

# Chapter 11

## Metadata Technology Integration in Libraries: A Panacea for Effective Learning in the 21st Century

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### ABSTRACT

*This chapter explores metadata technology integration as a panacea for effective learning in the 21st century libraries. The high influx of information resources into libraries necessitated a shift from printed to digitally web-based form of preserving and describing information, which affected users' access to information. This implies direct involvement of librarians in the cycle of influencers of open educational resources. In the review, ontology of metadata and repositories of learning object have demonstrated how UNESCO's proclamation about open educational resources has stimulated visible accessibility to information globally. Various ways of including librarians in the push for inclusive access to education have been highlighted.*

### INTRODUCTION

Metadata refers to a strategy used for organizing digital collections in a well-ordered format for supporting retrieval, long-term preservation, and interoperability (Chen, Chen, & Lin, 2003). For long, libraries are the organizers and managers of information resources in a structured way via catalogues (Han, 2012) that provide access to a multiplicity of information resources. These information resources usually organized in a hierarchically structured way; associatively or via employing enterprise databases, or in a pile of papers arranged in haphazard manner in offices (Mason, 2004). It is known that, Machine Readable Catalogue (MARC) because of the richness of semantics it has, allows for describing printed resources (i.e. circulation, reference and serials) without any problem (Han, 2012). The paradigm shift from traditional (print materials) to digitally sophisticated web-based medium affected the reading habits

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of information users (Soroya, & Ameen, 2020) and hence the description of these resources (Dervin, 1998). For instance, more than half of UK information resources are expected to be digitized by 2020 (British Library, 2010). Similarly, in US, about 95% of the populace accept e-books as a medium for readability (Library Journal, 2014). Furthermore, there is a remarkable improvement in terms of e-books' user penetration from 24.5% in 2018 and probable increment to 26.5% by 2023 (Statista\*, 2018). To buttress this point further, there is estimation that, e-book publishing contributed about \$118.62 billion in 2018 and expected to reach \$134.85 billion in 2022 (Statista, 2018). However, these developments are affected by poorly organized search results upsetting 53% of sites; poor information architecture distressing 32% of sites (Vividence Research, 2001) and having similar style-items on the web (English, Hearst, Sinha, Swearingen, & Yee, n.d). Because the trend has dramatically changed from print to audio-visual, electronic/digital resources, the need for other metadata standards other than MARC arose and in order to ensure maximum accessibility; systems other than Integrated Library System (ILSs) are needed (Han, 2012). As a result, Dublin Core, Metadata Object Description Schema (MODS), Encoded Archival Description (EAD), and Visual Resource Association (VRA) Core are used for describing resources in digital formats (Han, 2012).

Metadata is constantly becoming vibrant, variant, and ever evolving in a direct proportion as the online resource (Baca, 2000) for building authoritative, reliable, and useful digital resources. This came at a time, where if metadata is managed well can “*deliver a significant return on intellectual capital*” (Gilliland-Swetland, 2000, pVI) from scholarly enhancement perspective. These multifaceted developments are due to the increase in online resources (Roy, Sarkar, & Ghose, n.d.); researches and technological advancements that promote interoperability of content and applications (Mason, 2004). It is also due to the improved efficiency of infrastructural broadcastations thereby creating a more knotted, interweaved or connected society (Castells, 1996) or an international effort that aimed at developing technical standards and protocols to facilitate e-learning (Mason, 2004). This can also be attributable to the pressing needs of end users (Soroya & Ameen, 2018) or domain-specificity of users (Khan, Bhatti, & Khan, 2016). Nevertheless, the longevity and maintainability of metadata presents difficulties in terms of metadata features (Li, & Sugimoto, 2017). Prior to this development, there was a fear that, hardware and software that turn out to be outdated at alarming rapidity necessitated substituting them with standard quality metadata that can be applied, reapplied, roamed, and distributed in a number of ways (Baca, 2000) is of paramount importance to the data-generating institutions. Similarly, the fact that “*digitization does not equal access*” (Baca, 2000, pVI) as it does not render information resources usable by end users rather demanded combining digitization with carefully crafted metadata that enhances access to those resources is enough to justify its inevitability in library setting. Provenance of metadata vocabularies is important in maintaining metadata where W3C PROV for example, shows promising for overall description and exchange in a mixed environment (Gil et al., 2013).

User-centeredness opened up endless possibilities for meeting the information demands, requirements, and needs of users (Heimbürger, 2002; Soroya & Ameen, 2018) by libraries thereby conveying a direction of flow (Mason, 2004). Among these potentialities is the metadata. Metadata is the future of all data-generating or memory institutions (Li & Sugimoto, 2017). In other words, it is the necessity for every organization, corporate bodies, and departments for ensuring not only the availability but also continuous existence of information for retrieval and use throughout the ages (Baca, 2000). That is why the spectrum, content, context, and wavelength of metadata seem to be endlessly infinite (Gilliland-Swetland, 2000). Many disciplines are returning to metadata to ease the access to ontologies regardless of time and space (Soroya & Ameen, 2020) with no slackening in pace. This is due to the ability of metadata in allowing

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