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The Imperatives of Metadata Skills for Librarians in Nigeria

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Abstract

This paper is a theoretical perspective on the imperative of metadata skills for librarians in Nigerian libraries for the digitization process. The paper looks at the concept of metadata as a complete digital cataloguing document for the purpose and functionality of data, making it easier for end-users to locate and retrieve their resources. Also examined are various metadata skills and schemas needed by librarians. The essentials of metadata schemas as indispensable component of the digitization process that makes digital content whether audio, video or image collections in online or offline platforms searchable, distributable, accessible and retainable are highlighted. The paper also highlights various issues and challenges associated with the acquisition of metadata skills. Recommendations for acquisition of metadata skills are provided.

Key words: *Cataloguing, digitization, librarians, metadata skills.*

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Introduction

The organization and management of library resources has a long history. First was the cultural matrix of the ancient libraries, followed by the 3 x 5 inch card index of main entry, added entries, call number and classification information of the traditional library. Advancing from that, we come to the computer era of automation and using multiple standard sets of data in Machine-Readable Cataloging (MARC). Today, we are in the digital era of metadata schemas for bibliographic description of content using the Anglo-American Cataloging Rule 2 (AACR 2). Thus cataloging of library resources has evolved into standards and applications. Although MARC has technical details of semantic bibliographic description of printed library materials, digitization of information resources has brought the paradigm shift for all-inclusive standards for the description of audio and video resources in metadata sets.

Zhang & Gourley (2009) defined metadata as a series of invisible micro-strategic structure that is used to describe resources in digitization process to enhance access and use of data and information in digital libraries. Hughes (2015) asserted that metadata is a technology tool designed for searching and retrieving digital library content. Furthermore, Smith-Yoshimura (2017) advanced that metadata is an electronic bibliographic data framework that is used to organize and identify the location of digital resources. In the same vein, Ashikuzzaman (2018) posited that it as an organized, encoded information that depicts the attribute of data bearing elements and support identifiable authentication and revelation, evaluation and administration of the portrayed elements. This definition links the properties of the software that enable it to be used during the digitization process.

In a nutshell, metadata can be seen as a software document that deals with description of data resources hence commonly described as “data about data”. In the digital library environment, metadata are invisible hypertext markup language (HTML) elements that use tags to directly communicate and clarify website information for search engine. Technically, it is a digital cataloging system in digitization process which summarizes basic information about content and make finding and working with such content data such as author, title of work, subject, publisher, date created, date modified, image types, file

and file size, etc. easier. Various metadata sets and standards exist; some are created by individual libraries and others by organizations such as: Dublin Core, Greenstone, Metadata Encoding Transmission Standards (METS), Learning Object Metadata (LOM), Preservation Metadata Maintenance Standards (PREMIS) etc.

The knowledge of metadata equips digital librarians and the supporting staff with the ability to select and use appropriate metadata standards and schemas to encode data into information in a standard structure for digitization. In today's world where data, collaborative studies and information are massively generated, metadata will continue to be a growing access and recovery mechanism for digital objects in digital collections. If this is the case, it is imperative that librarians understand the functionalities of metadata in the digital library environment. It is in this respect, that these authors use analytical perspective to examine the concepts of metadata, types, the imperatives skills, issues and challenges of acquiring metadata skills by librarians and the way forward.

Types of Metadata

Han & Hawe (2010), Merlinone (2019) and Amit (n.d.) identified three basic types of metadata essential for digitization: structural metadata, administrative metadata and descriptive metadata. It is important to note that the knowledge of metadata types provides the road map to determine the appropriate strategies to adopt for a successful project work:

I. Structural Metadata: This is concerned with the basic organization of digital assets such as table of contents, page numbers, sections, chapters, indexes, and whether an asset is a single or multiple collections, relationship between assets and the movement and preservation of asset into digital resources.

ii. Administrative Metadata: This deals with the technical aspect necessary for decoding, translating files, preservation and archiving, managing intellectual property and usage right of a digital asset.

iii. Descriptive Metadata: this is the most robust type of metadata because of its many ways of describing asset according to title, author, date, publisher, ISBN, colors, illustrations, relevant key words, etc.

Metadata is an indispensable component of the digitization process. The success or failure of a digitization program depends on how equipped the librarians and the supporting staffs are with metadata skills.

Metadata as Digitization Tool

Metadata is a digitization tool that describes the content of a digital library. An effective digital library is one that successfully and suitably displays its digital contents. Hughes (2015) noted that one primary use of metadata is resource discovery. That is, finding resources relevant to one`s research needs. The conventional subject catalogue of a printed library collection is a kind of metadata assemblage. Knowledge of cataloging and classification schemes such as MARC 21, AACR 2, Library of Congress Subject Headings (LCSH), Library of Congress Rule Interpretation (LCRI), etc. are essential metadata tools that can be technically acquired either through online training, workshops, or seminars and carefully applied with some modifications.

Sutton (2015) writes that digital librarian should acquire metadata skills to be able to select, design and evaluate metadata schemas, and also develop guidelines for using the schemas because metadata creation is time consuming and costly. In the same vein, Zhang & Gourley (2009) affirmed that metadata designing requires in-depth knowledge of metadata standards, schemas, tools and technology and user interface design. Also essential are knowledge of vocabulary control mechanisms, knowledge of crosswalk between schemas, knowledge of different digital file formats, ability to select and apply standards for different digital projects, quality control, etc. A good knowledge of metadata tools equips the librarians with the capacity of schemas. Cole (2012) asserts that a librarian must be skilled to filter through metadata schema to make it much easier for one to locate specific document. Globally, there are many metadata schemas that have been developed for certain types of data and if a library data matches a developed schema, the schema can be adopted. Also, the librarians must be knowledgeable enough to understand that some schemas are very complex and require a level of expertise to implement.

Metadata Skills

Skills are the abilities to execute special tasks. Dumadsvic (2013) believed that digital librarians should be able to do the following:

* Select metadata standards to be adopted in a library

* Use metadata schema to identify the relationship between metadata elements as regards to the semantics, the syntax and the other options available for resource identification.

* Use metadata application profile to delineate metadata elements in a set to meet its functional requirements for resource discovery.

* Use encoding schema for entering data such as dates, names of people, etc. as a syntax-encoded text string designed for machine processing.

* Use crosswalk tool for mapping metadata standard with another metadata schema and the application profile.

* Use harmonization tool to create and maintain one set of metadata with other related metadata to facilitate access.

Metadata skills are an integral part of the digitization process; digital librarians therefore, must have the ability to do the followings among others:

1. Management planning capacity to establish the aims and objectives of the project, set up the project team, prepare budget, ensure staff capacity, release funds, plan for risk management, evaluate and review project reports, etc.

2. Knowledge of digitization process. This involves the ability to handle team work in the real digitization process. It includes librarian's in-depth knowledge of the real digitization processes, ascertaining project standards, identifying appropriate hardware and software components required for the project and managing people with diverse skills for a successful output, etc.

3. Technical skills for organization of collections: This is ability to establish the scope and collection of materials to be digitalized, develop technical plan for organization and movement of the materials, etc.

4. Installation skills for the hardware and software components for processing documents, identify text format, decide page layout and image sizes for graphics, pictures, drawings, maps. Also use of PDF and Acrobat reader, capacity for full-text searching and indexing real text content to make the text machine-readable, etc.

5. Knowledge of the internet and the World Wide Web (WWW): This involves the ability to use search engines and navigate the web maximally, download and upload web resources, use subject portals, information gateways, and online databases, interact and link web resources, filter documents, manage files, publish frequent updated digital content such as blog, etc.

6. Scanning techniques with capacity to use digital image software, cropping images, editing, rasterization, book marking, converting image files to portable document formats, adobe converting, power point, use of bar code reader, digital camera, troubleshooting, etc.

7. Handle Metadata schemas for processing syntax-encoded text string for resources entry, identification and file tags. Harmonization tools to create and maintain set of metadata with another metadata in order to facilitate access to resources, mapping metadata standard with another metadata schema and application profile for crosswalk and uploading resources, etc.

8. Handle copyright issues including knowledge and application of "public domain", "principle of fair use," rights of reproduction, use copyrighted material, sale and ownership rights, licensing agreement, plagiarism, copyright infringement, etc.

9. Pilot testing of the project work for corrections and improvement, evaluating the project and writing reports to management, etc.

Use of MetadataSkills

Hughes (2015) noted that one of the most important uses of metadata is to locate a resource. For instance, a book reference is designed to give enough information to allow one to find that book. The other primary use of metadata is resource discovery. That is, finding resources relevant to one`s research needs but which one have not yet discovered. Metadata provides an easy way to navigate the gigantic assemblages of digital assets using key terms to searching for what a user wants. Knowledge of metadata therefore, is imperative for quick location of an asset. Without metadata schemas, assessing valuable digital information in a web of information assets would be impossible. Generally, metadata enables emerging knowledge to be stored and linked to data in a

semantic web plan. Metadata prevents an unauthorized user from trying to access right-restricted digital library resources and allows authorized user access to assess and even use an asset beyond the usage authorization. Metadata therefore, is a powerful central content repository of searchable databases like the subject index of card catalog in a traditional library.

Udor (2013) posited that metadata development should reflect an extension of cataloging practice to new scopes of content and access in a metadata environment. Nigerian academic libraries should seek to understand how new access strategies might better serve target user community. Faruk (2014) noted that digital librarians should be able to use metadata schemas for descriptive cataloging, access points, authority control, subject analysis, controlled vocabularies to address ambiguities and synonymous links of natural language at diverse levels of semantic mechanism. According to Faruk (2014), schemas are what enable the application of standards such as AACR2, MARC and Dublin Core schemas for resource description, discovery and cataloging materials of various formats such as sound recordings, video and electronic-files including knowledge of interoperability and issues related to integrating diverse collections into information system.

Furthermore, Pandey (2003) observed that digital libraries are the realizations of architecture in specific hardware, networking and software situation which emphasize organization, acquisition, preservation and utilization of information. This observation by Pandey (2003) pointed to a digitization process which involves systematic application of specific hardware, software and networks in collecting and managing information resources into electronic or digital images for online access. While considering the quality of digital assets, Anase (2015) asserted that metadata enhances the potential of digital library quality and increased efficient resources sharing services to information. According to Anase (2015), a library's ability to access, store, process, communicate and deliver information to users irrespective of time and location, is made unique by metadata.

Issues and Challenges in Acquiring Metadata Skills

In Nigeria, there are various issues and challenges in acquiring metadata skills which are summarized below:

1. Metadata curricula are optional in Nigerian library schools; the traditional library cataloguing and classification schemes are still the curriculum of instruction.

2. There are lack of experts to teach metadata curriculum in the library schools

3. Apathy among librarians to acquire new skills especially in metadata

4. There is the problem of inability of the Librarians Registration Council of Nigeria(LRCN), to consistently organize workshops on metadata

5. Computer network supporting multimedia document transfer systems are lacking in Nigerian libraries

6. Many librarians cannot read and understand the use of search tools and display contents for self-education

7. There is lack of multimedia integration application systems in most libraries

8. Shortage of technical manpower like system analysts, programmers, etc. exist in the libraries

9. There are cost limitations in acquiring copyright restrictions

10. Majority of libraries still operate conventional library services

11. Lack of adequate and regular electricity supply, etc.

Recommendations

This is summed up as follows:

1. Nigerian library schools' curriculum should be revised to teach metadata as a core course

2. Librarians should be motivated to acquire metadata skills to enhance digitization capacity in their libraries

3. The LRCN and library associations should consistently organize workshops on metadata for librarians

4. Library budget should be reviewed by parent bodies to enhance libraries' capacity to acquire technology infrastructure for application of metadata knowledge

5. Employment of experienced technical staff such as digital librarians, systems analysts, programmers, etc. should be given prioritized in libraries

6. Librarians must strive for self-education to use search engine tools and other multimedia resources to improve themselves on trends in modern libraries.

7. Power supply and security of technology infrastructure should be provided in the libraries, etc.

Conclusion

Metadata plays a fundamental role in keeping track of digital library content. It is a comprehensive description of the purpose and functionality of data, making it stress-free for end-users to discover and retrieve data. It safe-guides resources from the processing to the accessibility stage and ensures future availability and access of a document. It is therefore imperative that librarians acquire knowledge and skills of metadata for their effective digitization programs in their libraries, and in order to provide consultancy services to many other libraries in developmental process.

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