Challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

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Abstract
This study investigated the challenges faced by university libraries in South East Nigeria in applying cataloguing standards to the retrieval of electronic information resources. To achieve this, three research questions with two hypotheses were posed. These cover: extent of application of Cataloguing standards on retrieval of electronic information resources, challenges of application of cataloguing standards on retrieval of electronic information resources and determined strategies for enhancing application of cataloguing standards on retrieval of electronic information resources. The research design used for the study is descriptive survey. The study covers ten (10) public university libraries in South East Nigeria. The population comprises 184 professional librarians in the libraries. The instruments for data collection was questionnaire. The data collected were analyzed using mean and standard deviation. The hypotheses were tested at 0.05 level of significance. Findings indicate that inadequate infrastructure, lack of trained personnel, and inconsistent application of standards are major challenges. The researcher recommends: professional training and capacity building for staff to enhance their understanding and application of cataloguing standards, improved infrastructure to support the cataloguing and retrieval of electronic resources, and collaboration with Standards Organizations to ensure adherence to globally recognized cataloguing standards among other.

Keywords: Cataloguing standards, Electronic Information Resources, Retrieval Systems, University libraries, South East Nigeria.

Introduction

In the digital age, electronic information resources (EIRs) have become indispensable to academic research and learning, particularly within university libraries. These resources include e-books, e-journals, online databases, and other digital materials that support teaching, learning, and scholarly communication. However, the efficient retrieval of these resources depends heavily on effective cataloguing, guided by established cataloguing standards. The application of these standards ensures consistency, accuracy, and accessibility, yet in many developing regions, such as South East Nigeria, several challenges impede their proper implementation (Ezeani, 2011).

Cataloguing standards like the Anglo-American Cataloguing Rules (AACR2), Resource Description and Access (RDA), and Machine Readable Cataloguing (MARC21) are designed to provide structured and uniform descriptions of information resources (Kiran & Dhanavandan, 2023). When correctly applied, these standards enhance interoperability among library systems and facilitate seamless access to digital content across platforms (Ugwu & Onyebinama, 2020). However, in the context of Nigerian university libraries, several studies have reported inconsistencies in the application of these standards, leading to inefficiencies in the retrieval of electronic information resources (Omeluzor et al., 2022). Among the major challenges are the lack of skilled cataloguers, inadequate ICT infrastructure, and limited access to training on emerging cataloguing tools and standards (Sibiya & Shongwe, 2018; Ntsiko, 2013). These issues are compounded by financial constraints, which restrict libraries from upgrading their systems or subscribing to necessary metadata services (Opara, 2019).

Additionally, the rapid evolution of digital content often outpaces the libraries' ability to update their cataloguing practices, leading to outdated or incomplete records that hinder information retrieval (Nnadozie & Egwim, 2017). Moreover, inconsistencies in cataloguing practices across different university libraries in the region contribute to a lack of uniformity, making resource sharing and discovery more difficult. This fragmentation undermines the collaborative potential of library networks and affects users' access to relevant academic resources (Okore, Ekere, & Eke, 2014). In some cases, librarians rely on improvised or locally modified standards due to the absence of institutional cataloguing policies, further complicating retrieval efforts. Given the centrality of EIRs in modern scholarship, addressing these cataloguing challenges is crucial. Effective application of cataloguing standards not only improves retrieval efficiency but also

ensures that users can navigate the vast digital landscape with ease. Therefore, this study seeks to examine the challenges affecting the application of cataloguing standards in the retrieval of electronic information resources in university libraries in South East Nigeria. The study aims to identify the cataloguing standards, specific barriers on application of this standards for information retrieval, and recommend strategies for improving cataloguing practices within this academic context.

Statement of the problem

The application of cataloguing standards for retrieving electronic information resources in university libraries in Southeast Nigeria faces several challenges, driven by both technical and human factors. A major issue is the inadequate training of library staff in modern cataloguing practices, especially those relevant to digital materials. Many librarians lack access to continuous professional development, resulting in inconsistent and incomplete cataloguing, which hampers information retrieval.

Another key problem is the lack of uniform cataloguing systems across libraries. While some follow international standards like MARC or RDA, others use outdated or incompatible systems, leading to poor interoperability and difficulty in cross-library searches. This inconsistency also limits resource sharing and collaboration. The rapid growth and diversity of electronic resources such as e-books, databases, and multimedia, add further complexity. Many libraries lack the infrastructure, tools, and funding to manage digital content effectively, often failing to integrate these resources into their main catalogues. Poor metadata practices and weak indexing further limit users' ability to find relevant information.

Overall, these challenges highlight the need for urgent intervention which is the gap this study intends to fill. Improvements in cataloguing standards, staff training, metadata integration, and investment in infrastructure are critical for enhancing access to electronic resources in Southeast Nigerian university libraries.

Research Question

The following research questions inform the study:

1. What is the extent of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria?

2. What are the challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria?

3. What are the strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria?

Hypotheses

The following null hypotheses will be tested on a 0.05 level of significance:

H02: There is no significant difference in the mean rating of librarians on the challenges Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria.

H03: There is no significant difference in the mean rating of librarians on the strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria.

Literature review

University libraries are fundamental to higher education, supporting teaching, learning, and research through access to diverse scholarly resources, both physical and electronic (Ifijeh & Yusuf, 2023). Unlike public or special libraries, they primarily serve students, faculty, and researchers by offering extensive collections of books, journals, theses, and digital content. As digital learning and online research grow, university libraries must continually adapt to meet evolving information needs (Obaseki & Okezie, 2022). According to Edem and Essien (2022), "university libraries are not just resource centers, but learning partners," equipping users with information literacy skills crucial for academic and lifelong learning.

In Nigeria, libraries increasingly utilize Electronic Information Resources (EIRs), which include e-books, e-journals, databases, institutional repositories, and multimedia content accessible via digital platforms (Omeluzor et al., 2022). EIRs offer faster and broader access to information, but challenges such as inconsistent metadata, inadequate ICT infrastructure, absence of web-based

OPACs, and limited technical skills among staff persist (Oladokun & Aina, 2023; Igbo & Imo, 2017).

Cataloguing standards are essential for organizing library materials and ensuring consistency and interoperability across systems. These standards structure bibliographic descriptions and support effective information retrieval (Library of Congress, 2022). Frameworks like AACR2, RDA, MARC21, Dublin Core, and BIBFRAME outline elements like author, title, edition, and publication details to standardize resource description (Olive, 2013; Kiran & Dhanavandan, 2023). Information retrieval refers to locating stored resources via databases or catalogues using tools like OPACs and search engines (Chen et al., 2023). IR systems match user queries with catalogued content, and their success depends on quality metadata and standardized cataloguing (Koltay, 2023). Metadata information like author, subject, and keywords plays a key role in retrieval effectiveness. Standards such as RDA and MARC ensure this metadata is consistent, improving discoverability (Abubakar & Hassan, 2022). Poor cataloguing, inconsistent metadata, and limited ICT tools hinder efficient retrieval (Eze & Uzoigwe, 2023).

Application in library science involves the practical use of standards, tools, or technologies to manage and provide access to resources (Nwosu & Ugboma, 2023). It represents the translation of theory into functional outcomes. Onuoha and Eke (2022) describe it as the systematic use of professional principles to ensure resource discoverability and usability. In digital contexts, applying cataloguing standards like RDA, MARC21, and Dublin Core is vital for consistent, interoperable, and efficient access to EIRs (Ogunyade & Aina, 2021). Without proper application, even well-funded collections may remain underutilized.

Challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

Cataloguing information resources presents numerous challenges, especially in determining subject content for materials with multiple headings (Sibiya & Shongwe, 2018). Additional barriers include outdated cataloguing tools, insufficient professional staff, limited vocabulary, and time constraints (Orbih & Aina, 2014). A major issue is cataloguers' low ICT proficiency, hindering automation and meeting user expectations (Ntsiko, 2013). Infrastructural problems such as inconsistent power supply also impact service delivery. Globally, implementing Resource

Description and Access (RDA) has faced various obstacles. European and UK libraries struggled with system changes (Danskin & Gryspeerdt, 2014), while South Africa's CCTML lacked systems to accommodate essential MARC tags (Monyela, 2019). In China, the complexity of RDA's language posed challenges for non-English speakers (Luo, Zhao, & Qi, 2018), and Malaysia faced difficulties grasping FRBR and FRAD concepts (Yushiana & Emilia, 2016). Canada needed French translations to aid implementation (Cross et al., 2014).

Developing countries like Nigeria and Kenya experience additional setbacks such as limited training, poor internet, lack of automation, and electricity issues (Ahonsi, 2014). Financial limitations restrict access to RDA toolkits and training (Oguntayo & Akiniyi, 2016; Ifijeh et al., 2019). Many libraries still use manual cataloguing due to lacking ICT infrastructure (Iroaganachi, Iwu-James, & Esse, 2015). Training is essential for effective RDA adoption. However, workshops are often superficial due to inadequate funding, facilities, and local expertise (Jin & Sandberg, 2014; Oguntayo & Akiniyi, 2016). In Nigeria and South Africa, such training has mainly raised awareness without practical outcomes. A 2016 Nigerian training was canceled due to funding (Oguntayo & Akiniyi, 2016). Adeleke and Olorunsola (2017) noted that low ICT literacy among cataloguers impedes automation efforts. Persistent issues like poor internet and power supply (Ahonsi, 2014; John-Okeke, 2018), coupled with bureaucratic hurdles and corruption (Daily Trust, 2017), continue to hamper RDA implementation, especially in developing regions.

Research methodology

This study employed a descriptive survey design, a population of 184 professional librarians in public university libraries in Southeast Nigeria was used. A structured questionnaire titled "Challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources Questionnaire" (CACSREIRQ) was used to elicit information from the respondence. The instruments was validated by research experts from the Department of Library and Information Science in UNN. Cronbach's alpha (α) method which yield overall reliability score is 0.87 was used to ascertain the reliability of the instruments. The data for this study was administered and collected by the researcher and nine research assistants. Descriptive statistics were used to answer the research questions while Null hypotheses were subjected to t-test statistical computation at a 0.05 level of significance.

Findings and discussions

Research Question one

1. What is the extent of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria?

Table 2: Mean and standard deviation of respondents on the extent of What is the extent of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria, n = 154

S/N	Cataloguing Standard	Federal		State		Overall			Remark
		$\overline{X}$	SD	$\overline{X}$	SD	Mean $\overline{X}$	SD		
1	Punctuation	3.39	.53	3.40	.51	3.40	.52		HE
2	Capitalization	3.37	.60	3.35	.55	3.36	.57		HE
3	Assignment of headings	3.29	.54	3.41	.53	3.37	.54		HE
4	Subject cataloguing	3.45	.50	3.43	.54	3.44	.52		HE
5	Descriptive cataloguing	3.45	.58	3.41	.53	3.42	.55		HE
6	Application of edition statement	3.24	.62	3.31	.54	3.29	.57		HE
7	Application of standard numbers	3.24	.62	3.32	.58	3.29	.59		HE
8	Application of title	3.41	.50	3.36	.59	3.38	.56		HE
9	Statement of responsibility	3.37	.63	3.27	.60	3.31	.61		HE
10	Application of series statement	3.35	.59	3.30	.57	3.32	.58		HE
11	Application of call number	3.39	.53	3.37	.54	3.38	.54		HE
12	Uniform locator	3.27	.67	3.23	.60	3.25	.62		HE
13	Authorized access point	3.25	.59	3.31	.54	3.29	.56		HE
14	Application of authority/vocabulary control	3.25	.59	3.30	.59	3.29	.59		HE
15	Classification	3.41	.64	3.41	.55	3.41	.58		HE
16	Application of imprint	3.25	.66	3.31	.56	3.29	.59		HE
17	Note area	3.27	.75	3.23	.60	3.25	.65		HE
18	Application of collation	3.14	.72	3.20	.63	3.18	.66		HE
19	Shelf list management	3.12	.74	3.18	.71	3.16	.72		HE

S/N	Item Statement								
20	Application of filing methods	3.22	.67	3.21	.65	3.21	.66		HE
21	Development of added entries	3.24	.68	3.22	.63	3.23	.64		HE
	Cluster Mean	**3.30**	**.47**	**3.21**	**.41**	**3.31**	**.43**		**HE**

Result in Table 2 shows the extent of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria. The result revealed that items 1-21 as well as the cluster mean had their mean values ranged from 3.16 -3.46. These values were within the real limit of 2.50 -3.49; indicating that the extent of readiness for application of cataloguing standards on electronic information resources for effective retrieval in university libraries in South-East, Nigeria is high. The Table also revealed that the standard deviations of the 21 items ranged from .52-.72; indicating that the respondents were homogenous in their response.

Research Question Two

1. What are the challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria?

Table 4: Mean and standard deviation of respondents on the challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria, n = 154

S/N	Item Statement	Federal		State		Overall Mean			Remark
		$\overline{\text{X}}$	SD	$\overline{\text{X}}$	SD	$\overline{\text{X}}$	SD		
1	Difficulty in acquiring required skills	2.94	.99	3.16	.76	3.08	.85		Agree
2	Poor foundation in cataloguing	2.86	.85	3.14	.88	3.05	.87		Agree
3	Inadequate cataloguing tools	3.12	.59	3.26	.73	3.23	.69		Agree
4	cataloguers anxiety/ phobia due to lack of training	3.06	.65	3.13	.81	3.10	.76		Agree
5	Lack of adequate facilities to enhance application of cataloguing standards to E-resources	3.22	.50	3.33	.69	3.29	.64		Agree
6	Lack of adequate ICT skills on the part of cataloguers	2.94	.76	3.20	.81	3.12	.80		Agree
7	Poor interest in cataloguing	3.02	.76	3.17	.79	3.12	.78		Agree

8	Lack of Internet facility to access online cataloguing standard toolkits	3.39	.49	3.28	.78	3.32	.70		Agree
9	Inadequate fund for acquisition/ subscription to cataloguing standards	3.31	.58	3.39	.69	3.36	.65		Agree
10	Incessant power outage hinders access to online cataloguing toolkits	3.41	.61	3.42	.69	3.42	.66		Agree
11	Insufficient number of professional cataloguers	3.22	.64	3.31	.74	3.28	.71		Agree

Table 4 presents the challenges related to the application of cataloguing standards for retrieving electronic information resources in university libraries in South East Nigeria. All 11 listed items were identified as challenges to readiness, each with a mean score of 2.50 or higher, meeting the set decision threshold. This indicates a general consensus among respondents. Furthermore, the standard deviations for these items ranged between 0.64 and 0.87, suggesting homogeneity in responses. These findings underscore consistent recognition of challenges in implementing cataloguing standards for effective retrieval of electronic resources in the studied libraries.

Hypothesis One

There is no significant difference in the mean rating of librarians on the challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

Table 5: An independent t-test analysis of significant difference in the mean rating of librarians on challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

Gender	N	Mean	SD	df	t-value	P-value
Male	51	3.14	.45			
				152	-1.335	.184
Female	103	3.26	.56			

The t-test result in Table 5 shows $t(152) = -1.335$, $p = .184$, which is greater than the 0.05 significance level. Thus, the null hypothesis of no significant difference was accepted. The researcher concludes that there is no significant difference in the mean rating of male and female

librarians regarding the challenges of readiness for applying cataloguing standards to electronic information resources for effective retrieval in university libraries in South-East Nigeria.

Research Question Three

1. What are the strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria?

Table 6: Mean and standard deviation of respondents on the strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria, n = 154

S/N	Item Statement	Federal		State		Overall Mean			Remark
		$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD		
1	Acquisition of further skill on the use of new cataloguing standards through further studies and conferences	3.59	.50	3.56	.54	3.57	.52		Appropriate
2	Laying of adequate foundation in cataloguing in LIS curriculum.	3.49	.54	3.50	.54	3.50	.54		Very Appropriate
3	Provision of adequate cataloguing standards tools	3.51	.50	3.51	.56	3.51	.54		Very Appropriate
4	Elimination of Staff anxiety/ phobia by exposing cataloguers to regular cataloguing and classification training	3.39	.67	3.38	.60	3.38	.62		Appropriate
5	Provision of adequate facilities to enhance application of cataloguing standards to E-resources	3.31	.79	3.41	.57	3.38	.65		Appropriate
6	Provision of enabling environment for training and adequate ICT competence	3.49	.50	3.49	.54	3.49	.53		Appropriate
7	Cataloguer's adequate interest in cataloguing.	3.43	.73	3.43	.65	3.43	.68		Appropriate
8	provision of Internet facility to access online cataloguing standard toolkits	3.59	.54	3.46	.61	3.50	.59		very Appropriate
9	Provision of adequate funds for acquisition/ subscription to cataloguing standards	3.49	.61	3.37	.59	3.41	.60		Appropriate
10	Provision of constant power supply to enable access to online cataloguing toolkits	3.49	.61	3.50	.56	3.49	.57		Appropriate
11	Employment of sufficient number of professional cataloguers	3.33	.62	3.46	.59	3.42	.60		Appropriate

Table 6 presents strategies for enhancing the application of cataloguing standards to improve retrieval of electronic information resources in university libraries in South East Nigeria. All 11 items listed were accepted as effective strategies, as each met the minimum mean value of 2.50 required by the decision rule. Standard deviations ranged from 0.52 to 0.68, suggesting respondents showed consistent agreement (Table 6). These findings affirm the identified strategies as viable for improving cataloguing readiness and retrieval efficiency in the region's university libraries.

Hypothesis Two

There is no significant difference in the mean rating of librarians on the strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria.

Table 7: An independent t-test analysis of significant difference in the mean rating of librarians on the strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

Gender	N	Mean	SD	df	t-value	P-value
Male	51	3.47	.47			
				152	.072	.943
Female	103	3.46	.42			

Result in Table 7 shows the t-test for independent samples assuming equal variance. The result shows t (152) = .072, P = .943. Thus, the null hypothesis of no significant difference was accepted. This is because; the p-value (.943) is greater than 0.05 level of significant. The researcher therefore, concludes that, there is no significant difference in the mean rating of male and female librarians on the strategies for enhancing readiness for application of cataloguing standards on electronic information resources for effective retrieval in university libraries in South-East, Nigeria.

Discussion

Extent of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

The study found that cataloguing standards such as punctuation, headings, classification, authority control, and filing methods are highly applied to electronic resources for effective retrieval in Southeast Nigerian public university libraries. This aligns with Aina (2014), who emphasized adopting cataloguing standards for consistency. The researcher recommends that university libraries implement Resource Description and Access (RDA), a modern cataloguing standard suitable for digital resources.

Challenges of Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria.

The study identified several challenges hindering the application of cataloguing standards to electronic resources in Southeast Nigerian university libraries. These include inadequate tools, lack of training, poor ICT skills, low interest, weak foundational knowledge, limited access to facilities, internet and funding issues, and frequent power outages (John-Okeke, 2018; Aboyade & Eluwole, 2018). A shortage of professional cataloguers further complicates readiness (Adebayo, 2013). Poor ICT competencies among librarians obstruct skill development (Oladokun & Aina, 2023; Eze & Uzoigwe, 2023), while lack of interest impedes progress in cataloguing practices (Igbo & Imo, 2017).

Strategies for enhancing Application of Cataloguing Standards on Retrieval of Electronic Information Resources in University Libraries in South East Nigeria

The study highlighted strategies to improve readiness for applying cataloguing standards to electronic resources in Southeast Nigerian university libraries. Key approaches include affordable training, workshops, and conferences (Imeremba, 2011; Oladokun & Aina, 2023), integrating cataloguing in LIS curricula, and providing internet access for online tools. Other measures include ensuring steady power supply, adequate funding for toolkits (Kablar, 2019), employing enough professional cataloguers, reducing staff anxiety through regular training, and supplying essential cataloguing tools. These align with the view that libraries must offer current cataloguing tools (Omeje, 2010) and employ cataloguers for effective service delivery.

Conclusion

The challenges in applying cataloguing standards to the retrieval of electronic information resources in South East Nigerian university libraries highlight significant gaps in infrastructure, training, and standardization. Addressing these issues will not only improve the efficiency and accessibility of digital resources but also enhance the overall academic experience for students and researchers. By adopting modern cataloguing practices and ensuring consistency in their application, university libraries in the region can greatly improve the retrieval systems for electronic information resources.

Recommendations

1. Training and Capacity Building: University libraries should invest in continuous professional development for staff to enhance their understanding and application of cataloguing standards.

2. Improved Infrastructure: Libraries must upgrade their technological infrastructure to support the cataloguing and retrieval of electronic resources more effectively.

3. Collaboration with Standards Organizations: Libraries should collaborate with national and international bodies to ensure adherence to globally recognized cataloguing standards.

4. Regular Audits and Updates: Libraries should conduct regular audits and updates of their cataloguing systems to align with the latest standards and technological advancements.

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