

**The Role of Metadata in Information Retrieval:  
An Annotated Bibliography**

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# **The Role of Metadata in Information Retrieval: An Annotated Bibliography**

## **Introduction and Scope**

The following bibliography covers the role of metadata in information retrieval, the many advantages that it provides as well as the challenges it poses and what is the best way to utilize it in future so as provide efficient and effective information retrieval for all users of information. Several articles address the role of metadata in information retrieval in terms of not only traditional text, but also image and music resources. Many of these articles address the need to use interfaces where traditional indexed terms or controlled vocabularies can be amalgamated with user tags so that users may access information in an efficient manner as per their information requirements. The articles range from 2002 to 2010. An emphasis was placed on selecting more recent articles that highlight the future use of metadata for effective information retrieval.

## **Description of Metadata and its Role in Information Retrieval**

With twenty-first century technology in libraries it is important for librarians to understand how to access and retrieve information efficiently and effectively for themselves and most importantly their patrons. Metadata records facilitate identification of works that are used to catalog the works. This then allows for metadata to be a limited surrogate for the resource itself. However, library created metadata is different

from Amazon created metadata. This is when the challenges in the role of metadata arises. And thus the requirements for interfaces where user-tags and indexed terms can both exist to provide for effective and efficient information retrieval.

## **Literature Review**

In order for a user to be able to satisfy their information requirement, user interfaces that incorporate standard thesauri as part of their search and browsing facilities show better results (Shiri, et al, 2002). Information behavior of users suggests that when thesauri is provided as search aid, users meet with greater success in information retrieval.

Another way to improve information retrieval in large digital collections is to identify and use document genre (Crowston & Krasnik, 2003). Identifying the genre of the document provides data about its purpose and how it fits the user's situation. This is because search results with genre information would be more easy to understand. According to Gable (2009), metadata has a vital role to play in evolution of records management.

Lawyers tend to use citation searches on their hearings for information in the documents, papers' chain custody, storage locations and versions. Metadata can further enhance information retrieval when user-tags can be amalgamated with controlled vocabulary like Library of Congress Subject Headings. According to Adler (2009) when subject headings and tags for twenty transgender books are examined, a vast difference in the language used is found thereby affecting information retrieval.

Metadata based search can play an important role in podcast retrieval technology, although this would be dependent on the search goals and strategies of the users, according to Besser (2010). Another advantage of metadata is of using “existing text search techniques” (Inskip et al, 2010) to retrieve music information. It is then found that the metadata is used to make a relevance judgement by the user based on content and context criteria. The advantages of metadata also extends to retrieval of bibliographic records. As per the findings of Milosavljevic (2010), using a software component for the retrieval of bibliographic records enhances flexibility of the indexing process and efficacy of the retrieval system. The role of metadata also extends to easy access of Flickr images which are created, organized, indexed and searched for images through user-tagging (Rorissa, 2010). According to Shiri (2008), “metadata, a key component of solid digital libraries, has been utilized to enhance visual user interfaces to digital libraries”. Users benefit from a use of visualization techniques and metaphors for information exploration.

However, the challenges or problems ahead of the role of metadata in information retrieval includes re-invention so that library catalogs moving towards giving their users relevance-ranked keyword search results (Antelman et al, 2006). This is so that metadata can then enhance collection browsing. At times, a mixed environment where metadata from other systems, document creator and metadata repository created by library staff can bring challenges to creation, management and access of information (Chapman et al, 2009). It is here where local customization is required to make information retrieval an easy process for the user. “Metadata is viewed as a systems’s

data dictionary, capturing definitions of data entities and the relationship among them” (Shankaranarayanan, 2006). Metadata maybe complex but, decision makers need to determine the contextual relevance and improve retrieval efficiency.

In order to continue meeting patron requirements, staff training is required in libraries, where catalog librarians need to meet the expectations of the library users (Eden, 2010). Libraries in order to attract users as well as to showcase library services, have OPACs that are more user-friendly, with interactive interfaces on traditional catalogs. This will help promote the library’s presence at the center of information retrieval (Webb & Nero, 2009). In fact, in future metadata will be a tool that can be used in managing electronic records in place (Gable, 2009). Social tagging of images on Flickr, will allow designers of indexing tools and systems to bridge the semantic gap between indexer terms and user vocabularies. Further, according to Shiri (2008), “visual interfaces enhanced with metadata will provide a richer representation of digital collections”.

## Bibliography

### Entry 1:

Adler, M. (2009). Transcending library catalogs: A comparative study of controlled terms in Library of Congress subject headings and user-generated tags in LibraryThing for transgender books. *Journal of Web Librarianship*, 3(4), 309-321.

**Abstract:** Perhaps the greatest power of folksonomies, especially when set against controlled vocabularies like the Library of Congress Subject Headings, lies in their capacity to empower user communities to name their own resources in their own terms. This article analyzes the potential and limitations of both folksonomies and controlled vocabularies for transgender materials by analyzing the subject headings in WorldCat records and the user-generated tags in LibraryThing for books with transgender themes. A close examination of the subject headings and tags for twenty books on transgender topics reveals a disconnect between the language used by people who own these books and the terms authorized by the Library of Congress and assigned by catalogers to describe and organize transgender-themed books. The terms most commonly assigned by users are far less common or non-existent in WorldCat. The folksonomies also provide spaces for a multiplicity of representations, including a range of gender expressions, whereas these entities are often absent from Library of Congress Subject Headings and WorldCat. While folksonomies are democratic and respond quickly to shifts and expansions of categories, they lack control and may inhibit findability of resources. Neither tags nor subject headings are perfect systems by themselves, but they may complement each other well in library catalogs. Bringing users' voices into catalogs through the addition of tags might greatly enhance organization, representation, and retrieval of transgender-themed materials.

**Annotation:** An examination of user-generated tags and controlled vocabularies in the context of certain transgender books, reveals that the language used by people and terms assigned by catalogers to describe and organize these books are vastly different affecting how information can be accessed from these sources. I appreciate how this article suggests how user-generated tags and controlled vocabulary can be amalgamated in library catalogs so as to enhance organization and retrieval of information.

**Search Strategy:** I selected ERIC because the academic outlook of articles in this database would allow me to understand the role metadata plays in academic applications and its value to its users. I used Dialog after having done a keyword search and was able to use controlled vocabulary to search for articles.

**Database:** ERIC (Dialog 1)

**Method of Searching:** Controlled Vocabulary

**Search String:** e dt=a

s e#

s1 and metadata

s2 and information()retrieval

t 3/5/1-20

Then after evaluating and selecting articles: t 3/9/13 for this article.

## **Entry 2:**

Antelman, K., Lynema, E., & Pace, A.K. (2006). Toward a twenty-first century library catalog. *Information Technology & Libraries*, 25(3).128-139.

**Abstract:** Library catalogs have represented stagnant technology for close to twenty years. Moving toward a next-generation catalog, North Carolina State University (NCSU) Libraries purchased Endeca's Information Access Platform to give its users relevance-ranked keyword search results and to leverage the rich metadata trapped in the MARC record to enhance collection browsing. This paper discusses the new functionality that has been enabled, the implementation process and system architecture, assessment of the new catalog's performance, and future directions.

**Annotation:** When libraries can provide a platform that allows for evaluative search results based on metadata hidden in catalogs, so that users can decide whether the search result is pertinent to their information requirement it allows for an efficient and effective information retrieval system. The implementation process and the system architecture make for useful and informative text.

**Search Strategy:** I used the keywords "metadata and information access". This was after I had used keywords "metadata and online access" which provided only a few topic appropriate result out of which I had already chosen the best. Since the phrase "information access" had been shown as a subject term in one of the articles chosen with the previous keyword search, I chose the phrase to arrive at this satisfactory result.

**Database:** Library, Information Science & Technology Abstracts.

**Method of Searching:** Keyword Search

**Search String:** "Metadata and Information Access".

**Entry 3:**

Besser, J., Larson, M., & Hofman, K. (2010). Podcast search: user goals and retrieval technologies. *Online Information Review*, 34(3). 395-419.

**Abstract:** Purpose - This research aims to identify users' goals and strategies when searching for podcasts and their impact on the design of podcast retrieval technology. In particular, the paper seeks to explore the potential to address user goals with indexing based on podcast metadata and automatic speech recognition (ASR) transcripts.

Design/methodology/approach - The paper conducted a user study to obtain an overview of podcast search behaviour and goals, using a multi-method approach of an online survey, a diary study, and contextual interviews. In a subsequent podcast retrieval experiment, the paper investigated the retrieval performance of the two choices of indexing features for search goals identified during the study.

Findings - The paper found that study participants used a variety of search strategies, partially influenced by available tools and their perceptions of these tools. Furthermore the experimental results revealed that retrieval using ASR transcripts performed significantly better than metadata-based searching. However, a detailed result analysis suggested that the efficacy of the indexing methods was search-goal dependent.

Research limitations/implications - The research constitutes a step towards a future framework for investigating user needs and addressing them in an experimental set-up. It was primarily qualitative and exploratory in nature.

Practical implications - Podcast search engines require evidence about suitable indexing methods in order to make an informed decision concerning whether it is worth the resources to generate speech recognition transcripts.

Originality/value - Systematic studies of podcast searching have not previously been reported. Investigations of this kind hold the potential to optimise podcast retrieval in the long term.

**Annotation:** Retrieval technologies of podcast materials require suitable indexing methods that addresses user needs. A useful part of the text suggests that findings of the study indicated that the user retrieval was more effective using automatic speech recorder (ASR) transcripts rather than metadata based search.

**Search Strategy:** Having used the afore-mentioned keywords and still wanting to get a specific article on how metadata can affect how we access our information, I consulted the thesaurus of the database and used controlled vocabulary like "metadata and information retrieval". This phrase provided me with excellent resources not just in the Web of Science interface from which this article was retrieved but from Dialog and my second search through LISTA.

**Database:** Web of Science interface.

**Method of Searching:** Controlled Vocabulary

**Search String:** "Metadata and Information retrieval".



#### **Entry 4:**

Chapman, J. W., Reynolds, D., & Shreeves, S., A. (2009). Repository metadata: approaches and challenges. *Cataloging & Classification Quarterly*, 47(3/4). 309-325.

**Abstract:** Many institutional repositories have pursued a mixed metadata environment, relying on description by multiple workflows. Strategies may include metadata converted from other systems, metadata elicited from the document creator or manager, and metadata created by library or repository staff. Additional editing or proofing may or may not occur. The mixed environment brings challenges of creation, management, and access. In this article, repository efforts at three major universities are discussed. All three repositories run on the DSpace software package, and the opportunities and limitations of that system will be examined. The authors discuss local strategies in light of current thinking on metadata creation, user behavior, and the aggregation of heterogeneous metadata. The contrasts between the mission of each repository effort will show the importance of local customization, while the experience of all three institutions forms the basis for recommendations on strategies of benefit to a wide range of librarians and repository planners.

**Annotation:** A challenge to access of information arises when metadata from other systems or document creators and those created by the libraries exist in a heterogeneous repository. The findings of the study usefully suggest that local customization according to user requirement can help to minimize this problem.

**Search Strategy:** This was part of my initial search using keywords "metadata and online access". This was because I wanted to understand how metadata can influence effective and efficient access to information.

**Database:** Library, Information Science & Technology Abstracts.

**Method of Searching:** Keyword search.

**Search String:** "Metadata and online access".

#### **Entry 5:**

Crowston, K., & Kwasnik, B.H. (2003). Can document-genre metadata improve information access to large digital collections? *Library Trends*, 52(2). 345-361.

**Abstract:** We discuss the issues of resolving the information-retrieval problem in large digital collections through the identification and use of document genres. Explicit identification of genre seems particularly important for such collections because any

search usually retrieves documents with a diversity of genres that are undifferentiated by obvious clues as to their identity. Also, because most genres are characterized by both form and purpose, identifying the genre of a document provides information as to the document's purpose and its fit to the user's situation, which can be otherwise difficult to assess. We begin by outlining the possible role of genre identification in the information-retrieval process. Our assumption is that genre identification would enhance searching, first because we know that topic alone is not enough to define an information problem and, second, because search results containing genre information would be more easily understandable. Next, we discuss how information professionals have traditionally tackled the issues of representing genre in settings where topical representation is the norm. Finally, we address the issues of studying the efficacy of identifying genre in large digital collections. Because genre is often an implicit notion, studying it in a systematic way presents many problems. We outline a research protocol that would provide guidance for identifying Web document genres, for observing how genre is used in searching and evaluating search results, and finally for representing and visualizing genres.

**Annotation:** In order to enhance the information retrieval process, identification of document genres of digital collections can be helpful when it addresses the documents purpose and the users situation. This indicates that the metadata that involves with genre identification really aids the efficacy of information retrieval when a standardized recommended process is used for representing and visualizing genres. An effective measure for future cataloging.

**Search Strategy:** I selected the phrase “metadata and information access” so as to understand better the role of metadata in improving information access. I had found the phrase “information access” as a subject term as part of the previous search mentioned in entry number 4.

**Database:** Library, Information Science & Technology Abstracts.

**Method of Searching:** Keyword search

**Search String:** “Metadata and information access”.

#### **Entry 6:**

Eden, B.L. (2010). The new user environment: the end of technical services?  
*Information Technology & Libraries*, 29(2). 93-100.

**Abstract:** The article discusses the changing role of technical services departments in libraries during the information age. Differences between catalog librarians and metadata librarians or specialists are examined and the expectations of library users, the usefulness of library catalogs and integrated library systems (ILS), and the impact of

the WorldCat Local search engine are explored. Challenges faced by technical services departments and staff members are discussed and limitations created by traditional workflows are examined.

**Annotation:** When recommendations of a study imply that training staff members of a library to meet requirements of library users in terms of the usefulness of the library catalogs, it can only point towards accepting practices that allow for greater and effective information retrieval in a user-friendly manner.

**Search Strategy:** Having used the afore-mentioned keywords and still requiring a specific article on how metadata can affect how the user gets information and what is needed to provide the user greater access, I consulted the thesaurus of the database and used controlled vocabulary like “metadata and information retrieval”.

**Database:** Library, Information Science & Technology Abstracts.

**Method of Searching:** Controlled Vocabulary

**Search String:** “Metadata and Information Retrieval”.

## **Entry 7:**

Gable, J. (2009). Examining metadata: Its role in e-discovery and the future of records managers. *Information Management*, 43(5). 28-32.

**Abstract:** The article discusses essential information about metadata and its vital role in e-discovery as well as in the evolution of electronic records management. It mentions that lawyers often want metadata on their hearings because it can be used to show things that are not evident in document contents and the use of information associated with documents as well as illustrate the papers’ chain of custody, storage locations and versions. It affirms that software firms have come to recognize that metadata could be a potential tool that can be used in managing electronic records in place.

**Annotation:** The role of metadata is highlighted when lawyers need to follow what is known as citation searches to glean greater information from their hearings. The process mentioned also underlines the advantageous role of metadata in revealing storage locations and different versions.

**Search Strategy:** As in the entry above, requiring a specific article on the advantages of metadata in retrieving information, I used controlled vocabulary “metadata and information retrieval” to search for this article.

**Database:** Library, Information Science & Technology Abstracts.

**Method of Searching:** Controlled Vocabulary

**Search String:** "Metadata and Information Retrieval".

#### **Entry 8:**

Inskip, C., MacFarlane, A., & Rafferty, P. (2010). Creative professional users' musical relevance criteria. *Journal of Information Science*, 36(4). 517-529.

**Abstract:** Although known item searching for music can be dealt with by searching metadata using existing text search techniques, human subjectivity and variability within the music itself make it very difficult to search for unknown items. This paper examines these problems within the context of text retrieval and music information retrieval. The focus is on ascertaining a relationship between music relevance criteria and those relating to relevance judgements in text retrieval. A data-rich collection of relevance judgements by creative professionals searching for unknown musical items to accompany moving images using real world queries is analysed. The participants in our observations are found to take a socio-cognitive approach and use a range of content- and context-based criteria. These criteria correlate strongly with those arising from previous text retrieval studies despite the many differences between music and text in their actual content.

**Annotation:** Human subjectivity and variability can influence the way users retrieve text and retrieve music. It is even more interesting when the findings reveal that music is retrieved based on relevance judgements and context based criteria. It is helpful then to understand that metadata is then utilized on the basis of relevance to the user.

**Search Strategy:** Searching for more articles on the advantageous role of metadata in accessing information, I consulted the thesaurus of the database and used controlled vocabulary like "metadata and information retrieval". This phrase provided me with excellent resources as before in the Web of Science interface from which this article was retrieved.

**Database:** Web of Science interface.

**Method of Searching:** Controlled Vocabulary

**Search String:** "Metadata and Information Retrieval".

## Entry 9:

Milosavljevic, B., Boberic, D., & Surla, D. (2010). Retrieval of bibliographic records using Apache Lucene. *Electronic Library*, 28(4). 525-539.

**Abstract:** Purpose - The aim of the research is modeling and implementing a software component for the retrieval of bibliographic records using the Apache Lucene retrieval engine.

Design/methodology/approach - Object-oriented methodology is used for modeling and implementation of the bibliographic record retrieval engine. Modeling is carried out in the CASE tool that supports the unified modeling language (UML 2.0), while the implementation is using the Java programming language and open source components.

Findings - The result is a software component for the retrieval of bibliographic records that are independent of the bibliographic format used in cataloging. It features great flexibility in terms of configuring search types without the need to change the software implementation.

Research limitations/implications - One of the constraints of this system relates to the problem of searching linking entry fields. UNIMARC format defines fields used to link the item being cataloged to another bibliographic item, so those fields may contain other fields, which can be termed secondary fields. In this proposed solution, secondary fields are treated as all other fields and there is no information whether the search term belongs to the secondary or a regular field.

Practical implications - The proposed solution is integrated into library information system BISIS, version 4. This version of the BISIS system is in use at university, public and special libraries. By introducing this version, system performance as well as flexibility of the indexing process are improved and at the same time librarians are able to perform sophisticated and effective retrieval of bibliographic records.

Originality/value - The contribution of this work is in the design of a customizable record retrieval component. It is configured by means of an XML document for specifying mapping rules between subfields of the bibliographic record format and search types. By using XML it is possible to add new mapping rules without additional programming. In addition, great attention has been paid to the indexing of subfields that contain punctuation marks having special semantic meanings for librarians and the transliteration between Cyrillic and Latin scripts. Also, originality of this work lies in using the Apache Lucene search engine, which facilitates building highly flexible and efficient retrieval systems.

**Annotation:** Utilizing a software component that provides greater flexibility in information retrieval than a traditional library catalog emphasizes the role of metadata in

the indexing process. This allows for sophisticated and effective retrieval of bibliographic records.

**Search Strategy:** I selected the Social SciSearch database as it has a number of peer-reviewed articles related to information science. This search was conducted using Dialog after having done a keyword search and was able to use controlled vocabulary to search for articles.

**Database:** Social SciSearch (Dialog 7)

**Method of Searching:** Controlled Vocabulary

**Search String:** e dt=a  
s e#

s1 and metadata  
s2 and information()retrieval

t 3/5/1-20

Then after evaluating and selecting articles: t 3/9/5 for this article.

### **Entry 10:**

Rorissa, A. (2010). A comparative study of Flickr tags and index terms in a general image collection. *Journal of the American Society for Information Science and Technology*, 61(11). 2230-2242.

**Abstract:** Web 2.0 and social/collaborative tagging have altered the traditional roles of indexer and user. Traditional indexing tools and systems assume the top-down approach to indexing in which a trained professional is responsible for assigning index terms to information sources with a potential user in mind. However, in today's Web, end users create, organize, index, and search for images and other information sources through social tagging and other collaborative activities. One of the impediments to user-centered indexing had been the cost of soliciting user-generated index terms or tags. Social tagging of images such as those on Flickr, an online photo management and sharing application, presents an opportunity that can be seized by designers of indexing tools and systems to bridge the semantic gap between indexer terms and user vocabularies. Empirical research on the differences and similarities between user-generated tags and index terms based on controlled vocabularies has the potential to inform future design of image indexing tools and systems. Toward this end, a random sample of Flickr images and the tags assigned to them were content analyzed and compared with another sample of index terms from a general image collection using established frameworks for image attributes and contents. The results show that there is a fundamental difference between the types of tags and types of index terms used. In

light of this, implications for research into and design of user-centered image indexing tools and systems are discussed.

**Annotation:** The importance of metadata is emphasized in the effective search and retrieval of images. This can be brought about when there is little difference between types of tags used by Flickr images users and indexed terms from general image collections. However, this can in the future be harmonized into future image indexing tools and systems which ultimately help the user have efficient access to tagged or indexed images.

**Search Strategy:** I selected the Social SciSearch database as it has a number of peer-reviewed articles related to information science. This search was conducted using Dialog after having done a keyword search and was able to use controlled vocabulary to search for articles.

**Database:** Social SciSearch (Dialog 7)

**Method of Searching:** Controlled Vocabulary

**Search String:** e dt=a  
s e#

s1 and metadata  
s2 and information()retrieval

t 3/5/1-20

Then after evaluating and selecting articles: t 3/9/2 for this article.

### **Entry 11:**

Shankaranarayan, G., & Even, A. (2006). The metadata enigma. *Communication of the ACM*, 49(2). 88-94.

**Abstract:** The article focuses on the difficulties in the metadata solutions in the context of a data warehouse, introducing the multiple elements that constitute metadata to illustrate its inherent complexity. Metadata is usually viewed as a system's data dictionary, capturing definitions of data entities and the relationships among them. Decision makers may evaluate data quality both impartially and contextually. Providing these metadata components to decision makers has been shown to significantly improve their decision process efficiency as well as decision outcome.

**Annotation:** The challenges that lie with metadata are its inherent complexity. The interesting part of this text examines how decision makers when provided with the quality of data in context of their requirement can improve the efficiency of their information use.

**Search Strategy:** Requiring a specific article on the advantages of metadata in retrieving information, I used controlled vocabulary “metadata and information retrieval” to search for this article.

**Database:** Library, Information Science & Technology Abstracts.

**Method of Searching:** Controlled Vocabulary

**Search String:** “Metadata and Information Retrieval”.

## **Entry 12:**

Shiri, A. (2008). Metadata-enhanced visual interfaces to digital libraries. *Journal of Information Science*, 34(6). 763-775.

**Abstract:** Information visualization offers a variety of ways in which digital library collections can be represented on the interface and shown to the user. Metadata, a key component of solid digital libraries, has been utilized to enhance visual user interfaces to digital libraries. This paper reports on a study conducted to investigate and analyze a specific category of digital library visual interface that supports information seeking, exploration and retrieval based on metadata representations, namely metadata-enhanced visual interfaces. This study examined 21 metadata-enhanced digital library visual interfaces from the following perspectives: (a) information access and retrieval features; (b) metadata elements; (c) visualization techniques and metaphors. The results demonstrated that the combined use of visualization techniques and metaphors is becoming increasingly prevalent as a design strategy to support users' information exploration. The results also suggest that visual interfaces enhanced with metadata are becoming more widespread to provide a richer representation of digital collections.

**Annotation:** Another important role of metadata is revealed when the visual interface of a digital library supports information search and retrieval based on metadata representations.

**Search Strategy:** Searching for more articles on the advantageous role of metadata in accessing information, I followed a related search from entry number 8 to select this article from Web of Science interface.

**Database:** Web of Science interface

**Method of Searching:** Footnote Chasing (related search)



**Search String:** Referenced in:

Inskip, C., MacFarlane, A., & Rafferty, P. (2010). Creative professional users' musical relevance criteria. *Journal of Information Science*, 36(4). 517-529.

**Entry 13:**

Shiri, A. A., Revie, C., & Chowdhury, G. (2002). Thesaurus-enhanced search interfaces. *Journal of Information Science*, 28(2). 111-122.

**Abstract:** User interfaces to information retrieval systems play a major role in assisting users to search, browse and retrieve information relevant to their needs. This paper provides a review of a category of information retrieval interfaces that are enhanced by incorporating standard thesauri as part of their searching and browsing facilities. A brief account of the rationale behind the integration of thesauri as search aids in such interfaces is provided, based on research literature related to information searching behavior, information retrieval interface evaluation, search term selection and query expansion. Two categories of search interfaces enhanced with thesauri are examined: those associated with research-based programs and commercial web-based interfaces to bibliographic databases. Six commercial web-based databases are compared in terms of their thesaurus interface features. It is concluded that, although the number of thesaurus-enhanced interfaces is growing, few studies have focused on user interaction with these interfaces or fully explored the ways in which they can assist users in the search process.

**Annotation:** Yet again the role of metadata in information retrieval is underlined when the study emphasizes the use of a thesauri as part of search and browsing facility of an interface. The user finds it easier to access the pertinent information when a standard thesauri provides terms for search that coincide with the metadata.

**Search Strategy:** Appreciating the extensive information provided in the above-mentioned article on how libraries can provide better access to information by using metadata, I conducted an author search to look for more articles that maybe publishes by the same author. This search then provided me with numerous results of which this selected article was most appropriate to the topic.

**Database:** Web of Science

**Method of Searching:** Author Search

**Search String:** 'Shiri, A.' - by author

**Entry 14:**

Webb, P.L., & Nero, M.D. (2009). OPACS in the clouds. *Computers in Libraries*, 29(9). 18-22.

**Abstract:** In today's world of instant everything, everyone has been exposed to some form of Web 2.0 technology, and higher education is not exempt from its long reach. Libraries of all types are incorporating Web 2.0 features to attract users as well as to showcase library services. The Online Public Access Catalog (OPAC) has become more user-friendly with libraries placing interactive interfaces on the traditional catalog. Whether provided by a company or created by their own institution, OPACs that offer social applications are becoming more popular in academic libraries. Due to the increase in usage of social applications and other Web 2.0 technologies, librarians must embrace some new innovations that are beneficial to their users and that promote the library's presence as the center for information retrieval. This article examines the use of OPACs and their impact in libraries. It reviews the OPACs of four academic institutions, namely (1) San Francisco State University, which uses LibraryThing; (2) University of Pennsylvania, which uses PennTags; (3) St. Lawrence University, which uses Encore; and (4) Harvard University, which uses AquaBrowser.

**Annotation:** With greater access to Web 2.0 technologies in academic libraries, librarians are providing more user-friendly interfaces on traditional catalogs that place the library at the center of information retrieval for its users. The useful part of the text follows the OPACs of four different libraries which pave the way for libraries of the future.

**Search Strategy:** I selected ERIC because the academic outlook of articles in this database would allow me to understand the role metadata plays in academic applications and its value to its users. I used Dialog after having done a keyword search and was able to use controlled vocabulary to search for articles.

**Database:** ERIC (Dialog 1)

**Method of Searching:** Controlled Vocabulary

**Search String:** e dt=a  
s e#

s1 and metadata  
s2 and information()retrieval

t 3/5/1-20

Then after evaluating and selecting articles: t 3/9/8 for this article.

## **Conclusion and Personal Statement:**

Metadata as a representation of the resource itself, capturing definitions of data entities and the relationships among them can play an immense role in information retrieval provided it is indexed and managed well so that access can be efficient and as per user relevance. User relevance can be enhanced when search results are ranked per user relevance and visual interfaces rich in metadata are provided so that the user can make an appropriate choice. Librarians stand at an exciting juncture where they can enhance their OPACS with user-tagging over the traditional catalog so as to provide effective and efficient informational retrieval. Moreover, the role of metadata in digital libraries can extend to music, podcasts and Flickr images so as to meet the requirements of patrons used to Web 2.0.