perform the functions of professional cataloguers. This supported the view of another interviewed participant, who alluded that "It is good to engage non-professional cataloguers in the cataloguing functions where there is a shortage of staff, but they must be trained thoroughly to do so and given the right skills needed in performing such functions (Interviewee 4).

On the issue of low skills for creating metadata for electronic/digital resources by the respondents of this present study, the outcome indicated a serious concern for cataloguers. Metadata, unlike the traditional methods of library organization (cataloguing), plays an important role in the description, organization, discovery, access, and use of digital information resources. In Nigeria, an increasing number of university libraries are involved in digitization projects, making frantic efforts to build digital collections and institutional repositories. Regardless of these efforts in terms of finances and human resources expended, it seems the essence of this noble objective still remains undesirable as discovery and access to most of these resources continue to become difficult, which is largely attributed to inadequate metadata descriptions. This result corroborates the finding of Oguntayo and Adeleke (2016), who reported that over half of their study participants were familiar with metadata as they acknowledged the compatibility of RDA with various metadata coding schemas, implying that they only had a basic understanding of the concept but were unaware of its technicalities. Furthermore, Adeleke (2016) pointed out that beyond their traditional library skills, not many librarians have obtained formal professional training in areas such as metadata practices. Unfortunately, many library schools are not well-equipped with the necessary facilities and

manpower to train students who can adequately create metadata for digital resources.

Training and re-training are highly useful means for re-skilling employees, bringing them into a position where they can do their jobs effectively and efficiently with little or no supervision. With regards to the benefits of training and skill acquisition, interviewee 3 noted that *"cataloguing workshops that combine both theory and hands-on practical sessions provide the greatest benefit for cataloguers"*. The finding also shows that the majority of the respondents attend training occasionally. This closely corroborates the findings of Inyang and Agwunobi (2016), who revealed that only very few cataloguers were granted university sponsorship, leading many others to self-fund their training. Finally, despite the benefits of training and skill acquisition for job performance, it was observed that the major constraints faced include poor organizational sponsorship for workshops, poor implementation of staff development policy, and inadequate appropriate facilities for digital operations. This result supported the study of Inyang and Agwunobi (2016), who also found out that the challenges militating against respondents' participation include the high cost of training, and a lack of organization sponsorship, among others. Lamenting the situation in Nigeria, Iwu and Iroagonachi (2012), are of the view that a lot of professional librarians in Nigeria have their knowledge of library automation rendered obsolete owing to a lack of training and retraining in modern library practices.

The result of the hypothesis showed that there is no significant relationship between gender and the digital skills of cataloguers across libraries in Nigeria. This result is corroborated by Ansari (2013), who reported that gender is not significantly related to ICT proficiency among library personnel in Pakistan. However, the findings of the present study sharply contrasted with the outcome of Oyedipe (2020), who reported that there is a significant relationship between gender and ICT use among library personnel in public university libraries in Nigeria. Digital skills are usually related to an individual's ability to use and work with digital tools such as library management software, computers, and the internet. These skills are not necessarily determined by one's gender but are acquired through education, training, and experience. Gender differences in the usage of digital tools may, however, be attributed to societal and cultural stereotypes and workplace biases.

Conclusion

There is no doubt the traditional role of cataloguer has now shifted from the use of traditional tools to digital tools. Nevertheless, cataloguers will undoubtedly continue to play a vital role in information management, but they will need to upgrade their tools, skills, and value in the evolving information environment. This calls for retooling and re-skilling of the cataloguers. Therefore, cataloguers of today are expected to possess additional knowledge and necessary skills to work in the digital environment. The findings of this study revealed that the majority of the respondents indicated they are applying digital tools to cataloguing library materials, while few are yet to. This study also indicated that many cataloguers have adopted the use of ICT tools and possess digital skills essential for the management of information resources in the digital era, but many still have low skills for creating metadata for electronic and digital resources. From the findings of the study, it is concluded that a majority of Nigerian cataloguers have embraced the use of digital tools in cataloguing, and possess the digital skills required for the digital era. The findings of this study have shown to have implications for several stakeholders. For practicing cataloguers, the findings suggest an urgent need for complete adaptation and attitudinal shift toward the use of cataloguing technological tools in order to reflect the reality of universal digital librarianship. So, Nigerian libraries are encouraged to invest in needed tools and skills, recognizing that long-term digital transformation strongly depends on the capabilities of the practitioners. From a research

perspective, the findings underscore the need for LIS educators to devise effective strategies to teach practical skills and knowledge required for the application of digital tools in libraries.

Recommendations

Based on the findings of the study, there is a need for continuous retooling and re-skilling of cataloguers to meet the changing needs and expectations of users. The management of each library should endeavor to provide more needed digital tools for cataloguing operations. Finally, since the respondents pointed out that the top challenge hindering their re-skilling is poor organizational sponsorship for workshops, library management should endeavor to continually support the sponsorship and training cataloguer in the area of ICT by prioritizing their training needs and sponsorships in their annual budget. This is certainly one of the ways libraries can enhance the digital skills of their staff. In the meantime, due to the paucity of funds in many libraries, cataloguers should imbibe the habit of training themselves by engaging in freely available online seminars/webinars.

Limitations of the Study

This study has some limitations; hence, generalizing the findings should be done with caution. One glaring limitation of the study is the low response to the questionnaire by the respondents, despite the concerted effort put in by researchers to get more responses. This could be attributed to the low number of cataloguing librarians in many libraries and may be partially due to the use of online questionnaires, which are commonly used for cross sectional surveys but can yield poor response rates. Furthermore, because the questionnaire is based on self-reporting, some respondents may under- or over-report their level of digital skills. Nevertheless, the study offers several implications. From the study findings, understanding the state of available cataloguing tools and the extent of skills possessed by cataloguers in Nigerian libraries could lead to needed action for policy makers and management to provide modern tools and training that will enhance the organization and easy retrieval of information resources for the users where they are lacking. Given the outcome of this study, future studies could explore the level of retooling and re-skilling among cataloguing librarians across libraries in the country using a larger sample size. In addition, future study could investigate how digital transformations in cataloguing affect users' satisfaction and access to information resources in the libraries.

Authors' Contributions

All authors have contributed to the final manuscript. The contribution of all authors: conceptualization, methodology, formal analysis, writing original draft preparation, writing review, and editing. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

All authors have no conflict of interest related to this study.

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