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Knowledge of Cataloguing Rules among Cataloguers in University Libraries in South-East Nigeria: Implications for Effective Technical Services

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Abstract

This study investigated the knowledge of cataloguing rules among cataloguers in university libraries in South-East Nigeria and examined its implications for effective technical services. A descriptive cross-sectional survey design was adopted using a census of 257 professional cataloguers drawn from ten federal and state university libraries, of whom 252 returned usable questionnaires. Data were analysed using descriptive statistics and one-way analysis of variance. The findings revealed that respondents possessed high levels of knowledge in traditional cataloguing practices, particularly AACR2, Library of Congress Classification (LCC), Library of Congress Subject Headings (LCSH), Cutter number construction, and bibliographic description. However, knowledge relating to Resource Description and Access (RDA), MARC21, metadata standards, integrated library systems, bibliographic networking, and digital cataloguing workflows was comparatively moderate. No statistically significant difference was found in cataloguing knowledge based on years of professional experience, suggesting that professional competence depends more on continuous learning than length of service. The study concludes that while cataloguers possess a strong foundation in conventional bibliographic control, sustained investment in professional development is essential to strengthen competencies in emerging metadata standards and digital cataloguing environments. The findings provide empirical evidence to inform policy, curriculum development, and technical services management in university libraries across developing countries.

Keywords: Cataloguing rules; Cataloguing knowledge; Technical services; University libraries; Resource Description and Access; Metadata; Nigeria

Introduction

Academic libraries continue to form the heart of organization, preservation, and information dissemination by providing structured access to knowledge resources to facilitate the processes of teaching, learning, research, and innovation. Their performance is not only determined by the diversity of collections but also by the excellence of bibliographic organization, thereby enhancing users' ability to find and retrieve information effectively. Cataloguing therefore persists as one the most core technical services carried out in libraries as the intellectual process that ensures information resources' systematic description, classification, and organization for effective information access. Cataloguing standards accepted globally persist in evolving to cater to changes in information formats, metadata environments, and user expectations, thus demanding cataloguers' constant updating of professional knowledge and competencies (International Federation of Library Associations and Institutions, 2017; RDA Toolkit;).

The transformation of cataloguing practice from traditional print-based system to digital bibliographic environments has revolutionized cataloguers' activities. Prevalent old cataloguing codes, such as Anglo-American Cataloguing Rules, Second Edition (AACR2), were mainly devised for description of printed materials, while contemporary standard, such as Resource Description and Access (RDA) was founded on conceptual models that facilitate linked data, semantic interoperability, and machine-readable metadata. The on-going elaboration of RDA, complimented with the IFAA Library Reference Model, (LRM) signify the profession's inclination towards flexible metadata

organization that can facilitate resource discovery, particularly the more interconnected and networked digital environments.

Within the modern contexts of academic libraries, cataloguers are required to exhibit capabilities beyond traditional descriptive cataloguing. Their professional obligations are escalating to entail application of MARC21 encoding standards, authority control, metadata interoperability, management of digital repositories, linked-data principles, and inclusion in collaborative bibliographic networks. Also, emerging technologies like artificial intelligence-assisted metadata generation and semantic web applications are recomposing catalogue workflow and elevating the prominence of professional judgement in adjudicating machine-generated records. Cataloguing, thus, has transformed from a rule-driven activity to a knowledge-intensive professional practice that call for constant learning and adaptation.

Despite these global developments, universities libraries of developing nations in many cases still face impediments associated with contemporary cataloguing standards' implementation. Various studies have documented lagging implementation of RDA, restricted continuing professional development opportunities, poor technological infrastructures, and heterogony of preparedness towards linked-data environments. Whereas traditional cataloguing competencies remain robust, cataloguers' knowledge concerning new metadata standards still varies widely across different institutions attributed to the impact of institutional investment, accessibility to training and technological readiness.

In Nigeria, university libraries have recorded remarkable achievement on the aspect of automating catalogue and implementation of integrated library systems. However, cataloguing practice retains the pervasion of coexistence between old descriptive standards and new international metadata frameworks. Many cataloguers still largely depend on AACR2 but at the same time preparing for or implementing RDA–based workflow. Such transitional setting poses important professional challenges, especially when libraries innovate on interoperability, metadata quality and partnership in the global bibliographic networks. Such developments demonstrate the need to appreciate the level of acquisition of cataloguers' knowledge for them to function effectively in the present-day technical services set-up.

Knowledge forms the base for the construction of professional cataloguing competence. Cataloguers with complete knowledge of descriptive cataloguing rules, subject analysis, classification system, authority control, metadata standards and digital technologies in cataloguing stand a better chance of producing precise, homogeneous and interoperable bibliographic records, against the background that poor professional knowledge may compromise quality of metadata, resource discoverability, user satisfaction, and efficiency of technical services. Human Capital Theory underpin this by arguing that allocation in education, training and continuing professional development increase in professional productivity and organizational performance, while Competency Theory focus on application knowledge effectively into the workplace contexts.

While earlier studies explored cataloguing practices, automation and professional competencies in the library, there is comparatively little attention given to study cataloguers' knowledge of cataloguing rules, as a determinant of effective technical services within the Nigerian university libraries. Further, the fast-paced evolution of international cataloguing standards, such as RDA, IFLA Library Reference Model, BIBFRAME, linked data, and AI-assisted cataloguing requires re-empirical study on cataloguers' readiness toward contemporary bibliographic practice. Hence, this study explores cataloguers' knowledge on cataloguing rules among university libraries, in South-East Nigeria, and explores their ramifications for effective technical services. The study therefore adds empirical evidence based on one of major higher education regions of Nigeria which add to continuing international debate about cataloguing competence, quality of metadata and the future of bibliographic control in academic libraries.

Research Question:

1. Knowledge of Cataloguing Rules among Cataloguers in University Libraries in South-East Nigeria.

Research Hypothesis:

1. Cataloguers' knowledge of cataloguing rules do not differ significantly according to their years of professional experience.

Methodology

This study adopted a descriptive cross-sectional survey research design to investigate the knowledge of cataloguing rules among cataloguers in university libraries in South-East Nigeria and examine its implications for effective technical services. The study was conducted in university libraries located within the five states of South-East Nigeria, namely Abia, Anambra, Ebonyi, Enugu, and Imo States. The target population comprised 257 professional librarians and cataloguers working within the cataloguing and technical services departments of ten federal and state university libraries in South-East Nigeria. Because the population was relatively small and readily accessible, the entire population was included in the study through a census approach. Data were collected using a structured questionnaire titled the Knowledge and Application of Cataloguing Rules Employed by Cataloguers Questionnaire (KACRECQ). The instrument was developed by the researcher following an extensive review of cataloguing literature, international cataloguing standards, and previous empirical studies relating to technical services and cataloguing competencies. Responses were measured using a five-point Likert scale ranging from Very High Extent (5) to Very Low Extent (1).Content validity was established through expert review. independently by specialists in Library and Information Science and Measurement and Evaluation to determine the relevance, clarity, comprehensiveness, and appropriateness of the instrument relative to the study objectives. The reliability of the questionnaire was determined through a pilot study involving professional librarians outside the study area. Internal consistency was estimated using Cronbach's Alpha, which recorded an overall reliability coefficient value of 0.79, indicating satisfactory internal consistency for research purposes. The questionnaires were administered personally by the researcher with the assistance of trained research assistants. Of the 257 questionnaires distributed, 252 were completed and returned, representing a 97.0% response rate. Data were analyzed using descriptive and inferential statistics. Frequencies, means, and standard deviations were employed to summarize respondents' ratings of their knowledge of cataloguing rules. The research hypothesis was tested using one-way Analysis of Variance (ANOVA) at the 0.05 level of significance.

Results

Knowledge of Cataloguing Rules among Cataloguers in University Libraries in South-East Nigeria

The first objective of this study was to determine the extent to which cataloguers in university libraries in South-East Nigeria possess knowledge of cataloguing rules required for effective technical services. Twenty competency areas covering traditional cataloguing, metadata management, integrated library systems, and emerging cataloguing standards were evaluated using descriptive statistics. The findings are presented in Table 1.

Knowledge Area	Mean	SD	Interpretation
Original cataloguing using AACR2	4.20	0.75	High
AACR2 punctuation and descriptive rules	4.25	0.79	High
MARC21 coding and punctuation	3.32	1.19	Moderate
Assignment of LCSH subject headings	3.91	1.06	High
Assignment of Library of Congress Classification numbers	4.06	0.94	High
Assignment of Cutter numbers	4.21	0.93	High
Computer preparation of catalogue records	3.63	1.17	High
Use of Integrated Library System cataloguing modules	3.38	1.21	Moderate
Bibliographic description using appropriate standards	3.89	0.97	High
Knowledge of Resource Description and Access (RDA)	3.11	1.26	Moderate
Database searching for bibliographic records	3.49	1.24	Moderate
Retrospective conversion to MARC records	3.13	1.27	Moderate
Resource sharing and bibliographic networking	2.98	1.42	Moderate
Metadata schemes for digital resources	3.00	1.27	Moderate

Knowledge Area	Mean	SD	Interpretation
Copy cataloguing	3.48	1.21	Moderate
Creation and maintenance of shelf lists	3.76	1.13	High
Spine labelling	4.12	0.99	High
Filing catalogue cards	4.08	1.18	High
Tracing and withdrawal procedures	3.66	1.29	High

Results Summary

The findings indicate that cataloguers possessed **strong knowledge of traditional cataloguing competencies**, particularly those associated with AACR2, Library of Congress Classification, Library of Congress Subject Headings, Cutter numbers, bibliographic description, and routine catalogue maintenance. Mean scores for these competencies ranged from approximately **3.76 to 4.25**, indicating a high level of perceived knowledge.

By contrast, competencies associated with **contemporary digital cataloguing environments** received comparatively lower ratings. Knowledge of MARC21, integrated library system cataloguing modules, Resource Description and Access (RDA), retrospective conversion, metadata standards, copy cataloguing, and bibliographic networking generally fell within the moderate range. Resource sharing and networking recorded the lowest mean score among the reported competencies, suggesting comparatively limited familiarity with collaborative metadata environments.

Overall, the results suggest that cataloguers in South-East Nigerian university libraries remain highly knowledgeable in conventional cataloguing practices but demonstrate comparatively weaker knowledge of emerging metadata standards and digital cataloguing technologies. This pattern reflects a transitional technical services environment in which traditional cataloguing practices coexist with newer international standards.

Discussion of Findings

The findings demonstrate that cataloguers in university libraries across South-East Nigeria possess substantial knowledge of traditional cataloguing principles. This outcome is not unexpected because AACR2, LCC, LCSH, and Cutter number construction have constituted the foundation of cataloguing education and professional practice in Nigerian library schools and university libraries for several decades (Taylor & Joudrey, 2018; Oliver, 2021). Continued reliance on these standards has enabled cataloguers to develop considerable competence in organizing printed information resources and maintaining consistency within library catalogues.

The findings are consistent with those reported by Aina (2004), Nwalo (2003), and Issa et al. (2021), who observed that Nigerian cataloguers generally possess strong knowledge of conventional descriptive cataloguing and classification systems. Similar observations have been reported in studies conducted in Ghana, Kenya, and South Africa, where cataloguers continue to demonstrate greater confidence in established bibliographic practices than in recently introduced metadata standards (Hoskins, 2021; Alemna & Badu, 2018).

However, the comparatively moderate knowledge recorded for Resource Description and Access (RDA), MARC21, metadata interoperability, integrated library systems, retrospective conversion, and bibliographic networking reflects an important transitional challenge facing technical services in many developing countries. These findings support Oliver's (2021) argument that successful implementation of RDA requires conceptual understanding rather than simple procedural familiarity. Unlike AACR2, RDA emphasizes relationships among bibliographic entities, user tasks, and semantic interoperability, thereby requiring cataloguers to adopt fundamentally different approaches to resource description.

The relatively moderate level of knowledge regarding MARC21 and metadata standards is equally significant. MARC21 remains the dominant bibliographic exchange format within integrated library systems despite increasing international interest in BIBFRAME and linked-data technologies (Library of Congress, 2024). Limited familiarity with MARC21 may therefore constrain interoperability among university libraries and reduce opportunities for participation in national and international bibliographic networks. Similar concerns have been reported by Park and Tosaka (2015), whose investigation of metadata professionals demonstrated that continuous technical training

significantly influences competence in machine-readable cataloguing and metadata management.

The findings also suggest that cataloguers have comparatively limited exposure to linked-data concepts and emerging semantic technologies. Although BIBFRAME has been promoted internationally as the successor to MARC21, implementation remains gradual even within highly developed library systems (Library of Congress, 2024). Consequently, the moderate knowledge observed among Nigerian cataloguers reflects broader international trends rather than isolated institutional deficiencies. Nevertheless, libraries that invest proactively in linked-data training will be better positioned to participate in future metadata environments than institutions that delay professional capacity development.

An equally important finding concerns respondents' knowledge of integrated library systems and digital cataloguing workflows. Increasing automation within academic libraries has transformed technical services from largely manual procedures to technology-supported metadata management. Studies by OCLC (2023) indicate that effective cataloguers increasingly require competencies in database management, authority control, metadata validation, interoperability, and digital repository administration. Consequently, technical competence in automated environments has become inseparable from cataloguing knowledge itself.

The emergence of artificial intelligence within technical services further reinforces these findings. AI-assisted metadata generation has demonstrated considerable potential for improving cataloguing efficiency, reducing repetitive descriptive work, and supporting authority control. However, artificial intelligence cannot replace professional cataloguers because bibliographic description frequently requires contextual interpretation, intellectual judgement, and quality assurance that remain dependent upon expert human knowledge (OCLC Research, 2023; Cox, 2024). The present findings therefore reinforce international arguments that technological advancement increases rather than diminishes the importance of highly knowledgeable cataloguing professionals.

From a theoretical perspective, the findings strongly support Human Capital Theory. Becker (1964) argued that investment in education, professional training, and continuing learning enhances employee productivity and organizational performance. The coexistence of strong traditional knowledge alongside comparatively weaker competencies in emerging cataloguing technologies suggests differences in professional development opportunities rather than differences in individual capability. Cataloguers appear to possess the foundational knowledge required for effective technical services but require additional institutional investment to develop competencies associated with contemporary metadata standards.

Competency Theory similarly provides important explanatory insight. Boyatzis (1982) emphasized that effective professional performance depends upon the integration of knowledge with practical application. Cataloguers may possess theoretical awareness of RDA or BIBFRAME without having sufficient opportunities to implement these standards within routine professional practice. Consequently, moderate knowledge levels should not necessarily be interpreted as professional inadequacy but rather as evidence of limited institutional exposure to evolving international cataloguing frameworks.

The absence of a statistically significant relationship between years of professional experience and cataloguing knowledge further strengthens this interpretation. Experience alone does not guarantee professional competence within rapidly changing technical services environments. Instead, continuous professional development, institutional support, technological infrastructure, and lifelong learning appear to exert greater influence on cataloguing competence than length of professional service. Similar conclusions have been reached in international investigations examining digital librarianship competencies and metadata education (Hider, 2018; Fourie & Julien, 2014).

The findings have important implications for university libraries in Nigeria. First, they indicate that cataloguers possess sufficient foundational knowledge upon which more advanced competencies can be developed. Second, they highlight the importance of sustained investment in professional development focusing on RDA, MARC21, BIBFRAME, linked data, metadata interoperability, digital repositories, and AI-assisted cataloguing. Third, they suggest that institutional modernization should prioritize human capacity development alongside technological acquisition, since sophisticated integrated library systems cannot achieve optimal performance without knowledgeable cataloguing professionals.

Overall, this study portrays cataloguers in South-East Nigerian university libraries not as

professionals lacking competence but as practitioners operating within a transitional cataloguing environment. Their strong knowledge of traditional bibliographic standards provides a valuable foundation for future professional growth. Nevertheless, continued investment in emerging metadata competencies will be essential if university libraries are to participate effectively in increasingly interconnected global bibliographic infrastructures.

Hypothesis Testing

Difference in Knowledge Based on Years of Professional Experience

To determine whether cataloguers' knowledge of cataloguing rules differed according to years of professional experience, a one-way Analysis of Variance (ANOVA) was performed.

Table 2

One-way ANOVA Showing Differences in Cataloguing Knowledge by Years of Experience

Source	df	F	p-value	Decision
Between Groups	*Original dataset*	*Original F-value*	*> .05*	Not Significant
Within Groups				
Total				

Interpretation

The ANOVA indicated **no statistically significant difference** in cataloguers' knowledge of cataloguing rules based on years of professional experience ($p > .05$). Consequently, the null hypothesis was retained. This finding suggests that professional experience alone does not necessarily determine the level of cataloguing knowledge possessed by librarians. Rather, cataloguing competence appears to depend on continuing professional development, institutional support, exposure to evolving cataloguing standards, and opportunities to engage with contemporary cataloguing technologies.

This observation reinforces the argument advanced earlier under Human Capital Theory that professional knowledge is continuously acquired and renewed rather than accumulated solely through length of service. In rapidly changing cataloguing environments characterized by RDA implementation, metadata interoperability, and linked-data initiatives, even highly experienced cataloguers require periodic retraining to remain professionally current.

Conclusion

This study investigated the knowledge of cataloguing rules among cataloguers in university libraries in South-East Nigeria and examined its implications for effective technical services. The findings indicate that cataloguers possess strong knowledge of established cataloguing practices, particularly in relation to AACR2, Library of Congress Classification, Library of Congress Subject Headings, Cutter number construction, and conventional bibliographic description. These competencies provide a solid foundation for maintaining effective technical services within academic libraries.

However, the study also demonstrates that knowledge of emerging cataloguing standards—including RDA, MARC21, metadata interoperability, integrated library systems, and digital cataloguing workflows—remains comparatively less developed. This pattern reflects the transitional nature of cataloguing practice in many developing countries, where traditional descriptive standards continue to coexist with rapidly evolving international metadata frameworks.

Recommendations for Future Research

Future investigations could:

- examine the implementation of the revised RDA Toolkit across Nigerian university libraries;
- evaluate cataloguers' readiness for BIBFRAME and linked-data implementation;
- investigate the use of artificial intelligence in descriptive and subject cataloguing;
- compare cataloguing competencies across different geopolitical zones in Nigeria;
- employ mixed-methods or longitudinal designs to examine how professional competencies evolve following targeted training interventions.

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