

Michael Millner. A Content Analysis of Job Descriptions for the Position of Metadata Librarian at Eleven American Universities. A Master's Paper for the M.S. in L.S degree. April, 2009. 41 pages. Advisor: Jane Greenberg.

This master's paper examines the skills and requirements listed in the job descriptions for the position of metadata librarian—posted from 2007 to 2009—at eleven universities: Miami, the University of California at San Diego, Emory, Bucknell, Washington (in St. Louis), Harvard, San Diego State University, Ohio State, Western Carolina, Alabama, and MIT.

The results of the study indicate that despite a fair amount of heterogeneity—some duties and required or desired skills/experiences appear in only a small minority of the position descriptions—all of the positions have an overarching similarity, one that brings similar duties and a similar mindset to the position. Nonetheless, the differences from school to school are significant enough that is difficult to give a cogent outline of the position with the same confidence that we can for other traditional library positions.

Headings:

Metadata.

Metadata--standards.

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A CONTENT ANALYSIS OF JOB DESCRIPTIONS FOR THE POSITION OF
METADATA LIBRARIAN AT ELEVEN AMERICAN UNIVERSITIES

by
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Introduction

In my position at Documenting the American South (DocSouth), in my coursework at SILS, and in an internship at Duke Archives, I have been tasked with assigning metadata. At DocSouth, a well-known digital collection that focuses on the American South, I have assigned metadata to oral histories, correspondence, and state records using TEI, assigned TGM descriptors to DocSouth images, and have dabbled in METS and MODS; in my coursework, I have created metadata in Dublin Core and have created catalog records in MARC; and in my internship (and in a particularly rigorous archival description class), I have created finding aids using EAD. Each of these experiences has afforded me some insight into a particular metadata schema. Although my classes addressed many useful aspects of metadata, in none of them was the position of metadata librarian discussed, and since DocSouth does not have a metadata librarian, my practical insight into what that position might entail is limited. In fact, I've only lately become aware that such a position exists: my relatively recent discovery of job listings for this position (including one at Duke University) have piqued my interest and prompted me to ask, "What does a metadata librarian do?" Though metadata librarians work in a variety of contexts, including special libraries in the private sector, my inquiries will focus exclusively on university research libraries.

This master's paper specifically examines the skills and requirements listed in the job descriptions for the position of metadata librarian—posted from 2007 to 2009—at eleven universities: Miami, the University of California at San Diego, Emory, Bucknell,

Washington (in St. Louis), Harvard, San Diego State University, Ohio State, Western Carolina, Alabama, and MIT. The overriding objective of this work is to gain a clearer understanding of the duties and skills requirements that metadata librarian job descriptions posted by academic university libraries have in common.

The rest of this paper is organized as follows. In the sections that follow, I provide a literature review, in which I will briefly touch on the beginnings of digital libraries, the burgeoning need for new skills on the part of librarians/catalogers, and the attendant creation of new positions that these needs have brought about. Following that, I will present my research objectives and report on the methodology I used in the selection of the aforementioned universities, including the criteria I used in their selection, as well as the selection of the specific areas of examination. After that, I will report on my findings in each of these areas. I will finish with a discussion of my findings.

Literature Review

Libraries to Digital Libraries

The last two decades have seen a great expansion in the work that university academic libraries do. Via digitization, libraries began to make their holdings available on CDs and online.

Tennant's 2000 article "Determining Our Digital Destiny" highlights the challenges that libraries at the turn of the 21st century faced from companies like Amazon.com, Yahoo, and Corbis, each of which provided services and products that libraries might already have been able to provide had they "seen that the Internet would become an essential enabling technology for libraries" (p. 57). Tennant, a digital library project manager at SunSITE, writes that the cataloging of such technologically advanced

objects as CDs still falls under the rubric of traditional cataloging and does not help potential library patrons discover materials that aren't physically located in libraries. Comparing the current moment to the revolution that MARC represented at its introduction in the 1960s, he writes that a new "digital library infrastructure" is needed (p. 58).

That digital technology—including the development of digital libraries—has changed the face of university librarianship is a truism, but it is still worth reminding ourselves that though we now consider digital libraries to be *de rigueur* at academic institutions, this ubiquity has been common for only a few years. Jones reminds us in her 2007 article "Empowerment for Digitization: Lessons Learned from the Making of Modern Michigan" that "early digitization projects in North American Libraries tended to originate in the largest, most well-funded institutions." She points out that "[w]ithin its first 12 months of publication (July 1995 to June 1996)" *D-Lib Magazine* highlighted projects at such institutions as Michigan, Duke, and Berkeley that were digitizing "collections of broadly significant primary documents in history, the arts and humanities. "A decade later," she writes, "smaller institutions are digitizing collections of regional and local interest as well."

Skekel, (2008) writing on the transformation of libraries, notes that though "libraries have now taken a giant first step in providing digital collections for their library users," (p. 149) that step was not without important investments: "before a library can add a digital collection to its holdings," she writes, "it must fill the roles of developer, grant writer, creator, researcher, metadata specialist, photographic specialist, archivist, appraiser, writer, editor, project manager, publisher, producer, technologist, programmer,

artist, copyright specialist,” and so on (p. 149). Even for those libraries with the means to invest in digitization, then, digital libraries represent a sea change—both for the institutions and for patrons—from traditional libraries.

2. New Cataloging Needs

Tennant’s 1998 article “Digital Libraries” describes the challenges that the objects in digital libraries pose to traditional machine-readable cataloging (MARC) cataloging, noting that though MARC describes the intellectual content of a digital object well, it is not equipped to apply administrative or structural metadata. Among the non-MARC descriptive tools he discusses are Dublin Core, Encoded Archival Description (EAD), Resource Description Framework (RDF), and more generally, Extensible Markup Language (XML)—standards that still exist ten years after the publication of his article. Though his article does not explicitly exhort catalogers to expand their skill set, it does make it quite clear that resource description requirements have evolved dramatically with the inception of the Internet and digital libraries. “The game has changed,” he writes: “We may need to describe a collection of digitized photographs . . . [a]nd we must keep track of such things as how the digital representation was captured and manipulated.”

The creation of digital objects brought about the need for the knowledge and skills necessary to adequately describe and make discoverable these new documents. In discussing/examining new skills to improve our skill sets, Hillman (2007) details what library professionals should begin learning in order to meet evolving expectations brought about by changes in technology and metadata application. Her article addresses primarily “those transitioning from cataloger to metadata librarian.” She counsels greater curiosity about and investigation of how websites deliver information to their patrons and

to see “beyond the library-centric notions of how data is created, shared, and used.” It is “experimentation,” she writes, that “makes a metadata librarian different.” Rather than think in terms of “one-at-a-time creation and one-at-a-time improvement and maintenance”—as catalogers have been traditionally trained to do—a metadata librarian mindset “think[s] about the problem set from a level or two above” this. Regarding technical skills, Hillman maintains that though it is not necessary for metadata librarians to be programmers, they should still know “at some level what programmers do and how they think.” She does regard systems analysis as important, and insists that librarians must “know how to analyze problems, write specifications, use cases, and documentation . . . and evaluate and test the results of programmer activity.” Hillman specifies the XML, XHTML, and RDF formats as being “as critical to a metadata librarian as in-depth knowledge of MARC is to a traditional cataloger.” Lest librarians become too disheartened by what they might perceive as too daunting a challenge, she reminds them that a “generalist with some curiosity and enthusiasm can float nicely above the sea of technological change.”

Schottlaender’s 2003 article “Why Metadata? Why Me? Why Now?” provides an introductory overview to the concepts of—and some representative examples of—encoding schema, metadata schema, and architectural schema. The article serves to remind catalogers of their potential role as arbiters of standards in the rapidly changing “information universe.” The author views traditional catalogers as a necessary part of creating order in “the Internet.” He says “Because it is inescapable and seemingly more evident every day; because it is what we are about; and finally, because not only do we

need metadata as another tool in our network of tools to do what we do, but metadata needs us to help fully realize its potential.”

Miksa’s extensive overview of cataloging and classification literature from 2003 and 2004, “The Challenges of Change,” includes among its topics the introduction of new data formats into the work world of catalogers. Catalogers face “an increasing array of questions pertaining to metadata interoperability and crosswalks,” she writes. Miksa notes the spate of new books that “show librarians ways to incorporate XML into their daily work environments,” but also notes that many researchers “have striven to demonstrate that MARC has been misunderstood, misused, and quite often underutilized.”

Greenberg’s (2007) discussion on how the Semantic Web might advance through traditional library functions invokes the much-discussed “Semantic Web,” and lays out some of the new tools that many catalogers will need to become familiar with. “The Web and digital library growth,” she writes, “has . . . motivated rethinking and revision of cataloging standards, models, and codes, as evidenced by the development of the many metadata schemes.” Some of the tools she specifies include XML, RDF, Web Ontology Language (OWL), Friend of a Friend (FOAF), and Simple Knowledge Organization Systems (SKOS).

McCracken’s 2007 article “Description of and Access to Electronic Resources: Transitioning into the Digital Age” discusses the coming role of RDA and Functional Requirements for Bibliographic Records (FRBR) in the context of electronic resources librarianship and concludes that “Librarians must stay abreast of current trends in information technology, management, organization, and description and educate

themselves and their staff as new technologies and new initiatives in cataloging metadata develop” (p. 274).

Tennant’s short 2006 article “The New Catalogers” says that modern cataloging will require even more than knowledge of some of the relatively new tools—including Dublin Core, Metadata Object Description Schema (MODS), and Metadata Encoding and Transmission Standard (METS)—that more and more catalogers are having to become familiar with and that are referenced in so many articles about the future of cataloging. He predicts a role for catalogers in the normalization and enrichment of harvested metadata. First, libraries will need to overcome the “challenge [of] . . . retooling and reeducation of those already in the [cataloging] field” (p. 32). Catalogers will still be needed, “but what they will be asked to do will be very different” (p. 32).

Ockerbloom, speaking at the May 2008 PALINET symposium (see “PALINET Focuses on Cataloging”), foreshadows a radical future for catalogers by noting that “The library world has developed rich information architectures like AACR2 that are not well supported by the social and systems architecture of Web 2.0.” At the same symposium, Calhoun, in her talk “Traveling Through Transitions: From Surviving to Thriving,” foresees that there will be a “decreasing involvement in traditional cataloging duties” but rather a “[n]eed for ‘IT fluency’ esp[ecially] metadata specialists” (slide 59).

A final article to comment on in this section is Calhoun’s 2004 piece “Being a Librarian: Metadata and Metadata Specialists in the Twenty-first Century.” This work describes the sheer impossibility of applying the traditional cataloging strategy to Web-based materials: “In general, library cataloging is descriptive metadata. Many other types of metadata—rights, technical, structural, administrative, evaluative, preservation, and

linking metadata—are needed for the array of information objects in which libraries now have an interest” (p. 12). Calhoun concludes that “the present model of library cataloging does not scale to twenty-first century demands” (p. 12).

3. New positions in the digital era

Whereas just a couple of decades ago, traditional cataloging was practically all that was needed to make library holdings discoverable, the many sorts of digital objects that libraries now make available require brand new skills and hence new sorts of library positions. In her 2004 article “Cataloging and Metadata Education in North American LIS Programs,” Hsieh-Yee writes that “[in] the digital era, the options for information organization have expanded, and competencies in cataloging and metadata have become critical for library information professionals to be effective and competitive” (p. 59). Furthermore, “more and more catalogers find themselves involved in digital projects” (p. 60).

Coleman’s 2005 article “From Cataloging to Metadata: Dublin Core Records for the Library Catalog” lays out the challenge facing new catalogers entering the job market: “Professional positions like Metadata Architect and Metadata Librarian are increasingly becoming common in both business settings and in libraries. Some libraries are even replacing job titles such as Cataloger with them” (p. 154).

Simser and Childs’ 2003 article “Revolutionary Relationships: Catalogers’ Liaison Role as Metadata Experts in the Creation of the K-State Digital Library” describes a digital initiative—the Digital Libraries Program—begun in 2000 at Kansas State that consolidated documents stored in various databases across campus. The program involved the creation of DTDs and an Oracle database and the application of

Dublin Core tags to the library's content. Its success "could cause revolutionary organizational changes both within and outside of the library," say the authors, who are encouraged by the possibilities open to catalogers who are willing to step outside of their traditional roles. They note that "Catalogers have increasingly become familiar with new technologies, and taking part in initiatives will highlight that knowledge." The result of the initiative's success has important consequences for future applicants for the position of cataloger at Kansas state: "To ensure that catalogers continue to be involved in digital projects, the cataloger position description at K-State has been updated to include Digital Library duties, and a Digital Library department has been formed.

Boydston and Leysen's 2006 article "Observations on the Catalogers' Role in Descriptive Metadata Creation in Academic Libraries" cites a 2004 ARL study that revealed that "80.2% of ARL libraries were engaged in digital projects and the average number of these projects was 12.6." Citing an Ellero study that studied cataloging position job descriptions taken from "selected listservs" from 1997 to 2003, they note that nearly 20% of these descriptions included "Metadata Knowledge/Application." Though they consider these numbers to be low, the authors allow for the possibility that these duties are assumed but not explicitly described in some of the job descriptions or/and that a more heterogeneous selection of listservs might have yielded different results. In any case, the research shows that cataloger position descriptions were "beginning to reflect" non-traditional metadata creation as a component of the duties, even if only in a limited fashion. The authors' informal research shows participation on the part of catalogers in a variety of digital initiatives at universities and suggests that their skills and adaptability make them ideal candidates for non-cataloging metadata description. Nonetheless

“Educational issues must be addressed if catalogers are to participate fully in metadata creation.” The authors point out that “While the basics of cataloging are the same regardless of format, the surrounding issues and information are different.”

As the articles cited here show, the work of those engaged in assigning metadata has changed a great deal in the last decade or so. It has changed to such a degree, in fact, that a position significantly unlike the traditional cataloger position has emerged. To say that the duties are very different is not enough to accurately convey the heterogeneity of the new position of metadata librarian. While we can more or less easily imagine the outlines of the cataloger's duties (which in no way undermines their necessity, value, and difficulty), the position of metadata librarian is one whose outlines are not only difficult to determine, but which seem still to be shifting. Because this is the case, research in this area is needed in order to find those points of commonality that help us to begin to better understand what the position of metadata librarian means in practice. The study presented here is a snapshot at a point in time, one that will perhaps not satisfactorily reflect the state of the profession even in the relatively near future. However, it can still be of benefit to review the duties and requirements as outlined in the positions presented here, during the short time span (from 2007 to 2009, with a preponderance of the positions appearing in 2008 or 2009) in which the positions were posted. It is hoped that this study will be one helpful part of what will no doubt be a long-standing conversation.

Research Objectives

The overriding objective of this work is to gain a clearer understanding of the duties and skills requirements that metadata librarian job descriptions posted by academic university libraries have in common. As the creation of digital objects has become a

larger part of the work that libraries do, the need for skills required to help create and oversee digital collections have evolved [developed] to such an extent that it has created the need for the position of metadata librarian. Whereas one can more or less predict the duties associated with the position called “Cataloger,” it seems the position of “Metadata Librarian” is more heterogeneous, and so one of the main objectives of this study is to discover where position descriptions converge and where they diverge.

Methodology

The method used to address the research goals stated directly above was a content analysis. Specifically, a content analysis was conducted for using postings for the position of metadata librarian at eleven university libraries. The source of the descriptions was the Internet. The sample was gathered by first searching the phrase "Metadata Librarian" in Google search engine. A selective sample was selected using the following general criteria.

- The job description needed to be for a metadata librarian in an academic library (e.g., a university or college library).
- The job description needed to provide sufficient content on the duties of the position and the knowledge and/or experience required or desired of the incumbent.
- The job description needed to be fairly current, posted from 2007 to 2009.

A sample of eleven position descriptions fit the above criteria; seven were posted in 2008, two were posted in 2007, and one was posted in 2009. A 2009 version of one position was posted too late to replace the version I include here. The exact title of the job was important: I did not want to include jobs that merely contained the word

"metadata" (Metadata Cataloger, Metadata Specialist, Metadata Coordinator, etc.), since I was focused on a particular job description. In fact, even the exact title "Metadata Librarian" was not, in and of itself, enough to warrant inclusion in my study. An early posting of the Metadata Librarian position at one institution did not meet my criteria because it was too focused on traditional cataloging and was removed from consideration until I discovered an updated description that was more in line with more current developments in job descriptions for metadata librarian positions. Furthermore, a relative dearth of information in a job description was enough to eliminate it from my study. The job description for the Metadata Librarian position at another institution, for instance, was not quite robust enough for me to justify inclusion, particularly since I was able to find enough examples of full, detailed job descriptions. In another instance, a position billed as "Metadata Creation and Enrichment Librarian," though it expressed a preference that the incumbent be familiar with "one or more metadata schemas other than MARC21, preferably Dublin Core," was quite simply a cataloging position with supervisory responsibility. In short, I wanted to be sure that I was comparing apples to apples and that none of the institutions was an outlier.

I further narrowed my search to positions in academic and research libraries. This eliminated private sector positions that advertised for such jobs as "Senior Metadata Librarian," including a position at ProQuest that required some of the same skills that academic and research libraries were looking for. Though comparison of such metadata librarian positions with those in academic and research libraries might make for an interesting study in itself, this study focuses on academic and research library positions only.

To aid my analysis, I created a “metadata matrix”—a listing of key factors in which I systematically entered the duties and requirements listed in the postings. As I went through a job description, I entered these duties and requirements into the spreadsheet. To help me in my organization of these many entries, I created headings under which I gathered related entries. For instance, the various metadata schema knowledge requirements were gathered under a single rubric called "Metadata Standards Knowledge/Experience." Duties and requirements were entered on the vertical axis. Along the top of the spreadsheet, I created a column for each university. In every field below the name of the university, I noted whether the skill or duty listed in the vertical axis was required in the posting created by each university. The matrix data collecting was supplemented by logging additional notes corresponding to the matrix criteria/factors. Because the creation of the metadata matrix was a learning process, and because the write-up of my findings raised more questions and required me to revisit the job descriptions and not just the matrix entries, a few matrix revisions were required for the data analysis and reporting.

My desire to include only positions posted in 2007 or later was a deliberate methodological decision. One of the papers that inspired me to conduct this study, John Chapman's "The Roles of the Metadata Librarian in a Research Library" studied seven metadata librarian positions posted from 2001 to 2006. Though my paper is not a comparison of my findings against the findings of Chapman, I anticipated that I might have occasion somewhere in my study to point up some differences in our findings. I assumed that very recent postings would afford me greater opportunity to discover such differences.

Results

The analysis of the metadata librarian position descriptions revealed a fair amount of heterogeneity, but also many commonalities. Overall, the picture that arises of a suitable candidate is one who already possesses knowledge of—and experience applying—metadata standards. In general, the job descriptions don't specify that knowledge/experience of a single particular standard is required, but rather one or more from a list of standards that the institution presumably uses or plans to use. Experience with digital management systems is also very desirable in the aggregate. The overall picture of the ideal candidate is one who is comfortable with current technologies—including development tools such as XSL and relational databases—and who at the same time is open to new technologies. Results indicate that the metadata librarian is expected to take a leadership role in the selection and application of standards for projects—the centrality of the metadata librarian is clear throughout the position descriptions. The trait that comes up most often—frequently stated outright but also often implied—is the ability to work and communicate well with others. The ideal candidate that arises from the job descriptions is one who can teach others, who can plan with others, and who can communicate well not only in person but also in writing (documentation is a requirement for most of the positions). Required knowledge of or experience in traditional cataloging varies from position to position, but in the aggregate, the ideal candidate still has a foothold in the world of traditional cataloging.

The sections below will more specifically describe the general impressions listed here. In these sections, I will summarize the requirements in the areas of

- metadata standards knowledge/experience,

- traditional cataloging knowledge/experience
- formal job duties, including those in the areas of standards, workflow/practices
- quality control/assurance
- digital repositories
- development tools
- teaching, learning, and communication

Desired Skills, Knowledge, and Experience

In addition to the breaking down of job posting descriptions into categories (as mentioned above in the discussion of the "metadata matrix"), another organizing strategy was applied to this discussion. Content areas were broken down into two main sections: one section reports on the skills, knowledge, and/or experience the incumbent is expected to have—or is hoped to have—in various areas (typically found in the "Qualifications" part of a position description), while the other section reports on the duties that the incumbent is expected to carry out. The significance of the distinction can be seen in the area of metadata knowledge as opposed to metadata duties. A job posting might say that the duties of the incumbent include metadata creation, authority over metadata standards, and keeping current on metadata standards. None of these duties specifies what sort of experience the incumbent should already have. That same job posting, however, might ask that the incumbent have (as is specified in one of the job descriptions) "[w]orking knowledge and experience with two or more metadata schema and protocols such as Dublin Core, EAD, Visual Resources Association data standards (VRA Core), MODS, METS, etc." The section immediately below covers desired skills, knowledge, and experience. The topic areas for which data were gathered are metadata standards,

protocols, traditional cataloging, digital management systems and digital repositories, development tools, and education.

Metadata Standards Knowledge/Experience

For this section, of the eleven job postings included in my study, I was able to gather information on all eleven. This is not surprising, of course, since it is to be expected that metadata librarians would need to have experience with metadata schemas and protocols. What is perhaps interesting, however, is that the institutions selected for this study did not specify set metadata knowledge/experience requirements for applicants—rather, they provided a list of standards and expected applicants to have knowledge of and/or experience with some portion of those standards. Wording from the University of Miami's job description was more or less typical of what could be found in other schools' descriptions: "Working knowledge and experience with two or more metadata schema and protocols such as Dublin Core, EAD, VRA Core, MODS, METS, etc." One notable difference among these ten descriptions was whether the list was open-ended or not. In the Miami description provided above, for instance, the list of metadata schemas was preceded by "such as," and ended with "etc.," leaving open the possibility that experience with other metadata standards would also be taken into consideration.

Of the eleven descriptions, nine of them present their requirements this way. Two of them, though allowing for lack of experience in some of the items in their list, nonetheless require experience in one or more of the areas they list. Ohio State, for instance, requires "Demonstrated experience . . . with two or more of the following." Washington University's requirements are a little more unclear: while they seem to require "Knowledge of and/or experience with two of the following metadata standards,"

the requirement is immediately undermined by "and/or relevant thesauri or ontologies." Of the eleven descriptions, only MIT required the "ability to learn, analyze, and utilize existing and emerging metadata standards"—no experience or knowledge was required. Finally, UCSD's was the only description that did not list metadata standards. Though the job description they provide does specify that the incumbent will "formulate METS profiles for object classes," the requirements are left unspecified: "Demonstrated knowledge of principles and practices in organizing information, including key metadata format and content standards." The use of "key" could give us an idea which standards might appear had they decided to specify, but the lack of specifics is unusual among the eleven descriptions.

Of the thirteen metadata standards that are specified either as requirements or as one among a list of acceptable standards, METS was included by ten of the descriptions; MODS by nine; EAD and Dublin Core by eight; VRA Core by seven; TEI by two; RDF by three; Learning Object Metadata (LOM) by two; Federal Geographic Data Committee (FGDC) standards, Preservation Metadata: Implementation Strategies (PREMIS), Cataloging Cultural Objects (CCO) and Sharable Content Object Reference Model (SCORM) each by one. It is worth mentioning that six of the descriptions include in their list knowledge/experience in XML in general.

Traditional Cataloging Knowledge/Experience

Taken altogether, the job descriptions collected for this study generally point away from a very strong connection to traditional cataloging. The departments to which most of the incumbents would be reporting would also seem to confirm a fairly clear split between traditional cataloging duties and "metadata" duties: MIT has the Metadata

Services Unit; Ohio State the Scholarly Resources Integration Department; Washington University the Digital Library Services; Bucknell the Digital Initiatives Group; and Emory the "newly created" Metadata Services Team; and the Harvard the Information Acquisition and Management Librarian. Still, at least 4 of the positions reviewed (UCSD reporting is unclear)—Alabama, Miami, Western Carolina, and SDSU—report to traditional technical services teams: Alabama and Miami to "Cataloging and Metadata Services," Western Carolina to "Cataloging," and SDSU to "Monographs Cataloging." And again, though the bulk of the job descriptions point away from a large degree of engagement in traditional cataloging, the latter seemingly still plays a non-negligible role in the incumbents' positions. For instance, of the eleven descriptions, eight clearly show a preference for or require knowledge and/or experience related to traditional cataloging. Miami, for example, requires "knowledge of cataloging rules, standards, and controlled vocabularies." Emory's requirements are even more specific: "Knowledge of traditional cataloging standards: MARC, AACR2), Library of Congress Subject Headings (LCSH) and/or MeSH, and LC classification." The requirements for the Harvard, MIT, and Western Carolina positions are essentially the same, while Ohio State lists experience in these areas as desirable and includes MARC among the accepted metadata standards for which the applicant for the position can receive credit. MIT goes so far as to include as a requirement "at least three years' professional cataloging/metadata experience," leaving open the possibility that their hire will have only traditional cataloging experience. Bucknell's requirements are greater still. Though the duties are "[s]econdary," the Bucknell metadata librarian must not only "[m]aintain knowledge of national and international cataloging standards and best practices" but actively engage in "[p]roviding

support for cataloging books and electronic resources." Furthermore s/he must "[stay] abreast of changes in traditional cataloging," a requirement that suggests a future commitment to cataloging for this position. Descriptions for three of the positions are vague in this area, but do seem make give a nod to traditional cataloging. Washington and UCSD only suggest (verbatim, as it happens) passing knowledge of cataloging by both requiring "knowledge of principles and practices in organizing information," while MARC is among the accepted metadata standards for which the applicant for the SDSU position can receive credit. Alabama requires "knowledge of . . . content standards and controlled vocabularies."

Knowledge/Experience with Digital Management Systems/Repositories

Of the eleven positions, seven listed as a requirement or a preference experience with some sort of off-the-shelf digital management system or repository, and an eighth—Bucknell—though it does not explicitly state an experience requirement, lists the DMSs that the incumbent will be "training campus users" on. Two others—UCSD and Ohio State—fleeting refer to their "Digital Asset Management System" and "institutional digital repository," respectively, but do not list any experience requirements. The repository listed most often was CONTENTdm: six of the descriptions specified it as among the DMSs they considered acceptable experience. Though none of the descriptions required CONTENTdm exclusively, the descriptions suggest that these schools do use CONTENTdm. A typical description comes from Miami, where it is "[h]ighly desirable" that the incumbent have "[e]xperience with applying metadata standards to describe digital collections using CONTENTdm or other digital management systems." One description, that of Western Carolina, listed (in its preferred qualifications

section) CONTENTdm as the only DMS for which they hoped for some experience on the part of the incumbent. After CONTENTdm, the DMSs with the most mentions were Fedora (5), DSpace (4) and LUNA/LUNA Insight (2). Three descriptions (those of Emory, Harvard, and Alabama) required experience or working knowledge in at least one DMS. Four descriptions (those of Washington, Western Carolina, MIT, and Miami) listed DMS knowledge or experience as preferred, with Miami listing it as highly desirable.

Only three of the descriptions specifically state that the incumbent should have some knowledge of institutional repository development or that s/he will be participating in the creation of one. Harvard requires "Awareness of current and emerging issues in Institutional and Open Repository schemes," while SDSU states that the incumbent "May collaborate with colleagues to structure, plan and build University-wide repositories." Emory strongly suggests the possibility that its incumbent will face similar requirements and duties: of the job announcement, it notes that "The libraries are currently in the developmental stages of building a repository infrastructure to manage digital content and metadata." In addition, among the qualifications expected of the Emory incumbent is "knowledge of current and emerging issues and trends in digital libraries *and repositories* [my emphasis] and their impact on metadata standards." It is possible that other job descriptions hint at similar knowledge requirements or potential duties, but the language is not clear enough for a non-expert to draw a conclusion.

Knowledge/Experience: Development Tools

Of the eleven job descriptions, six clearly state a desire for or requirement of some knowledge or experience with development tools, while a seventh hints at similar requirements, though it is not as specific. Among the former six, Miami lists as "[h]ighly

desirable" a "familiarity with related XML technology such as XSLT or XLINK" and a "familiarity with relational database structure." Emory prefers "[e]xperience with use of XSLT and familiarity with database design and operations." Washington has the most specific and extensive wish list, preferring "[e]xperience with CSS, XML and XSLT and XML-native databases" as well as "[e]xperience with standard HTML and XSL tools such as Dreamweaver, Oxygen, EMACS, etc." and "[k]nowledge of UNIX/Linux operating systems and tools." Along with these preferences, Washington also lists as a requirement "[e]xperience with HTML and related web technologies." Western Carolina desires "knowledge of one or more of" HTML and XML and prefers an incumbent with "experience with programming languages such as Perl." Alabama prefers "experience in database design, . . . XSLT, and scripting" while Ohio State desires an incumbent who as an "[u]nderstanding of principles of database structure and design." Of the three job descriptions that suggest a desire for or requirement of some knowledge or experience with development tools, Harvard lists, among the job duties, that "[t]he librarian will investigate and develop applications for improving access to digital collections." Though Bucknell requires "[p]roiciency in . . . databases," the larger context of the description suggests that use of databases rather than knowledge of or experience in relational database creation is being sought. MIT prefers a "knowledge" of XML, but the rest of the description contains so few advanced requirements that it is difficult to assume that the incumbent will play any role in formal development of systems.

The development tool mentioned most often in the job descriptions was Extensible Stylesheet Language Transformation (XSLT), with four mentions. Four job descriptions (those of Miami, Emory, Alabama, and Ohio State) placed some importance

on the knowledge of or experience with relational database structure or design or both, and a fifth (Washington) specified a preference for experience with “XML-native databases.”

Education and Work Experience

Of the eleven positions reviewed, all list a master’s degree from a library school as acceptable for the education requirement for the position. However, fewer than half of the job descriptions list it as a requirement: Emory, Bucknell, Harvard, Western Carolina, and MIT all require it. Other positions typically allow another advanced degree or an “equivalent” degree or “equivalent experience” as acceptable substitutes for the education requirement.

Formal Duties

Formal duties are the actions the incumbent is expected to carry out in his or her capacity as metadata librarian. As mentioned above, this is to be distinguished from the knowledge, skills, and experiences the librarian is expected to have before taking on, or targeting professional metadata work. The topic areas for which data were gathered are workflow/practices, standards development, quality control/assurance, digital collection planning, communication, teaching, collecting/analyzing/sharing statistics, crosswalking, transformation/normalization/enhancement, cataloging, learning.

Cataloging

In addition to requiring basic knowledge and/or experience in traditional cataloging, a few of the job descriptions include this in the duties that might or will be carried out by the incumbent. Of the eleven job descriptions, four of them point to these duties, with varying clarity and specificity. The Bucknell position stresses that "the

primary focus of the work will be working with metadata for digital objects," but adds the important rejoinder that the incumbent "will also serve as a resident authority on traditional cataloging standards and emerging trends related to the intellectual access and organization of information." Western Carolina does not require its incumbent to be the "resident authority"—the role more modestly calls for "some responsibility for cataloging traditional library materials." The wording here is a little unclear, since the word "traditional" is used to modify "library materials" rather than "cataloging," but the implication seems fairly clear. Ohio State's description is somewhat less clear: the incumbent is expected to "[catalog] materials using a variety of metadata schema." It is unclear whether the latter refers to the "AACR2, LCRI, LCSH and other controlled vocabularies" the incumbent is expected to have a "[w]orking knowledge of," but the position does suggest the incumbent will "[work] closely with the Head of Special Collections Cataloging on describing digital objects." The MIT position is the most explicit in laying out the cataloging duties of the incumbent, who is "responsible for original and complex copy cataloging of monographic materials." The importance of these duties seems to be underscored by the fact that they are the first duty listed in the job description.

Workflow/Practices

Just under half of the job descriptions clearly describe workflow implementation as a duty of the metadata librarian. Miami ("implements adopted practices . . . and workflows"), Bucknell ("[establishes] workflows for metadata projects"), and Western Carolina ("[develops] . . . policies and procedures") touch on the duty fleetingly. UCSD goes into somewhat more detail, expecting that the incumbent will "develop cost

effective and efficient strategies and reliable data streams for producing and normalizing metadata and importing it into the Digital Asset Management System." Washington University, however, provides perhaps the most insight into what this would entail for the incumbent: "contribute to digital object modeling and workflows as they relate to metadata creation for digital projects, for internal (library) and external (faculty and other) digital projects." The Western Carolina position requires "developing . . . policies and procedures," but the context of the wording makes it unclear whether this duty applies to the traditional cataloging unit or to the metadata unit, so it was not counted among the descriptions that state a clear requirement for input into metadata production workflow. Neither was the SDSU position, which seems to hint at responsibilities with the requirement that the incumbent "documents locally adopted . . . workflows" but which does not explicitly state this duty.

Standards Development

Nearly every job description expects the incumbent metadata librarian to play some role in the development/incorporation of metadata standards for their institution. Of the eleven job descriptions, only MIT makes no mention of standards development on the part of the metadata librarian. All other institutions' job descriptions make this duty relatively clear in more or less similar wording: at Miami, the incumbent is the "local authority for metadata standards"; at UCSD s/he will "identify and apply appropriate metadata format and content standards; at Emory s/he will "Analyze metadata needs and recommend or choose schema"; the Bucknell metadata librarian will be responsible not only for "Selecting the appropriate metadata schema for digital projects" but also for "Maintaining knowledge of national and international descriptive, technical, and

administrative metadata standards"; at Washington s/he "will lead the effort . . . to develop and promote metadata and related standards; at Harvard s/he will "advise on the application of current and emerging metadata schema"; at SDSU s/he "leads the evaluation and implementation of appropriate metadata standards" and is the "local authority for metadata standards"; the Western Carolina metadata librarian "will play a major role in . . . metadata scheme adaptation"; at Alabama s/he will "recommend and design appropriate metadata schema"; and at Ohio State, s/he "researches, evaluates, and interprets developments in metadata standards, and recommends and designs appropriate metadata schema to facilitate the use of OSU collections. Some slight wording variations were found that seemed to demonstrate different emphases. For example, the Washington metadata librarian not only promotes but also *develops* "metadata and related schema." Similarly, it would seem, the Alabama and Ohio State metadata librarians not only "recommend" but also *design* "appropriate metadata schema."

Quality Control/Assurance

More than half all of the job descriptions point to the importance—in one way or another—of quality control and of the incumbent's expected role in this. Miami ("participates in quality control activities for the Libraries' faculty and staff in metadata creation"), Bucknell ("responsible for metadata and associated . . . quality control"), and SDSU ("Manages authority and quality control issues") are relatively simple and straightforward in their wording. UCSD's description goes into more detail, expecting the incumbent to "[p]rovide ongoing data review and analysis of digital objects and their metadata, including quality assurance." Neither Harvard nor Emory use the term "quality assurance," but each seems to point to this very thing in its description: Harvard expects

its incumbent to "coordinate the formulation and implementation of policies and standards for descriptive, technical and administrative metadata" while Emory requires the development and maintenance of "policies, guidelines, and standards for digitization and metadata."

Digital Collection Planning

Of the eleven job descriptions, only three explicitly state that the metadata librarian will be involved in collection planning. Miami's incumbent "works closely with the Digital Initiatives, Resources, and Services, and other stakeholders to plan digital collections and projects"; SDSU's "[p]articipates in the Digital Initiatives Steering Group to plan digital collections and projects"; and Western Carolina's is "expected to provide leadership in the development of new digital projects." The Bucknell job description does not describe a collection development role for the incumbent, but s/he will "solicit new materials, and encourage faculty integration of digital materials into courses."

Communication

All eleven job descriptions place a strong emphasis on communication. In addition to the boilerplate requirement for "excellent" or "effective" oral and written communication skills that nearly every position outlines, more specific manifestations of the incumbents' ability to communicate and work with others appear in every job description. Some form of the word "collaborate," for instance, appears in no fewer than eight of the job descriptions. The Miami incumbent, for example, "networks, collaborates and actively participates in local, regional, national, or international organizations." The SDSU incumbent "collaborates with faculty, librarians and staff as they develop digital collections"—and for good measure, the same description says that the incumbent must

have the ability to work “collaboratively.” Two of the positions also use the word “liaison” in describing the position of the metadata librarian: Miami and SDSU use precisely the same wording, in fact, stressing that the incumbent “serves as the Libraries’ metadata liaison to the University.” Similarly, an additional two job descriptions (those of Emory and Bucknell) see the metadata librarian as a representative: the Emory incumbent will “[r]epresent the library in national, regional and campus organizations,” while the Bucknell incumbent will be responsible for “[r]epresenting the Digital Initiatives Group, Library and Information Technology, and Bucknell University by serving on university-wide, departmental, and consortial committees as appropriate.”

The Emory and Bucknell descriptions just cited also highlight the need for the metadata librarian to be able to interact in a formal group of some sort, whether committees, task forces, conference, etc. Eight of the eleven job descriptions formally state this requirement in their descriptions, while a ninth, Alabama, strongly suggests committee-type involvement in its requirement that the incumbent “Coordinate with constituencies within and outside the Libraries on metadata issues.” A tenth, Ohio State, “Actively participates in . . . local and national discussions relating to the access, retrieval and management of objects in digital library systems,” a description that suggests the incumbent will participate in conferences and presentations. Finally, seven of the institutions concretize the “excellent writing skills” boilerplate text by specifying documentation duties for the incumbent. Four of the institutions specify documentation of “metadata” or “metadata standards.”

Teaching

Of the eleven positions, nine clearly indicate that training or technical assistance will be a part of the incumbent's duties. Only UCSD and Washington do not spell out this duty. Most of the positions specify training and/or technical assistance to faculty, staff, or both. One position (Ohio State) includes a teaching requirement as part of its “faculty status with accompanying university expectations and requirements for tenure and promotion.” It is also the only job description that has a desire for its incumbent to have “experience with instructional technology.” Only MIT specifies a supervisory role, and it also prefers supervisory experience on the part of its incumbent. Unlike the other descriptions, MIT’s training content does not clearly state whether the training context is traditional cataloging or whether non-cataloging metadata is being referred to.

Miscellaneous

Some duties and requirements were mentioned only once each within the eleven position descriptions. Though no conclusions can be drawn about these currently, they were compelling enough to mention here as areas that might warrant more study. For instance, only one job description—Emory's—requires that the incumbent “[c]ollect, analyze and share statistics.” Unfortunately, the job description does not go into any greater detail than that. In addition, only one position description includes crosswalking under the listing of required duties: the UCSD metadata librarian will be expected to “develop metadata crosswalks for digital objects.” If required *experience* in crosswalks also suggests duties to come, the Emory metadata librarian, for whom “crosswalking . . . XML data” experience is expected, will also have this as a duty. Finally, only UCSD's position description specified either transformation, normalization, or enhancement “projects” as an expectation of the incumbent. It is unclear what context is being referred

to here, since transformation and enhancement could refer to more than one thing. Emory's requirement that the incumbent have experience in "normalizing and transforming of XML data" suggests possible duties that are not, however, spelled out in the description.

Professional Growth and Development

All eleven job descriptions require continued learning on the part of the incumbent. Typical of the wording found in the job descriptions is that from Miami, where the incumbent will be responsible for "keeping abreast of developments in metadata standards and practices." The expected changes in metadata applications can be seen throughout the descriptions: Bucknell's incumbent is "responsible for . . . knowledge of *changing metadata standards*"; Washington's incumbent will "monitor *trends* on metadata issues"; and UCSD's incumbent will "[p]articipate in the *ongoing development* of metadata standards and best practices" (my emphases). This expectation of flux is evident in the three descriptions which expect that the incumbent will experiment or explore: the Bucknell incumbent will be responsible for "[e]xperimenting with promising new metadata cataloging tools or technologies"; the SDSU incumbent "[e]xperiments with promising new metadata/cataloging tools or technologies"; and the Western Carolina incumbent will be "exploring new technologies in metadata applications."

Discussion

The position of metadata librarian is quite a complicated one. The duties from position to position vary, to be sure, and some specific positions do appear to be more complex and detailed than others. Nonetheless, all of the positions have an overarching similarity, one that brings similar duties and a similar mindset to the position.

For anyone working in libraries or in library school, it should be obvious that computers and their attendant automation have added a layer (or perhaps layers) of complexity to librarianship in general. More specifically, the digitization of non-monographic resources (and monographic resources, also), the challenge of describing those resources so as to maximize their discoverability, and the evolution of types of repositories in which to ingest those materials have all created tasks and positions in the last decade and a half that before most resembled the work being done by catalogers in technical services departments of academic libraries. As Calhoun put it in her 2004 article “Being a Librarian: Metadata and Metadata Specialists in the Twenty-First Century,” “the present model of library cataloging does not scale to twenty-first century demands” (p. 12).

The word “scale” is apt here, as not only the sheer volume of materials regularly being made available to users has increased at a dizzying pace, but the sorts of materials being made available to them—and the means by which the material are made available and discoverable—have increased, also. This has led to positions that have come into existence only relatively recently. As Coleman writes in her 2005 article “From Cataloging to Metadata: Dublin Core Records for the Library Catalog,” “Professional positions like Metadata Architect and Metadata Librarian are increasingly becoming common in both business settings and in libraries.” (p. 154).

Discussion of Knowledge and Skills

Metadata Standards

Metadata standards appeared in both the "Formal Duties" and "Desired Skills/Knowledge/Experience" section, a fact that should not surprise us, considering the

position being discussed. What perhaps stands out most vividly when one peruses the metadata matrix is the welter of acronyms in the "Metadata Schemas" section. No doubt, for many librarians even in 2009 (including, one guesses, many of those who apply for one of these positions), this would be a pretty daunting list. No fewer than a dozen standards make up this list, which is to say more than one unique schema per position description included in this study. Although a dozen additional position descriptions might not yield yet a dozen more schemas not already on the metadata matrix, it is hard to imagine that our list would not be non-negligibly longer. Given the profusion of schemas then, perhaps the most notable thing about the list is the number of schemas that are mentioned in at least half of the position descriptions: METS, MODS, EAD, Dublin Core, VRA Core, and MARC. More than half also refer generally to XML. This was revealing to me, (and also a little encouraging): I have interacted—either at work or in my courses—with all of these schemas except for VRA Core. Based on this study and on my own experience, I feel confident that further research on metadata librarian position descriptions would yield percentages similar to those in my findings.

Cataloging

Although, as mentioned above, job descriptions collected for this study do not indicate that traditional cataloging will be an important part of the position for the great majority of the incumbents, the continued relevance of cataloging knowledge to the position of metadata librarian is noteworthy. That eight of the positions require or prefer knowledge of cataloging principles raises interesting questions. Are these requirements and preferences a nod to a tradition that libraries are loathe to part with, even if the job description does not require any cataloging? Is communication with traditional catalogers

seen as important? Is cataloging knowledge or experience perceived to be germane to the metadata duties that the incumbent is expected to carry out? Of course, for those positions in which the incumbent is expected to catalog or oversee catalogers, this experience is clearly important. But for all other positions, a survey of the persons or groups who wrote up the job descriptions would make for an enlightening study.

Digital Management Systems/Repositories

Perhaps the most notable point in this section is how few of the position descriptions—three of eleven—request experience or knowledge of repository development. A large portion of the descriptions—eight—strongly suggest that the schools are using DMSs that they themselves did not develop, and six of these descriptions suggest that ContentDM is the DMS (or among the DMSs) that those schools have adopted. The comparative importance of out-of-the box DMSs could diminish within the next several years as more schools begin developing their own institutional repositories. This is not to say that ContentDM and other DMSs will cease to be used—indeed these are very handy tools, and a good means of making digitized material available before the larger projects of which they are a part are completed or have reached a satisfactory beta stage. In fact, the desire for ContentDM, etc., knowledge could be seen as a stage in the development of digital libraries. DMSs, though imperfect, still enable institutions not only to present their digital objects, but also to conveniently store metadata associated with these objects. Nonetheless, the influence of other institutions that have created or have begun to develop institutional repositories will, it would seem, come to bear on the decision-making processes at other libraries. The importance of the institution's curatorial role will also no doubt make institutional

repositories—which is to say the benefits that these bring and which DMSs like ContentDM cannot offer—ever more important to institutions with burgeoning digital collections. Furthermore, as the term "institutional repository" suggests, digital projects are moving beyond the libraries themselves, as university faculty and other members of the university community seek a permanent digital home for their materials. All of these factors could make experience with institutional repositories on the part of applicants for the position of metadata librarian highly desirable in the near future.

Development Tools

It seems equally likely that knowledge of development tools on the part of incumbents will be more and more desirable. Already, this preference is quite noticeable in position descriptions: desired knowledge of XML-based development tools like XSLT appears in several of the descriptions, as does knowledge of databases. One job description—that of Washington—expresses a preference that could play a larger role in position descriptions in the near future: a preference for experience with "XML-native databases." This is not to say that traditional relational databases (MySQL, PostGres, Oracle, etc.) will cease to be important—in fact, skills in these areas could be increasingly be sought after, also, as new generations of library science graduates become increasingly skilled in more technical areas and as the difference in skill sets between LS and IS graduates becomes less and less striking. The job descriptions analyzed for this study seem to illustrate this point.

Education

Although all eleven job descriptions include a master's degree from a library school as acceptable for the education requirement for the position, only five of the

position descriptions list it as a requirement. That it is desirable reflects, no doubt, the sort of work that hiring managers expect that an incumbent will have done in his or her courses and projects. But for the descriptions that require it, the desirability of a library degree might reflect the duties of the position or the group of which the metadata librarian would be a part: the Emory position falls is a part of technical services; the Bucknell position would “[provide] support for cataloging books and electronic resources”; the Western Carolina position “will create metadata using both emerging and traditional metadata schema”; and the MIT position would “serve as a resource for staff performing copy cataloging.” Of the five job descriptions, only the Harvard position does not state a clear departmental or duties-related reason for requiring a library degree. And what of the remaining schools? Why do they not require a library degree? Perhaps they simply do not want to limit their candidate pool. Digitization is happening beyond the library “walls.” Furthermore, many of the skills found in the descriptions included in this study—experience with development tools, working with repositories (institutional or otherwise), etc.—are the sorts of skills that could well be found in someone with a computer science degree, or someone who has done similar work in another arena and who has an aptitude for the duties found in the metadata librarian position descriptions. It is not hard to imagine that this sort of candidate—particularly one with a Ph.D.—would be very attractive to a committee tasked with hiring a metadata librarian.

Duties

Workflow/Practices

Since four of the positions explicitly lay out duties related to workflow (“[establishes] workflows for metadata projects,” as one description puts it, and

"implements adopted practices . . . and workflows" as another puts it), it seemed worth pointing out in the study. The significance of the numbers, however, is not simple to assess. Do these job descriptions specify this duty because it is not self-evidently one that a metadata librarian would carry out? Will incumbents in the other positions not be expected to carry out this duty? Will they help carry out this duty with other members of their team? The context does not make this clear.

Standards Development and Quality Control/Assurance

The near-unanimity of the inclusion of this duty in the job descriptions points, it would seem, to the centrality of the metadata librarian in contributing to the standards development of the digital teams they would be a part of. In short, this appears to be among the most important duties of the metadata librarian. The descriptions show the centrality of the role, as the metadata librarian is twice referred to as "the local authority," and in other places s/he "leads," "play[s] a major role," "recommend[s]," "interprets," "advise[s]," and so on. This is perhaps to be expected: the incumbent is assumed to be, in general terms, expert in the area of metadata and its application—it is therefore reasonable to expect that the incumbent will be an important resource for setting and implementing standards. Related to the duty of standards development is the one of quality control/assurance. This perhaps requires little explanation: if the incumbent plays a major role in standards development, then helping ensure that these standards are consistently adhered to would also seem to fall under the metadata librarian's purview. Though this duty is not listed as frequently as that of standards development, more than half of the positions point to it.

Digital Collection Planning

It is interesting to speculate if in the future metadata librarians will play a larger role in digital collection planning than the job descriptions indicate they currently do. While it is not self-evident that the metadata librarian should necessarily play a role in collection planning, it would seem to be helpful for steering committees or other planning groups to have the input of the metadata librarian, who could have some knowledge of the potential challenges for description, preservation, and curation that others in the group might not have. In any case, it is a little surprising that only three of the position descriptions specify this duty.

Communication, Teaching, and Learning

The ability to communicate well is strongly stressed as a requirement in all of the job descriptions, and it is easy to see why. Unlike in traditional metadata work—i.e. cataloging—the duties are not largely solitary endeavors. The metadata librarian must be able to work across departments, since—as indicated by the job descriptions—digital projects often require input from a variety of groups (including catalogers, assuming the collection is to appear in the university's OPAC). Communicating effectively can make a large difference in how well these groups work together and might well determine to a large degree the quality of the project at hand. Furthermore, the metadata librarian who can interact well with others at committees and conferences will benefit most from these activities, and by extension, so will the group—or in the case of conferences, the university s/he represents.

Those metadata librarians who are tasked with documenting standards frequently have a difficult task, as that sort of documentation can be very complicated. Being able to communicate well in writing could be very important to those who take over once the

metadata librarian has left. I foresee that no matter how technical the metadata librarian position might become, effective communication skill will always be a high priority in job position descriptions.

Good communication is also important in the training or technical assistance duties that the metadata librarian must carry out. Teaching is mentioned in no fewer than nine of the position descriptions. A great deal of the work associated with digital projects requires many person-hours—likely far more than is available to the metadata librarian. And although the descriptions do not go into any real detail in explaining what this might entail, it is probably likely that most of the actual work that goes into creating collections (scanning, mark-up, publication via forms or scripts, etc.) will be carried out by other staff and students and that many of the latter will have little or no experience in these duties. This being the case, effective training of staff or students can be very important to the efficiency of a project. Often, work that is supposedly completed must be redone because of communication failures. Effective training (and keeping a close eye on consistency in the application of standards) can help minimize such waste. Not only must metadata librarians be able to teach, they must also be continually learning. The metadata landscape is generally in constant flux, and if past is prologue, this is extremely unlikely to change. It comes as no surprise, then, that all eleven of the position descriptions require continued learning on the part of the incumbent.

Conclusion

This master's paper examined the job descriptions posted by eleven university libraries for the position of metadata librarian. The objectives of the study were to gain a greater understanding of the position of metadata librarian at American research libraries.

The paper reports on the content analysis of these eleven positions. The results indicate that despite a fair amount of heterogeneity—some duties and required or desired skills/experiences appear in only a small minority of the position descriptions—all of the positions have an overarching similarity, one that brings similar duties and a similar mindset to the position. Nonetheless, the differences from position to position are significant enough that it is difficult to give a cogent outline of the position with the same confidence that we can outline the position of, for instance, a traditional cataloger or a collection developer.

A limitation to the study is its sample size. Even so, the detailed analysis of eleven relatively recent position descriptions can begin to help us find patterns in areas that most metadata librarians will need to be skilled, and can help us to begin to outline the position and its duties, but more work will need to be done. One advantage of this study is the relatively recent appearance of these job descriptions. Given the dearth of studies such as this one, some of the work here might contribute to the literature by reporting on aspects of the position not reported on in previous literature.

Next steps for a study of the position of metadata librarian should include not only more analysis of the most recent position descriptions, but also discussions with the hiring committees that post the positions. Understanding their thought processes and the needs that drove them would be valuable in helping to better understand the role of metadata librarian—not only as it exists on paper, but also how it plays out in reality. For this reason, interviews with metadata librarians—including those who were hired for the positions studied here—would also be valuable. A broad questionnaire along with several

more intensive case studies would go a long way towards giving us a better understanding of the position and how it continues to evolve.

The overarching conclusion that can be drawn from this study is that the position of metadata librarian is a multifaceted one. The ideal candidate is one with one foot in the traditional world of libraries and another in the digital world; one who is skilled in technologies and who is open to new technologies; one who communicates well and works well with other individuals, groups, and institutions; one who is exacting about standards and quality control; and one who is passionate about the role that digital libraries and institutional repositories play in the academic world. The position is one that seems regularly to be changing and warrants further study.