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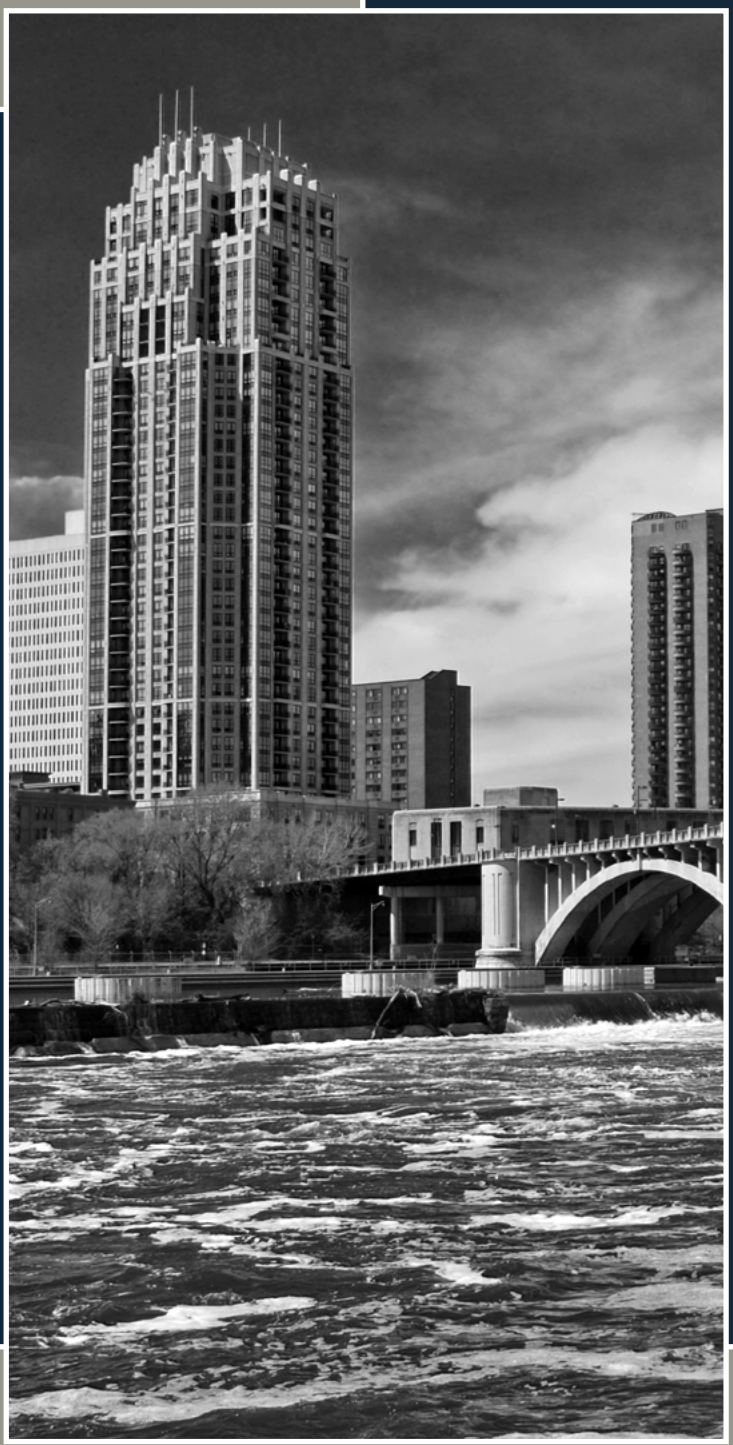

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Cover image: "mighty miss," by John Brennan, 2017.

Editorial: Creating the Future, Preserving the Past

Mary Beth Weber

The responsibilities of my position as head of Central Technical Services for Rutgers University Libraries include oversight for acquisitions, cataloging, and the creation of non-MARC metadata for digital projects. Like many libraries, my institution has experienced budget cuts that have reduced the number of print materials that can be acquired and made accessible to our user community. Although a great deal of information is now provided electronically, we continue to acquire print resources for many reasons. For example, science selectors have argued that chemical equations and other figures are easier to read in print and do not display well in e-books. Other disciplines, such as art history, are better served by print. Smaller presses might not be able to afford to publish electronically and only provide print titles.

There also exists a perception that no one is purchasing print, and that this decision has reduced the workload of acquisitions and cataloging personnel. While my institution has purchased and made available numerous e-books, e-journals, and databases, and just launched an open and affordable textbooks program, there are still many print books and journals in our workflow. Numerous weeding projects are also underway to make room for new books or to free up space for learning commons and similar initiatives. Additionally, we are now converting and upgrading older records from previous inventory projects that contain less-than-full and/or inaccurate cataloging, ensuring that these resources are discoverable, particularly as we prepare to migrate to a new library service platform. We continue to receive gift books in print.

On the opposite end of the spectrum of e-books are rare and unique books in our collection that require our time and expertise. One of my Rutgers colleagues recently cataloged an autographed first edition of Barry Ulanov's 1946 Duke Ellington biography that includes Ellington's signature. I question whether an e-book could match the experience of reading and handling such a book.

The importance of acquiring, describing, and preserving resources in all formats is critical to ALCTS's mission and role. The need to work with traditional formats using MARC format and RDA can peacefully coexist with working with born-digital or open access resources and the application of BIBFRAME. I used ALCTS's slogan for the title of this column to reflect the range of the division's work and initiatives. We respect and preserve the past while we also collaboratively and creatively develop solutions to carry us into the future. Our members recognize the strength represented by our diversity and versatility. This unfortunately is not always the case within our libraries, when budgets are cut, leading to loss of positions or elimination of work that is deemed unnecessary or can no longer be provided due to lack of staff or competing needs. These types of decisions must be made very carefully as they can have long-term

implications that may later be detrimental. The quest to provide greater access more quickly and for less time and expense has not necessarily produced desirable outcomes. I have been a professional librarian long enough to respect past decisions and prevailing practices while considering the future and what is needed to implement initiatives such as BIBFRAME. The papers published in this issue of *Library Resources & Technical Services* address some of the issues I have raised in this column. For your convenience, I highlight the contents of this issue:

- "Cataloging and Metadata Continuing Education Needs in New Standards and Technologies for the Organization of Data and Information," by Yuji Tosaka and Jung-ran Park, discusses the data from a survey of nearly 1,000 respondents regarding how the cataloging and metadata community is approaching new and emerging standards and technologies. Their analysis demonstrates that there is a strong interest in Semantic Web and Linked Data applications, while Linked Data technology and BIBFRAME ranked high as continuing education topics.
- Anna M. Ferris's paper "Birth of a Subject Heading" details the steps involved in proposing a subject heading for inclusion in Library of Congress' Subject Authority File. Two case studies are used for examples, illustrating how a heading is accepted and what happens when a heading is rejected and what recourse may be taken.
- "Doing More with Less: Adoption of a Comprehensive E-book Acquisition Strategy to Increase Return on Investment while Containing Costs," by Rebecca Schroeder and Rebecca Boughan, discusses Brigham Young University's comprehensive e-book strategy. This strategy was developed after piloting new e-book models, and includes demand driven acquisitions, short-term loans, evidence-based acquisitions, subscriptions, and individual title purchases.
- In "Swimming with the Fiches: Reviving the International Aerospace Abstracts Collection to Make It Discoverable and Accessible to Researchers," Angela R. Davis and Jeff Edmunds explain the process of making a forgotten microfiche collection discoverable and accessible to researchers. Their methods can serve as a model for other libraries.
- Book reviews provided by *LRTS* Book Review Editor Elyssa Gould.

Continuing Education in New Standards and Technologies for the Organization of Data and Information

A Report on the Cataloging and Metadata Professional Development Survey

Yuji Tosaka and Jung-ran Park

This study uses data from a large original survey (nearly one thousand initial respondents) to present how the cataloging and metadata community is approaching new and emerging data standards and technologies. The data analysis demonstrates strong professional-development interest in Semantic Web and Linked Data applications. With respect to continuing education topics, Linked Data technology, BIBFRAME, and an overview of current and emerging data standards and technologies ranked high. The survey data illustrate that personal continuing education interests often varied from reported institutional needs. These results reflect the fact that library services and projects in these emerging areas have not yet progressed beyond the exploratory stage. They also suggest that cataloging and metadata professionals expect to be able to exercise a mixture of core professional skill sets including teamwork, communication, and subject analysis, and the ability to adapt and accommodate Semantic Web standards and technologies, digital libraries, and other innovations in cataloging and metadata services.

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This study is supported through an award from the Institute of Museum and Library Service's Laura Bush 21st Century Librarian Program for the project "Building a Workforce of Information Professionals for 21st Century Global Information Access" for a four-year period (2014–18).

Seeking post-degree education opportunities is a professional fact of life for practicing librarians. The "shelf life" of the library science degree was believed to be about five years or less because of rapid advances in information technologies.[1] The collective need to broaden and update professional knowledge and skill sets may assume even greater importance for contemporary librarians and other information professionals to meet the evolving needs and preferences of their users in a rapidly changing digital environment. Supporting professional development for cultural-heritage and information professionals has been embraced as a national issue and priority by major funding agencies such as the Institute of Museum and Library Services (IMLS).[2]

Accelerating changes in information standards and technologies mean continuing education needs must be adequately addressed in the cataloging and metadata community. While most initial access to library resources may be through search engines, library systems must support successful retrieval and delivery to those resources, which include library catalogs, databases, and repositories. Quality metadata are thus important in supporting library services and systems.[3] Effective, efficient information organization requires a highly trained cataloging and metadata workforce who regularly keeps their knowledge and skills current through continuing professional development in their specific areas, including, but not limited to, BIBFRAME (a proposed replacement for the traditional MARC (Machine-Readable Cataloging) standards) and other Semantic Web technologies.[4]

Although continuing education is more essential than ever to providing quality cataloging and metadata services, the existing literature provides little specific information on its current or emerging needs or how best to support it. A significant problem is the absence of comprehensive data that could be used to guide improvements in continuing education for the cataloging and metadata community.[5] While recent efforts have been made to promote assessment and evaluation of continuing education needs in some parts of the library profession, such as science and technology librarianship, similar efforts are noticeably lacking within the cataloging and metadata community.[6] The problem extends well beyond this community of practice. For instance, participants in the 2013 CE Summit, hosted by the IMLS and OCLC, concluded that continuing education was in disarray for the library profession and emphasized the need to foster a well-integrated system of professional development based on a new, shared vision of library professionals' educational needs and effective methods and programs to meet those needs.[7]

The purpose of this exploratory study is to report findings from the online survey that was conducted as part of the authors' four-year IMLS grant-supported project (2014–18) on continuing cataloging and metadata education. The project's goal is to find effective mechanisms to facilitate access to professional development resources and opportunities relevant to practitioners' needs during times of rapid change. One of the project objectives is to develop a sustainable digital repository that aggregates learning materials and continuing-education opportunities for professional development in new information-organization standards and technologies. The repository is hosted and maintained by the College of Computing and Informatics at Drexel University. The survey was designed to better identify specific learning needs and gaps in knowledge, skills, or practices to be addressed in this repository. Specifically, the survey intended to explore practitioners' continuing education experience and interests, continuing-education needs relating to new standards and technologies for data and information organization, the current state of implementation, and any barriers that were encountered. This paper focuses on interests, issues, and perceptions relating to continuing professional education on new information-organization standards and technologies, such as Semantic Web technologies, plus professional competencies expected of cataloging and metadata librarians in rapidly changing information environments.[8]

Literature Review

The need for continuing education is commonly recognized as an increasing area of interest over the last decade as advances in professional practice and knowledge have led various professional groups to emphasize ongoing learning and development beyond initial preparation for a degree or certification.[9] Such general trends have been mirrored by developments within the library profession. Internationally, increasing concern about continuing professional development for library staff was epitomized by the report "Continuing Professional Development: Principles and Best Practices," published in 2006 by the International Federation of Library Associations (IFLA).[10] In the United States, the American Library Association (ALA) organized a series of national conferences on professional education several years earlier. Many of the action items they recommended were related to enhancing continuing professional development opportunities for library professionals and staff.[11] One result of these conferences was ALA's "Core Competencies of Librarianship," published in 2009. This policy document suggested that continuing education was one of the key professional expectations during one's career.[12] In the cataloging and metadata field, the Association for Library Collections and Technical Services (ALCTS), a division of ALA, similarly crafted *Core Competencies for Cataloging and Metadata Professional Librarians* in 2017. This document "defines a baseline of knowledge, skills, and behaviors" for those entering the profession, and emphasizes the importance of continuing education for professional and career enhancement.[13]

Despite the increasing importance of professional development, a search of the literature shows that insufficient research has been directed at examining continuing-education questions in the cataloging and metadata field. Past studies were limited mostly to the preprofessional curriculum and training provided to library school students and the competencies and skills expected for entry-level professional positions.[14] In professional settings, however, learning must occur throughout one's career, especially

as the world of information evolves at increasing rates and requires cataloging and metadata librarians to update their knowledge and skills continuously to adapt to changing concepts, practices, and contexts. As such, advancing one's understanding of the range of continuing-education issues is critical to making informed decisions to support the development of effective, broad efforts that meet the cataloging and metadata community's needs.[15]

The number of works published on continuing cataloging and metadata education has been limited, and these studies predate the current interest in opportunities offered by the Semantic Web and other new standards and technologies designed to increase the visibility of library resources on the open web.[16] Now that the bibliographic control environment is being reframed around an impending shift to Linked Data, led by BIBFRAME, there seems to be a pressing need to explore how cataloging and metadata librarians can continue to most effectively expand their knowledge and skill sets in this emerging area.

Research Questions and Method

The goal of the authors' current project, supported with a four-year IMLS grant, is to assess the changing continuing education needs and help formulate more effective and efficient ways to advance professional development in the cataloging and metadata community. With this paper, they intend to contribute to an increased understanding of the status of cataloging and metadata continuing education with regard to the following research questions:

- What are the perceptions of the cataloging and metadata community with respect to training topics in new standards and technologies for data and information organization?
- To what extent do practitioners' individual learning interests differ from or conflict with their institutional or organizational needs?
- What are the perceptions of the cataloging and metadata community regarding Semantic Web technologies that are driving large-scale integration of data on the open web?
- What professional competencies are considered important for cataloging and metadata librarians as new standards and technologies continue to disrupt the way we use information?

To collect data to investigate the research questions outlined above, the authors conducted a web survey using Qualtrics, a popular collection system for online survey data. The survey included mostly multiple-choice and Likert-scale questions, and some open-ended questions. Many multiple-choice questions asked respondents to check all applicable responses. The authors developed draft surveys that were sent to their IMLS project consultant for review and were revised before being disseminated for online data collection.

Table 1. Electronic Mailing Lists Used for the Survey

Mailing List	Email Address
Autocat listserv	autocat@listserv.syr.edu
DC-GENERAL listserv	dc-general@jiscmail.ac.uk
Electronic Resources in Libraries listserv	eril-l@listserv.binghamton.edu
Encoded Archival Description listserv	ead@loc.gov
Library and Information Technology Association listserv	lita-l@lists.ala.org
Metadatalibrarians listserv	metadatalibrarians@lists.monarchos.com
Next Generation Catalogs for Libraries listserv	ngc4lib@listserv.nd.edu
OCLC-Cataloging listserv	oclc-cat@oclc.org
Online Audiovisual Catalogers listserv	olac-l@oclc.org
PCCLIST listserv	pcclist@listserv.loc.gov
RDA-L listserv	rda-l@lists.ala.org
SERIALST listserv	serialist@listserv.nasig.org

Recruitment of survey participants was conducted by distributing invitation messages and subsequent follow-up reminders through twelve electronic mailing lists aimed primarily at cataloging and metadata professionals (see table 1). The authors selected these professional mailing lists for their large base of online subscribers. No incentives were offered to increase survey participation. To solicit survey responses from cataloging and metadata librarians who might not necessarily subscribe to these lists, the authors also contacted fifty state and regional technical services groups affiliated with ALCTS (see http://connect.ala.org/node/71131) and by requesting that their officers distribute the survey invitation message to their membership.

The survey was open from December 9, 2014, to February 15, 2015. During this approximately two-month period, the authors received 1,237 initial survey responses; 646 respondents (52 percent) completed the entire survey. Considering the length and complexity of the survey (which contained nearly thirty questions), the survey completion rate was higher than normally expected.[17] The relatively low drop-off rate may have been an indication of the importance with which the cataloging and metadata community regards professional-training issues with respect to new standards and technologies for data and information organization.

Table 2. Respondents' Professional Positions (*N* = 638)

Position	Percentage
Library Administrator	5.6
Cataloging Department Head, Manager, etc.	28.5
Metadata Department Head, Manager, etc.	7.4
Cataloging Librarian	41.7
Metadata Librarian	17.1
Paraprofessional (cataloging)	8.2
Paraprofessional (metadata)	2.8
Library student worker (cataloging)	0.5
Library student worker (metadata)	0.5
Other	15.2

Note: Numbers in the table exceed 100 percent because the respondents were asked to check all applicable answers.

Respondents' Profile

Table 2 presents data on the professional positions that were self-reported by survey participants. Most responses were from professional librarians and managers working in the cataloging and metadata field. While many respondents (15.2 percent) selected the "Other" category, a closer look at their additional free-text answers indicated that most of them held professional positions related to cataloging or metadata services, such as head of technical services, cataloging or metadata archivist, digital services librarian, and repository librarian.

Figure 1 presents an overview of the survey participants' years of professional experience. Nearly 60 percent of respondents reported at least ten years of professional experience in the cataloging and metadata profession. Nearly one out of six respondents reported fewer than three years of experience. The general professional profile identified in the survey led the authors to conclude that the respondents collectively provided a substantive, useful sample of observations and opinions related to the authors' research questions reflecting the perspectives of a broad cross-section of the cataloging and metadata community.

Figure 2 illustrates the distribution of survey participants by the types of libraries in which they were employed. Nearly 60 percent reported that they worked in academic libraries and 14 percent worked in public libraries. Approximately 8 percent of respondents (including some who provided additional free-text information) worked in special libraries, while 6 percent worked in archives and special collections. The "Other" responders also showed a small proportion of responses (3.4 percent) from those working at national and state libraries. Since academic librarians constitute a distinct minority (about 17 percent) of all librarians in the United States,[18] the survey data indicate that far more

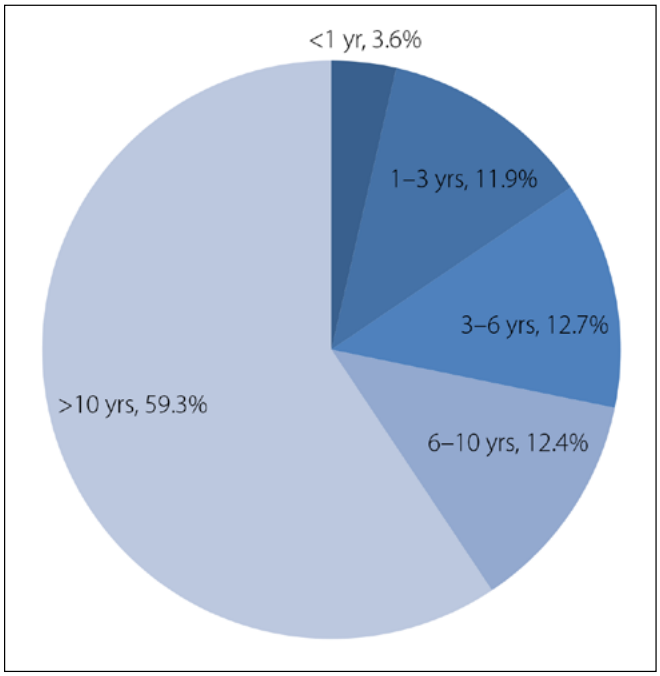

Figure 1. Respondents' Years of Experience (*N* = 637). Numbers in this and following tables may not add up to 100 percent because of rounding.

responses were received from their rank as compared with their relative percentage to the profession. In light of similar recent surveys targeted at the cataloging and metadata community, however, the predominance of respondents working in academic institutions had been anticipated because the authors had relied on self-selected volunteers who decided to share opinions and observations on the substantive questions the authors were researching.[19] Because academic libraries often lead the library community in adopting new developments and innovations in information services and technology, it is not surprising that their librarians were more interested in keeping abreast of current developments and emerging trends in the cataloging and metadata field. Additionally, the academic library workforce may have been more inclined to participate because professional development tends to be less supported in nonacademic libraries, particularly public libraries.[20]

Results

Perceived Continuing Education Needs in New Standards and Technologies for Data and Information Organization

The respondents were asked what continuing education topics personally interested them. Table 3 shows that topics relating to newer information standards and technologies,

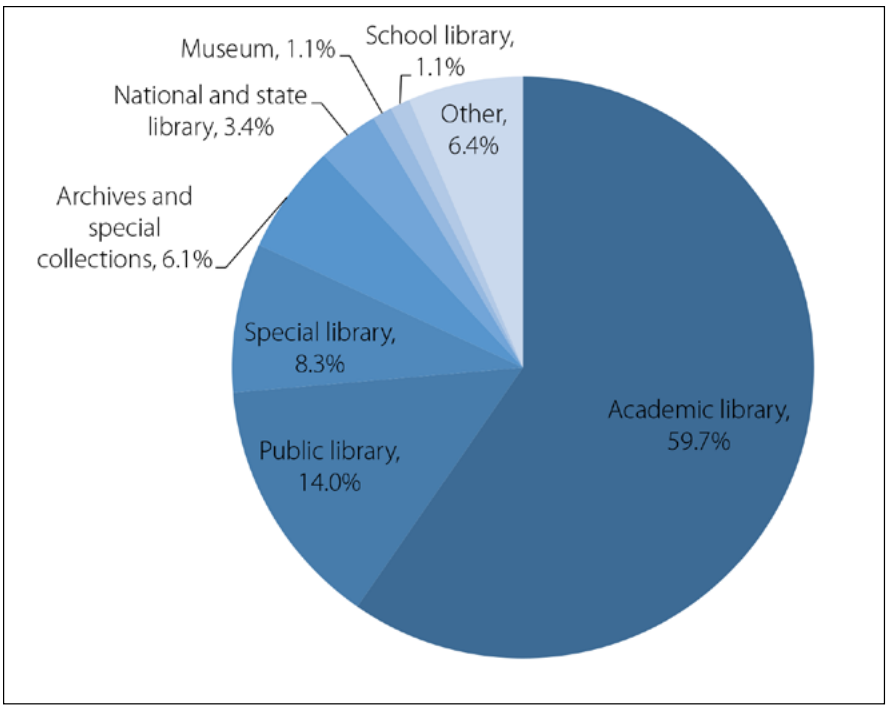

Figure 2. Respondents' Institutional Affiliations (*N* = 642)

such as "overview of current/emerging data standards and technologies," "linked data applications," and "BIBFRAME," were among the top rated. These responses seemed to demonstrate personal commitment to professional excellence and dedication to staying professionally relevant and current with emerging changes in the field as the cataloging and metadata community prepares to transition to new library data models on the open web. "RDF" (a standard data model for the Semantic Web) and "Semantic Web applications in libraries" were also rated highly, demonstrating a strong current of professional interest in their potential for producing innovative approaches to a variety of information-organization contexts in digital libraries and repositories.

Notably, table 3 shows that RDA (Resource Description and Access) was another continuing education topic that received a top rating from respondents. RDA attracted the survey's largest number of "very interested" responses, suggesting that transitioning from AACR2 (Anglo-American Cataloguing Rules, 2nd edition) remained a major professional-development interest at the time of the survey, nearly two years after US RDA implementation by the Library of Congress (LC)—especially as many expert cataloging communities are still developing RDA best practices guides for their special formats. This point was elaborated in additional comments by many respondents who specifically mentioned cataloging of special formats as a critical area needed for continuing education.

In addition to a more traditional topic like RDA, the survey results also showed that many metadata issues—"metadata standards," "metadata project management," "semi-automatic metadata generation and tools," "markup languages (e.g., XML)," and "interoperability issues"—were rated as relatively important areas for professional development. Related topics such as "digital libraries," "digital repositories," and "preservation of born-digital resources and digitized resources" received similarly high ratings. Furthermore, reflecting the current environment for academic libraries, another noticeable result was the importance of "data management" as a continuing education topic for cataloging and metadata librarians.[21] This result seemed to indicate a recognition of the increasing need to work toward leveraging professional expertise and learning best practices to maximize public access to massive amounts of digital data sets, often in response to government and funding agencies' open data policies.[22]

In contrast, the survey identified many continuing education topics that respondents ranked much lower. Only about one-third were either "very interested" or "interested" in "folksonomies and social tagging in library catalogs," suggesting that adding user-generated social features to OPACs was not a priority for a large majority of cataloging and metadata librarians. More specialized topics such as "SKOS (Simple Knowledge Organization System)," "taxonomy," "thesaurus construction," and "ontologies" also did not receive high ratings. The results seemed to indicate that the demand for these specific topics, while not entirely insignificant, was limited to subgroups within the cataloging and metadata community. The same analysis may be also consistent with the relatively low rating for "programming languages (e.g., Python, Java)," which may be included as part of general professional responsibilities only for a small proportion of cataloging and metadata librarians.

The authors asked survey participants to rate the importance of continuing education topics as reflected by their institutions' organizational needs and projects and their professional roles and responsibilities. This follow-up question was added to explore whether any notable differences exist between their personal learning interests and their institutional or organizational needs. The question produced interesting results, as shown in table 4. Most potential topics were institutionally rated substantially

Table 3. Personal Interest in Continuing Education Topics (*N* = 704–34)

	Response (%)				
Topic	Very interested	Interested	Neutral	Not interested	Not sure
Overview of current/emerging data standards and technologies	37.5	44.5	14.7	3.5	0.3
RDA (Resource Description and Access)	46.5	33.6	14.8	6.1	0.4
Linked data applications	39.8	36.7	16.7	3.7	3.6
BIBFRAME	42.9	30.8	12.3	7.6	6.4
Metadata standards (e.g., EAD, MODS)	38.0	36.7	18.8	5.9	2.1
Metadata project management (planning, implementation, and quality control)	29.3	41.1	19.6	7.5	2.4
RDF (Resource Description Framework)	31.0	38.9	18.8	5.8	6.1
Semantic Web applications in libraries (e.g., projects, techniques)	31.3	37.6	20.7	7.2	3.6
Data management	25.2	40.2	23.7	6.6	3.5
Semiautomatic metadata generation and tools	25.3	40.0	22.1	9.3	3.2
Digital repositories	25.3	38.9	25.7	8.2	1.7
Digital libraries	22.0	41.6	25.4	8.0	1.8
Markup languages (e.g., XML)	27.9	35.8	25.3	9.8	1.7
Interoperability issues	20.5	35.1	28.6	8.2	5.9
Preservation of born-digital resources and digitized resources	24.6	31.5	27.2	14.0	2.5
Ontologies	17.4	26.6	30.7	11.9	10.8
Thesaurus construction	14.7	27.9	33.2	18.1	5.3
Taxonomy	13.1	29.0	33.9	14.4	8.6
Programming languages (e.g., Python, Java)	17.2	24.9	28.1	26.1	3.3
SKOS (Simple Knowledge Organization System)	13.8	27.7	32.2	10.9	14.4
Folksonomies and social tagging in library catalogs	9.8	25.3	33.7	26.0	3.2

less important (10–20 percent lower when measured by "very interested" and "interested" responses combined) compared with their personal interest levels. While cataloging and metadata librarians were personally interested in enhancing their knowledge and gaining skills in new standards and technologies, their institutions and organizations displayed less interest. This may stem from the fact that many of their libraries lacked relevant ongoing or future projects, or that new skills and knowledge were not yet required in their current professional positions.

The survey revealed several continuing education topics whose institutional or organizational needs generally matched their personal interest levels (i.e., rated only slightly lower or sometimes even a little higher). Such topics included "RDA," "overview of current/emerging data standards and technologies," "digital repositories," "data management," "metadata project management," and "digital libraries." It seems reasonable to assume that these areas were largely where many libraries currently had ongoing activities, projects, and plans that required their cataloging and metadata staff to consider active participation in relevant professional-development activities. High ratings for "overview of current/emerging data standards and technologies" seemed to provide good evidence for this observation because libraries can successfully transition to a linked data environment only when their cataloging and metadata staff possess broader professional knowledge.

Current Perceptions of Semantic Web Technologies in the Cataloging and Metadata Community

The move toward the Semantic Web has the potential to provide a foundation for open data exchange and new services that are driven by robust bibliographic description and resource discovery, and sharing in the broader networked world. LC's initiative to transition libraries from MARC formats to BIBFRAME is part of such efforts to build a

Table 4. Continuing Education Topics and Institutional/Professional Needs (*N* = 691–712)

Topic	Personal Interest "Very Interested/Interested" (%)	Institutional Interest "Very Interested/Interested" (%)	Difference (%)
Overview of current/emerging data standards and technologies	75.4	69.1	-6.3
RDA (Resource Description and Access)	78.8	78.6	-0.2
Linked data applications	61.3	46.6	-14.7
BIBFRAME	59.8	45.9	-13.9
Metadata standards (e.g., EAD, MODS)	58.9	44.2	-14.7
Metadata project management (planning, implementation, and quality control)	66.1	61.7	-4.4
RDF (Resource Description Framework)	55.3	41.1	-14.2
Semantic Web applications in libraries (e.g., projects, techniques)	52.4	36.2	-16.2
Data management	66.1	66.2	0.1
Semiautomatic metadata generation and tools	53.1	40.8	-12.3
Digital repositories	69.5	74.7	5.2
Digital libraries	62.2	60.1	-2.1
Markup languages (e.g., XML)	46.9	30.4	-16.5
Interoperability issues	55.1	53.7	-1.4
Preservation of born-digital resources and digitized resources	59.4	62.6	3.2
Ontologies	24.5	3.8	-20.7
Thesaurus construction	26.9	10.8	-16.1
Taxonomy	25.1	7.6	-17.5
Programming languages (e.g., Python, Java)	26.6	11.0	-15.6
SKOS (Simple Knowledge Organization System)	23.5	5.1	-18.4
Folksonomies and social tagging in library catalogs	23.8	11.8	-12.0

web-scale, Linked Data infrastructure for unlocking the power of library metadata and making it much more visible to the communities they serve. Another key question that the authors intended to explore is how the cataloging and metadata community currently perceived the implications of Semantic Web technologies. The results revealed a strong consensus that their implementation would represent a new opportunity for the profession, with 51.8 percent that "strongly agree" and 36.7 percent that "agree."

Table 5 provides survey data on the potential benefits of Semantic Web technologies as selected by the respondents. Their responses expressed high expectations about the promises of the Semantic Web to improve user services and support improved data and resource discovery services. Most respondents seemed to agree that machine-actionable data enabling intelligent transactions would contribute significantly to "increasing the value of library data and their presence on the web." Most survey participants indicated that Linked Data models would "reduc[e] redundancy and improve[e] efficiency" in cataloging and metadata work while producing a web-based, highly hyperlinked data set for "richly linked metadata description." Furthermore, approximately two-thirds of the respondents agreed that the "very important" or "important" benefits of the Semantic Web include "linking multiple domain-specific knowledge bases to support interdisciplinary research and creation of new knowledge" and "increasing the value of library data and their presence on the web."

The survey also revealed that respondents tended to be less optimistic regarding the other potential benefits of Semantic Web technologies. Handling information resources expressed in multiple languages is not uncommon in cataloging and metadata workflows. Linked Data has the potential to allow library data created in one country to be linked and reconciled for use in an international context. However, reflecting the fact that multilingualism has only begun to receive attention in the Semantic Web community, far fewer respondents listed "supporting multilingual functionality for data and user services" among the the Semantic Web's important benefits.[23] Additionally,

Table 5. Potential Benefits of the Semantic Web (*N* = 633–69)

	Perceived Importance (%)				
Potential Benefit	Very Important	Important	Neutral	Not Important	Not Sure
Improved user services	62.9	29.1	3.0	0.6	4.3
Improved data/resource discovery	55.4	34.6	3.7	1.0	5.2
Increasing the value of library data and their presence on the web	47.1	37.1	8.2	1.8	5.8
Enhanced discovery services through federated or web-scale searches	48.1	35.9	6.5	1.7	7.9
Reducing redundancy and improving efficiency of bibliographic descriptions	42.1	34.4	13.1	4.1	6.2
Having a richly linked metadata description	36.3	39.9	13.0	2.3	8.6
Providing authority data for names and subjects with unique identifiers so that they can be shared on the web	37.5	31.1	17.5	5.9	7.9
Linking multiple domain-specific knowledge bases to support interdisciplinary research and creation of new knowledge	30.4	34.0	19.1	4.0	12.6
Supporting multilingual functionality for data and user services	21.6	24.4	28.0	13.6	12.5
Reusing and/or combining data contributed by nonlibrary communities	19.4	25.0	26.7	14.5	14.4

respondents notably had only moderate expectations about "reusing and/or combining data contributed by nonlibrary communities"—a contrast from high expectations about the promise of integrating library data into the wider web. This result seemed to indicate that there was much less interest within the cataloging and metadata community in using Semantic Web technologies for integrating nonlibrary data into the library environment.

Professional Competencies for Cataloging and Metadata Librarians in the Twenty-First Century

Recent studies have shown that technological advances demand new knowledge and competencies for cataloging and metadata librarians.[24] To investigate what professional expertise would be needed for this community, the authors asked respondents about professional competencies that they believed would be important for the future of cataloging and metadata librarians. As shown in table 6, some of the top competencies identified in the survey responses were "ability to learn and use software," "knowledge of metadata standards and quality control," "ability to collaborate with people within the organization and beyond," "oral and written communication skills," and "ability to use controlled/uncontrolled vocabularies for subject indexing and resource discovery." More than 90 percent of respondents rated these categories as "very important" or "important." The survey data indicated that core traditional professional competencies, like the ability to work as a team and communication skills, would remain as vital as the ability to effectively react to new software and technologies and advances in cataloging and metadata standards. The skill sets listed above were followed in perceived importance by "ability to use Semantic Web standards and technologies," "ability to supervise and manage staff," "digital library project management," and "ability to use markup languages," which were rated "very important" or "important" by 73–83 percent. In contrast, competencies such as "project evaluation," "ability to write successful grant proposals," "programming skills," and "foreign language skills" received much lower ratings, although they were still considered to be "very important" or "important" by a majority of respondents.

In light of the increasing importance of newer data standards and Semantic Web technologies, the authors were also interested in asking participants about the roles that they expected cataloging and metadata professionals to play in their development and implementation. The respondents were almost equally divided between those who expected their own profession to collaborate with other stakeholders in developing newer standards and technologies (56.6 percent) and those who foresaw others, including those outside the library world, as the primary leaders in such efforts (58.7 percent). Nearly half of the respondents (46.3 percent) perceived that the community's role was in testing and providing feedback to improve newer standards and technologies. Concerning their implementation, about

Table 6. Competencies for Cataloging/Metadata Professionals in the Twenty-First Century (*N* = 665–72)

	Perceived Importance (%)				
Competency	Very Important	Important	Neutral	Not Important	Not Sure
Ability to learn and use software	67.9	27.7	3.4	0.3	0.7
Ability to collaborate with people within the organization and beyond	64.2	30.9	3.7	0.3	0.9
Knowledge of metadata standards and quality control	64.6	30.4	4.0	0.1	0.7
Oral and written communication skills	64.0	30.7	4.2	0.7	0.3
Ability to use controlled/uncontrolled vocabularies for subject indexing and resource discovery	58.4	35.4	4.9	0.1	1.2
Ability to use Semantic Web standards and technologies (e.g., Linked Data application, ontologies)	44.0	38.9	9.9	0.9	6.3
Ability to supervise and manage staff	36.5	45.9	13.8	2.6	1.2
Digital library project management	34.6	44.9	14.7	1.3	4.5
Ability to use mark-up languages (e.g., XML)	34.2	38.9	18.2	2.2	6.4
Management, such as SWOT analysis (strengths, weaknesses, opportunities, threats), evaluation of projects, development of new initiatives	21.3	39.8	25.7	5.4	7.8
Ability to write successful grant proposals	20.9	38.7	27.9	5.4	7.2
Programming skills	19.3	36.4	29.3	8.1	6.9
Foreign-language skills	19.0	36.3	36.0	4.5	4.2

one-third of the respondents (36.0 percent) expected cataloging and metadata librarians to play secondary roles as consultants for nonlibrary professionals who would be the primary drivers implementing current and emerging standards and technologies. One-fifth of the respondents (20.9 percent) felt that the community would have few roles to play in either development or implementation.

On a related note, the authors further aimed to explore how cataloging and metadata librarians perceived the future of their profession as rapid advances in technology have affected significant changes in their workplaces. To evaluate this question, the authors reviewed how respondents reacted to semiautomatic metadata generation and its perceived effects on cataloging and metadata work. Though not yet used widely in digital libraries and repositories, automatic metadata generation provides a potential technical innovation that could improve efficiency and reduce cost in organizing the vast amount of digital data.[25] The survey data revealed somewhat mixed attitudes. Nearly half of the respondents expected that automated metadata workflows would increase the efficiency of cataloging and resource management (11.1 percent "strongly agree"; 37.4 percent "agree"). However, the survey notably also revealed strong concern and reservation about machine-generated metadata. Nearly 20 percent of respondents observed that semiautomatic metadata-generation tools would negatively affect the future of cataloging and metadata services. One notable objection was the lack of confidence in machine-generated metadata creation itself. Some respondents expressed concern that such metadata would be inaccurate or unusable because of poor quality. Another key concern was the potentially adverse consequences of automatic metadata generation on the professional status of cataloging and metadata librarians, with some believing that it would devalue the "importance of the work done by professionals" and promote the deprofessionalization of cataloging and metadata work.

Conclusion

The purpose of the current paper was to report and analyze key findings of original survey data from more than one thousand initial respondents on the continuing education needs of the cataloging and metadata community regarding new information standards and technologies. The survey was conducted as part of the authors' four-year IMLS-funded project to better meet the needs of cataloging and metadata professionals to improve their professional knowledge, skills, and abilities through relevant professional-development programs and resources. This paper focused on the prevailing perceptions of Semantic Web technologies

that provide new opportunities for the development of library services. The authors also explored self-identified continuing education topics and professional competencies that cataloging and metadata librarians believe to be essential for the future of their profession in the rapidly evolving information environment.

Regarding professional development topics, Linked Data applications, BIBFRAME, and an overview of current and emerging data standards and technologies were ranked high by survey participants. RDA was also rated highly as a continuing education interest. The survey data indicated that personal continuing education interests often varied from their reported institutional or organizational needs. There was strong professional development interest in Semantic Web and Linked Data applications, even if respondents' institutions lacked ongoing or planned projects in this area. Such newer topics were considered as lower priorities for professional development in many libraries. These results reflect the fact that library services and projects in those newer areas have not yet progressed beyond the exploratory stage within the cataloging and metadata community.[26]

While newer data standards and Semantic Web technologies have not yet begun to change established processes in most libraries, the survey results presented overwhelmingly positive expectations about their anticipated effects on the development of cataloging and metadata services and the publication of library data on the web. The survey data also showed a lack of interest in integrating nonlibrary data sources to enhance library metadata and services. The authors intended to examine how these developments may be changing the profession's views on the importance and adequacy of professional competencies. The responses suggested that cataloging and metadata librarians understandably believed that, to be effective during their careers, their core professional skill sets should be combined with knowledge of emerging information standards and technologies. Supplementing their baseline competencies like teamwork, communication, and subject analysis by continuing professional education is essential to develop the ability to adapt and accommodate Semantic Web standards and technologies, digital libraries, and other innovations in cataloging and metadata services.[27] Regarding such newer information standards and technologies, opinion was divided on whether the cataloging and metadata community will play a major role in their development and implementation. While many respondents perceived that technological innovations would make their work more efficient, the survey also revealed strong concerns about their negative consequences on their professional status.

As noted earlier, the survey was conducted as part of the authors' IMLS-funded project to explore more effective, sustainable ways to support continuing education activities. One of the objectives of the authors' IMLS grant is to develop a digital repository that serves as a portal to continuing-education resources in new information-organization standards and technologies. In this area, the current survey found an overwhelming interest in having such a central portal (62 percent "very interested"; 32 percent "interested"). Nearly 80 percent of the respondents expressed interest in free, self-paced online-learning resources available for download via the repository; a similar percentage expressed interest in learning from a sequence of modules designed to build knowledge and competency on topics in emerging standards and technologies.

The intended focus of this paper was to illustrate via the survey results how the cataloging and metadata community is approaching new data standards and Linked Data technologies. The authors' post-survey plan is to use the data reported in this paper to inform the development of the digital repository, focusing on newer standards and technologies for data and information organization that are starting to radically reshape established services and processes in libraries and cultural-heritage institutions. The study results will help identify key topics to focus on the areas of new standards and technologies.

The survey findings could be explored in future studies on continuing education and professional competencies needed in the emerging information environment. While the authors' survey allowed them to efficiently collect data, the data reflected the responses from a self-selected group of respondents who might have held strong preexisting opinions. To overcome these potential limitations, applying other approaches for validating the findings reported in this paper, such as in-person interviews, would be useful. Additionally, it would be interesting to provide a more granular analysis by focusing on subgroups working across different types of libraries; this may enable the authors to identify their potential differences in terms of continuing education.

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Birth of a Subject Heading

Anna M. Ferris

This paper illustrates the process by which a subject heading is created within the controlled vocabulary of the Library of Congress Subject Headings (LCSH). The author details the steps involved in proposing a subject heading for inclusion in the Subject Authority File at the Library of Congress using two case studies as examples, one in which the subject heading was accepted into the LCSH system and one in which the subject heading was rejected despite being revised and resubmitted.

An original cataloger's work, as defined by Chan, involves "the preparation of a cataloging record without the assistance of outside cataloging agencies; cataloging in-house, from scratch . . . with fully original cataloging restricted to items for which no outside record is available."[1] Very often, original catalogers working in academic libraries are required to create original bibliographic records for newly published works that deal with cutting-edge research or emerging concepts within a specific discipline. In doing so, they are also performing the most fundamental task in original cataloging—classification—which entails "the systematic arrangement by subject . . . of catalogue and index entries in the manner which is most useful to those who read or who seek a definite piece of information."[2] Therefore, an essential aspect of classification is the creation of new subject headings. Chan defines a subject heading as a term that denotes the subject under which all material on that subject is entered into a catalog.[3] Undoubtedly, this aspect of the original cataloger's work is significant in that it provides a twofold benefit. First, new subject headings help single out the unique content of items being cataloged, especially as needed to describe cutting-edge research and emerging concepts; second, new subject headings enable researchers to identify and locate works that deal with those new topics that are most relevant to their research needs. Proposals by original catalogers for new subject headings to be included in the Library of Congress (LC) Subject Authority File are made possible through SACO, LC's Subject Authority Cooperative Program.

Proposing and submitting new subject headings is a complex yet highly gratifying process. Many original catalogers who have done so remember the first subject heading they proposed that was added to the Library of Congress Subject Headings (LCSH), "the most comprehensive non-specialized controlled vocabulary in the English language."[4] However, the complexities of the subject heading proposal process, compounded by LCSH's century-old reputation, can be quite intimidating. In this paper, the author demonstrates how LC's subject heading proposal policies and procedures have evolved into a readily accessible and convenient system that guides and encourages catalogers at each stage of the process. Additionally, this paper highlights the profound effect that original catalogers have on bringing about the needed changes to LCSH's structure as they work with LC subject specialists and the SACO Cooperative Programs (COOP) Section.

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Literature Review

Subject headings and controlled vocabularies have been prevailing topics in the literature in recent times, especially with the comparison between controlled vocabularies and folksonomies, or entry vocabularies (user-supplied terms or keywords), which are referred to as such for their function as "entry points into the catalog."[5] Excellent literature reviews focusing on this comparison have been done by Gross, Taylor, and Joudrey; Strader; and Schwing, McCutcheon, and Maurer.[6] The consensus in these papers supports the coexistence or the "complementariness" of controlled and uncontrolled vocabularies in the catalog, especially for searching new research topics that may appear in electronic theses and dissertations (ETDs) or in scholarly journal articles. Additionally, while ETDs have proven to be valuable sources for establishing new subject headings because they present "contemporary research in emerging fields,"[7] LCSH was found to be the discovery tool that provides "more effective subject access four times as often as will title keywords."[8]

As the leading library standard for formulating and assigning subject headings, LCSH has been the focus of these discussions for more than one hundred years, receiving an equal share of criticisms and praise from not only catalogers but also other information professionals, including educators, researchers, indexers, and public services librarians. *Radical Cataloging* is an especially relevant collection of essays, edited by K. R. Roberto, that highlights the pros and cons related to the issues with LCSH that working catalogers face every day.[9] Among the criticisms, the literature notes that LCSH is an expensive and time-consuming system to maintain, or is too complex for patrons to use, along with other issues such as its lack of currency or its biased use of language.[10] Calhoun's 2006 report to LC introduces the idea that the LCSH should be eliminated, stating, "There were no strong endorsements for LCSH."[11]

The discussions related to lack of currency or biased language in LCSH have evolved considerably since the early 1970s when Berman published *Prejudices and Antipathies: A Tract on the LC Subject Headings Concerning People*, pointing out the distinct Euro-American bias used in certain pejorative and questionable LCSH headings.[12] Through the years, LC has been receptive to addressing complaints and has updated headings as needed to maintain currency by introducing natural language headings that patrons would expect to find in newer publications. Regarding the LGBT-related headings being incorporated into LCSH, Johnson confirms that "including more voices in the process of growing and revising the LCSH . . . has augmented the vocabulary with numerous headings pertaining to GLBT people and human sexuality more broadly which would likely not have appeared otherwise."[13] The LC Policy and Standards Division (PSD) announced on March 22, 2016, that the heading *Aliens* was being changed to *Noncitizens*; that the heading *Illegal aliens* would be cancelled because it had become a pejorative term and two separate terms, *Noncitizens* and *Unauthorized immigration*, would be assigned together when needed to describe items dealing with people who are in a country illegally. According to the PSD, the above changes were made "in response to constituent requests."[14] LC's efforts in maintaining LCSH as a viable and relevant resource for its patrons serve to validate its most noteworthy merits, which include its durability, its vigilance against bias, and its comprehensive nature. Johnson asserts, "Whatever these authors' misgivings, the retention and revision of LCSH as a standard is generally recommended; its usage is already so widespread and entrenched as to render its substitution generally impracticable."[15]

It is worth considering a different perspective in support of LCSH that focuses on how it affects professional catalogers, rather than library patrons. Just as patrons struggle to understand and use LCSH headings, catalogers also face a steep learning curve when attempting to master the intricacies of the LCSH to perform subject analysis. Taylor and Joudrey discuss the difficulties as they pertain to the teaching of subject cataloging in graduate school to future professional librarians. They specify the issues encountered in their advanced Subject Analysis course:

> Due to the complex nature of the Library of Congress Subject Headings, three to four weeks are spent discussing the principles, procedures, and application of subject headings. . . . They are also instructed in how to write a properly constructed, viable subject-heading proposal. The LCSH unit is the longest unit in the semester-long course. It is generally the most difficult for students, as the procedures of subject heading work can be confusing and, at times, seemingly contradictory.[16]

Yet Taylor and Joudrey still emphasize the importance of teaching subject analysis:

> It may also be tempting to downplay the importance of subject access, with the notion that keyword searching will resolve all our problems. That time is not here yet (and it may never be). Subject access, controlled vocabulary, and classification are still important and are grossly underutilized. . . . It is more important than ever that we [educators] instill in our students an understanding of the necessity, importance, benefits, and joys of subject access to information.[17]

An alternative view has appeared in the current literature that acknowledges LCSH's value as an established subject access tool while seeking a more simplified and improved LCSH that is more suitable for use in next-generation catalogs. The new application, developed by OCLC with the cooperation of a subcommittee of the Subject Analysis Committee (SAC) of the Association for Library Collections & Technical Services (ALCTS), is known as FAST (Faceted Application of Subject Terminology). FAST separates LCSH's controlled vocabulary structure into a less complex syntax that can be readily understood and used by anyone, particularly noncatalogers. While a detailed analysis of FAST is beyond this paper's scope, its development and related issues dealing with faceted approaches to LCSH are well documented in the literature, beginning with Chan and Hodge's seminal paper, "Entering the Millennium: A New Century for LCSH," and including Dean, Anderson and Hofmann, McGrath, Jin, and Bauer and Peterson.[18]

Since this paper's focus is how LCSH terms are created, it should be noted that few papers broach the subject of actual subject-heading proposals. Graham and Prager discuss the availability of funnel projects through the SACO program whereby participants work with institutions from neighboring areas or that catalog similar materials to contribute subject authority records for inclusion in LCSH.[19] Kam points out the need for an alternative system, given the inadequacies of LCSH policies and services regarding the classification and access terms used for specific cultural groups in Canada.[20] This paper offers another perspective, delving into the process of subject heading creation itself, outlining the steps necessary to achieve a successful LCSH proposal, and ultimately demonstrating that LCSH policies and procedures are, in fact, adequate for maintaining an inclusive controlled vocabulary.

The LCSH Proposal Process

LC has made a concerted effort to continually enhance operations for submitting new subject heading proposals. They have demonstrated their commitment by sharing their documentation for subject cataloging policies and procedures with the profession, instituting a subject authority cooperative cataloging program that welcomes the participation of non-LC catalogers, introducing more user-friendly online formats, and increasing their training and outreach with more conference presentations, workshops, and web documentation for catalogers.

Background

LC has actively maintained a list of subject heading entries since 1898 when, using ALA's "List of Subject Headings for Use in Dictionary Catalogs," LC catalogers in the new Catalogue Division began adding headings to the list as new topics were identified in their collections. In 1909, LC published parts of its own in-house list, "Subject Headings Used in the Dictionary Catalogues of the Library of Congress," which was eventually completed in 1914. As LC's list of subject headings expanded, the Catalogue Division developed principles of subject heading construction for use by their own staff. The list and its principles, applied by LC catalogers through the years, was renamed the Library of Congress Subject Headings in 1975, resulting in the international standard for controlled vocabularies. A more comprehensive account of LCSH's development is provided in *The LCSH Century: One Hundred Years with the Library of Congress Subject Headings System*, edited by Alva T. Stone.[21]

LCSH Documentation

The behind-the-scenes work performed by LC catalogers has always been vaguely understood by other catalogers. The general perception was that LC's catalogers were a group of highly specialized experts fortunate enough to be privy to the protocols and local training provided only to those who would become the overseers of the Subject Authority File—the resource that all other working catalogers routinely consult to do their work. It was not until the early 1980s that a shift in LC's subject heading operations exposed its catalogers' procedures to the general cataloging community. In truth, LC had already been sharing its bibliographic records with other libraries since 1902 by distributing printed copies of its catalog cards. However, LC's specific rules and procedures for subject cataloging were not available to external catalogers. Given that no formal code existed, the library community began to express a need for a subject cataloging guide comparable to the *Anglo-American Cataloguing Rules*, the standard for descriptive cataloging. In response, in 1984, LC began publishing *Subject Cataloging Manual: Subject Headings* (*SCM:SH*), its own internal instructions for subject cataloging. The manual provides detailed instructions for establishing and assigning subject headings, yet Chan cautions that it "is not cast in the form of a subject heading code."[22]

LC's commitment to publishing its internal documentation with *SCM:SH* constitutes an important milestone in its efforts to ensure LCSH's sustainability for the broader community while enhancing and promoting the quality and usefulness of the Subject Authorities File.[23] With more than one thousand guidelines (or "instruction sheets"), *SCM:SH* provides in-depth explanations for proposing and assigning subject headings from areas as general as Music and Fine Arts to more specific topics such as Awards or Sermons. The 2008 edition states, "Many cataloging practices that

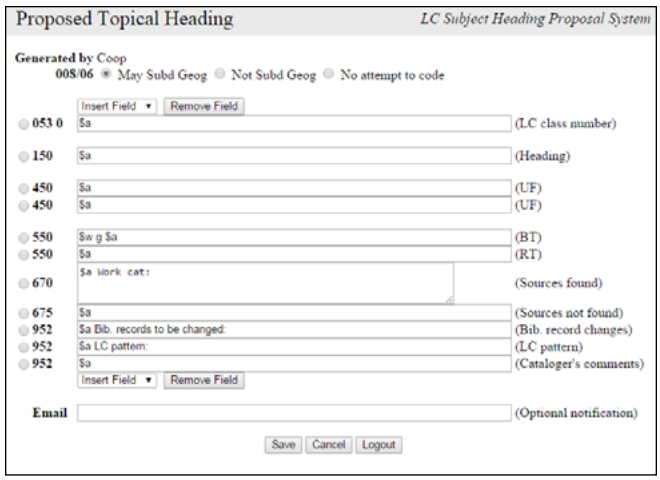

Figure 1. Topical Subject Heading Proposal Form in Classification Web

had been observed at the Library of Congress as part of its 'oral tradition' are now documented in writing for the first time."[24] Once non-LC catalogers were aware of the cataloging policies and guidelines spelled out in LC's subject-cataloging documentation, they could begin to apply them as required within their own institutions, gain more proficiency with time, and contribute new subject headings on a routine basis. *SCM:SH* was renamed *Subject Headings Manual* (*SHM*) in fall 2008.

Cooperative Cataloging Programs

In 1994, LC created the Program for Cooperative Cataloging (PCC) to standardize training and shared cataloging standards for bibliographic records through the Bibliographic Record Cooperative Program (BIBCO) and for name authority records through the Name Authority Cooperative Program (NACO). LC invited outside catalogers to participate in the PCC to contribute bibliographic and authority records for other libraries to share, and to assist in the training necessary to make the PCC a cost-effective and affordable program for all participating libraries. In 1995, LC formed SACO, a component program of the PCC, and sponsored workshops for instruction in the concepts and procedures of subject-heading creation and proposals. LC emphasized that "Participation in SACO enables catalogers to develop appropriate subject headings to suit the collections of their institutions."[25]

The first SACO Participants' Manual was written by Adam Schiff in 2001 "as an overview of SACO policies and procedures and as a guide to creating SACO proposals."[26] In contrast to the NACO and BIBCO programs, in which catalogers are required to undergo specialized training in bibliographic and name authority work, all libraries can submit subject-heading proposals via the online SACO system. Once received, each new subject proposal is reviewed and, if approved following a rigorous editorial process, incorporated into the online Subject Authority File.[27]

In 2007, the PCC introduced the online course, "Basic Subject Cataloging using LCSH," a joint venture with SAC, which provides catalogers with formal instruction in subject-analysis principles and the application of LCSH fundamentals. The course is available via LC's "Catalogers Learning Workshop (CLW)," a website developed to "provide information professionals training resources related to the organization and classification of bibliographic information."[28]

Online Subject-Heading Proposal System

The SACO Proposal System is an online mechanism that is continually upgraded and improved, making the subject-heading proposal process considerably easier for all catalogers. The form used for topical subject-heading proposals is shown in figure 1.[29]

SACO Workshops

As with the resources available on the CLW website, another significant way that LC has proactively facilitated the educational development of catalogers who want to create new subject headings through SACO-sponsored workshops and mini-workshops presented at conferences and professional meetings. The SACO program website states, "The SACO Workshops offered at ALA typically include a basic workshop giving the fundamentals of constructing and submitting subject proposals on any topic and an advanced workshop treating the special techniques for particular topics. . . . For some participants, the SACO workshop is their first introduction to formal training for a PCC program. Attending SACO workshops gives new participants a glimpse into the role they may play in cooperative cataloging activities."[30]

The author attended a SACO workshop, "Proposing New and Revised Topical Subject Headings," on June 25, 2015, at the University of San Francisco's Gleeson Library. Because of the excellent training and the encouragement received from the LC trainers, Janis L. Young and Paul Frank, the author was motivated to submit the two subject-heading proposals that are discussed in this paper.

LCSH Formulation Principles

From the time an original cataloger realizes that a new subject heading in the LC Subject Authority File is required, the steps that cataloger follows to formulate the

subject-heading proposal and the subsequent processes by which that proposal is accepted or rejected are straightforward and uncomplicated. The entire submission process is done online using LC's subscription-based cataloging tools, Classification Web for the SACO Proposal System and Catalogers Desktop for access to *SHM*, where the specific proposal guidelines are found. Both resources are available through LC's Cataloging Distribution Service.[31]

It is necessary to highlight some of the basic principles that underlie LCSH's raison d'être and make it such a unique system. First, a new topic for inclusion in LCSH must have a fundamental reason and strong justification for consideration. As presented at the SACO workshop, proposing a heading has three main requirements:

1. The topic must be a new concept and different enough for researchers to want to search it.
2. Published works must deal with the subject (i.e., literary warrant).
3. Authoritative information must exist to support the establishment of the subject heading.

LCSH Basic Principles

Literary Warrant

The concept of literary warrant provides justification for the creation of a subject heading. As explained in the "Basic Subject Cataloging using LCSH" course, the two main aspects of literary warrant are "subject headings are created for use in cataloging and reflect the topics covered in a given collection," and "the terminology selected to formulate individual subject headings reflects the terminology used in current literature."[32]

Uniform Heading

This is the concept that one heading represents one topic. In the *Oxford Guide to Library Research*, Thomas Mann, an LC reference librarian, provides a clear explanation: "*Uniform heading* addresses the problem of synonyms, variant phrases, and different-language terms being used to express the same concept and whose appearances may be scattered throughout the alphabet. A uniform heading also serves to round up the different aspects of a subject through the use of subdivisions of the lead term in the string."[33] Figures 2 and 3 show the term *Pirates* as it appears in Classification Web.

Unique Heading

The principle of unique heading is a corollary of uniform heading, where each heading represents only one topic. However, when the term used represents more than one concept, it is modified with a qualifier. The various concepts represented by the term *Venus* are illustrated in figure 4.

Pirates (May Subd Geog)

UF Barbary corsairs
Corsairs
Freebooters
BT Outlaws
RT Buccaneers
NT Jewish pirates
Women pirates

Figure 2. Variants, Broader Terms, and Related Terms of the Subject Heading *Pirates*

Pirates--Drama [Topical]
Pirates--Fiction [Topical]
Pirates--History--18th century [Topical]

Figure 3. Subdivisions of the Subject Heading *Pirates*

Venus (Planet) [Geographic]
Venus (Roman deity)--Art [Topical]
Venus (Romania)--Aerial views [Geographic]

Figure 4. Uniform Headings for *Venus* with Qualifiers

Specific Entry

Mann explains specific entry as follows: "given a choice between using specific or general headings for a book, catalogers will usually choose the most specific possible headings for the book as a whole, rather than the more general headings available in the LCSH list."[34] For example, the more specific subject heading for the book titled *Portraits in Cataloging and Classification* would be *Catalogers* not *Librarians*.

Scope Match Specificity

According to Mann, "If there was not a single term that expressed the subject of the book as a whole, the goal was to sum up the book in as few headings as possible—usually about three."[35]

Precoordination

In "Basic Subject Cataloging using LCSH," the LCSH system is referred to as "primarily a precoordinate system." Precoordination is defined as "combining elements into one heading string in anticipation of a search on that compound topic."[36] The following precoordinated subject string would provide the most direct means of pinpointing works dealing with exhibitions of modern French furniture: Furniture design—France—History—20th century—Exhibitions.

Postcoordination

The inverse principle, postcoordination, is applied when more complex topics cannot be expressed using precoordinated subject strings. The definition of postcoordination is "combining of headings or keywords by a searcher at the time he/she looks for materials."[37]

As shown in "Basic Subject Cataloging using LCSH," the following combination of subject headings within one bibliographic record would lead a researcher to find a work on the architecture of Roman public baths in Great Britain:

Baths, Roman—Great Britain
Architecture, Roman—Great Britain
Great Britain—Antiquities, Roman[38]

This is also an example of how the scope match specificity principle (above) applies when the main topic of a book cannot be described using a single term. The next section illustrates how the author applied the principles just described to two different subject-heading proposals.

Two Subject Heading Proposals

Proposal One: Libido

The author corroborated Strader's findings that original catalogers are well-positioned to propose new subject headings for ETDs that provide contemporary research in emerging fields."[39] This was the case for the author who, fifteen years earlier, cataloged a dissertation on libido and found that LCSH lacked a subject heading for that term. In 2015, the author discovered that there still was no authorized subject heading *Libido*. The single occurrence of the word in LCSH was in the keyword index, and only because the term was used in a general Scope Note (under *Sexual desire disorders*) that read, "Here are entered works on hyperactive and hypoactive libido." The author noted this fact at the 2015 SACO workshop, where the LC trainers encouraged her to submit a subject-heading proposal and to apply the guidelines they provided at the workshop.

The proposal for the subject heading Libido that was submitted on July 6, 2015, via the LC Subject Heading Proposal System in Classification Web, which is provided in figure 5.

The proposal was approved with modifications on October 14, 2015, and is shown in figure 6.

It is worth reiterating the three main requirements for submitting a subject heading proposal: (1) the topic must be a new concept in the LCSH; (2) published works must deal with that subject; and (3) enough authoritative information must be provided in reference sources to support the establishment of that subject heading. The author felt reassured that all three requirements were met when the proposal was prepared. Between the first proposal (figure 5) and the final subject heading record (figure 6), the following modifications were made:

1. The qualifier *(Psychology)* was removed from the 150 field in the main heading.[40] The author had thought that the *SHM* guideline "cite a relevant and analogous existing LC heading as the pattern in a 952 field" was applicable.[41] The pattern for *Frigidity (Psychology)* was used. The heading *Libido* did not require a qualifier.
2. Four variant terms (450 field) were added (in alphabetical order): *Energy, sexual*; *Sex drive*; *Sexual drive*; and *Sexual energy*.
3. Two broader terms (550 field) were added: *Motivation (Psychology)* and *Sex (Psychology)*.
4. Two additional authoritative reference sources were added (in 670 fields) to justify the use of the variant terms in the 450 fields.

For each new subject-heading proposal, SACO specialists of the COOP Section verify that all the *SHM* guidelines are followed, that the appropriate variant terms are applied, and the all-important research has been conducted. If those criteria are not initially met, they will reject the proposal and notify the cataloger with the reasons why. Approved proposals are forwarded to the Data Integrity Section, where the term enters the editorial workflow and is ultimately included in the tentative list of subject heading proposals. From the initial proposal to its final acceptance and publication, the subject heading *Libido* (sh2015001702) was completed in three months and eight days.

Proposal Two: Holocaust Deniers

Holocaust deniers was the other subject-heading proposal that the author submitted. This proposal was not approved. Perhaps the topic of holocaust deniers presented a unique challenge in that it was not the main subject of a dissertation, nor did any published works deal specifically with deniers of the Holocaust. Nevertheless, the author was compelled to submit a proposal for that subject heading because *Holocaust deniers* did represent a new concept that was distinctive enough for researchers to want to search it. The term was needed to catalog certain items in a recently acquired collection of Holocaust materials, the Harry W. Mazal Holocaust Collection, at the University of Colorado Boulder.

The Mazal Holocaust Collection is "considered the world's largest privately owned Holocaust archive and the most significant U.S. collection outside the Holocaust museums in New York and Washington, D.C."[42] This collection of more than twenty thousand publications and hundreds

of thousands of documents includes materials that deal with distinct aspects of Holocaust denial, including works about the actual deniers themselves. Yet these materials cannot be made directly accessible to students or Holocaust researchers via subject catalog searches because LCSH only has two authorized subject headings for such works: *Holocaust denial literature* (for works that *are* actual specimens of Holocaust denial) and *Holocaust denial* (for works that *discuss* the concept of Holocaust denial). The initial proposal for *Holocaust deniers* was submitted on July 4, 2015 (see figure 7).

In the Summary of Decisions from their September 21, 2015, editorial meeting, LC's COOP team deemed the proposal to be unnecessary and gave the following explanation:

> Holocaust deniers—The proposal cited only a single work being cataloged, which is about Holocaust denialism, and the methodology of the denial arguments. It does seem to discuss some deniers, but in order to talk about their beliefs, not about them as person. The work is therefore not about Holocaust deniers as a class of persons. It would be analogous to assigning Historians to a work about historical methodology that includes case studies of the methodology of particular historians. The work should be cataloged with the heading Holocaust denial. The proposal was not necessary.[43]

This demonstrates the thoroughness of COOP and SACO subject specialists' vetting process. They continually offer opportunities for catalogers to revise and resubmit proposals. During a SACO-At-Large Meeting held during the 2013 ALA Midwinter Meeting, one of the presentations featured a mini-workshop (Tips for Making Successful Subject Proposals) where six main categories of rejected proposals were summarized:

Proposed Subject Record [Libido (Psychology)]

010 $a sp2015001702
040 $a CoU $b eng $c DLC
150 $a Libido (Psychology)
550 $w g $a Sexual desires disorders
670 $a Work cat: Egan, R. Danielle. Becoming sexual, c 2013 : $b page 150 (One might posit that Freud's ideas, written over a century ago, are a relic … Freud's emphasis on the necessity for redirecting a certain quantity of our libido, or sexual energy, towards the creation of art, new discoveries, the building of society – what he termed sublimation – renders the interpretation of his work problematic …)
670 $a MeSH, viewed July 6, 2015 $b (Libido; the psychic drive or energy associated with sexual instinct in the broad sense (pleasure and love-object seeking). It may also connote the psychic energy associated with instincts in general that motivate behavior.)
670 $a Encyclopaedia Britannica, 2015 $b (Libido, concept originated by Sigmund Freud to signify the instinctual physiological or psychic energy associated with sexual urges and, in his later writings, with all constructive human activity.)
952 $a LC pattern: Frigidity (Psychology)
952 $a Propose deletion of 680 in AR #3851868 (Sexual desire disorders) which states: "Si Here are entered works on hyperactive and hypoactive libido."

Record: 23571
Added: Mon, Jul 6, 17:20:27 2015
Modified: Mon, Jul 6 17:27:17 2015

Figure 5. Initial Proposal for *Libido*

010		sh2015001702
040		CoU ǂb eng ǂc DLC
150		Libido
450		Energy, Sexual
450		Sex drive
450		Sexual drive
450		Sexual energy
550		Motivation (Psychology) ǂw g
550		Sex (Psychology) ǂw g
670		Work cat: Egan, R. Danielle. Becoming sexual, c2013: ǂb page 150 (One might posit that Freud's ideas, written over a century ago, are a relic ... Freud's emphasis on the necessity for redirecting a certain quantity of our libido, or sexual energy, towards the creation of art, new discoveries, the building of society -- what he termed sublimation -- renders the interpretation of his work problematic ...)
670		MeSH, viewed July 6, 2015 ǂb (Libido; the psychic drive or energy associated with sexual instinct in the broad sense (pleasure and love-object seeking). It may also connote the psychic energy associated with instincts in general that motivate behavior)
670		Encyclopaedia Britannica, 2015 ǂb (Libido, concept originated by Sigmund Freud to signify the instinctual physiological or psychic energy associated with sexual urges and, in his later writings, with all constructive human activity)
670		Merriam-Webster online, Jul. 10, 2015 ǂb (Libido: 1) instinctual psychic energy that in psychoanalytic theory is derived from primitive biological urges (as for sexual pleasure or self-preservation) and that is expressed in conscious activity; 2) sexual drive)
670		Wikipedia, Jul. 10, 2015 ǂb (Libido, and colloquially sex drive, is a person's overall sexual drive or desire for sexual activity)

Figure 6. Approved Subject Heading for *Libido* (OCLC record—ARN: 10299924)

1. *SHM* instructions were not followed (31 percent)
2. proposed heading was vague or not well-researched (26 percent)
3. concept was already represented in the LCSH (23 percent)
4. more proposals were necessary (5 percent)
5. no precedent for the heading, references, etc. (4 percent)
6. Other (11 percent)

It appeared that *Holocaust deniers* had fallen within the second category, the 26 percent of rejected proposals that were vague and not well-researched.

The author undertook more in-depth research to help justify the proposed subject heading *Holocaust deniers*. She had failed to heed one of the caveats emphasized at the SACO workshop that she had attended: "It is seldom acceptable to cite only the work being cataloged." Another important point that is frequently emphasized at SACO workshops is that explicit guidelines for researching a subject-heading proposal are readily available in the *SHM* H 202 (*Authority Research for Subject Heading Proposals*). Catalogers should understand what is stated there:

> The information recorded in the authority record serves three purposes: (1) to provide and indication of the relationship of the heading to the work being cataloged; (2) to provide information on the cataloger's choise of terminology for the heading, the UF and BT references, and the scope note (if provided); and (3) to provide definitions of terms, information on the intended scope and usage of the proposed heading, its relationship to, and distinction from, similar existing headings, and any peculiarities or other pertinent information about the heading.
>
> The above information is used to guide the proposal through the editorial approval process and also serves as the permanent record for future reference and consultation.[44]

Given these detailed instructions, the author resubmitted an amended proposal (see figure 8) on December 8, 2015.

The resubmitted proposal included the necessary research required to "guide the proposal through the editorial approval process" as stipulated in H 202. Additional information included the following:

- A new "work cat" (referring to the item being cataloged) was added as the first 670 to demonstrate that *Lying about Hitler*, the work in question, dealt with one Holocaust denier in particular: David Irving.
- The second 670 pointed to evidence in OCLC that *Holocaust deniers* was already being used as a subject heading—albeit in an "unauthorized" manner—in the 650 [subject field] of the bibliographic record (LCCN #96105703) for Werner Cohn's *Partners in Hate: Noam Chomsky and the Holocaust Deniers*.
- The third 670 provides a second work cat to justify "how the cataloger decided on the terminology selected for the UF references." While Lenski's *The Holocaust on Trial: The Case of Ernst Zundel* never explicitly refers to Zundel as a *Holocaust denier*, he is repeatedly referred to as a *Holocaust revisionist*, thereby supporting the use of that term as a variant heading.
- The fourth 670 provides authoritative information in the form of the definition of *Holocaust deniers* as it appears online in the *Holocaust Encyclopedia of the United States Holocaust Memorial Museum*.
- The remaining 670s reference additional publications, that is, newspaper articles from the *Atlantic* and the *New York Times*, discussing current personalities considered Holocaust deniers.
- The 952 field provides a place for the cataloger to add comments explaining the need for the subject heading and the fact that, potentially, new deniers are being identified every day.

Proposed Subject Record [Holocaust deniers]

010 $a sp2015001691
040 $a CoU $b eng $c DLC
150 $a Holocaust deniers
450 $a Deniers, Holocaust
670 $a Work cat: Lipstadt, Deborah E. Denying the Holocaust, 1993 : $b page 1 (I would not participate in a debate with a Holocaust denier. The existence of the Holocaust was not a matter of debate.) page 2 (The abundance of documents and testimonies that confirm the Holocaust are dismissed as contrived, coerced, or forgeries and falsehoods. This book is an effort to illuminate and demonstrate how the deniers use this methodology to shroud their true objectives.) page 4 (David Duke, a Holocaust denier) page 5 (Patrick Buchanan, used … views that come straight from the scripts of Holocaust deniers) page 8 (David Irving, has joined the ranks of the deniers) page 9 (In France, denial activities have centered around Robert Faurisson, whose work is often reprinted verbatim, by deniers worldwide.) page 183 (In the early 1990s American college campuses became loci of intensive activity by a small group of Holocaust deniers. Bradley Smith, attempted to place a full-page ad claiming that the Holocaust was a hoax in college newspapers throughout the United States.)
675 $a Britannica online
680 $a Here are entered works on persons who write about or promote the diminution of the scale and significance of the Holocaust or the assertion that it did not occur. Works that make such assertions are entered under $a Holocaust denial literature.
952 $a LC pattern: Holocaust survivors

Record: 23558
Added: Sat Jul 4, 19:33:42 2015
Modified: Sat Jul 4, 19:33:42 2015

Figure 7. Initial Proposal for *Holocaust Deniers*

After the revised proposal for *Holocaust deniers* was submitted, the author encountered a new book in the

Mazal Holocaust Collection, *The Irving Judgment*, published by Penguin in 2000. This work provided a detailed definition of the term in a chapter titled "What is Meant by the Term 'Holocaust denier?'" Unfortunately, a subject-heading proposal cannot be edited once it has been submitted. However, the COOP team is willing to include the new citation during their review process if the new information is relevant and the citation for the work is correctly formatted as a 670 note. The author provided the new data to the COOP team on March 7, 2016.

On May 2, 2016, the proposal was again rejected and deemed "not necessary" with a similar explanation (see the final paragraph below) given in the Summary of Decisions from SACO's editorial meeting on April 18, 2016:

> *Holocaust deniers*
>
> A proposal for this heading originally appeared on Tentative List 9 (2015). The Summary of Decisions for that list stated,
>
> The proposal cited only a single work being cataloged, which is about Holocaust denialism, and the methodology of the denial arguments. It does seem to discuss some deniers, but in order to talk about their beliefs, not about them as persons. The work is therefore not about Holocaust deniers as a class of persons. It would be analogous to assigning Historians to a work about historical methodology that includes case studies of the methodology of particular historians. The work should be cataloged with the heading Holocaust denial. The proposal was not necessary.
>
> The proposal on the current list provides evidence that the phrase Holocaust deniers is in use, but two of the works being cataloged are about court trials, to which a class of persons heading is not normally assigned. The other is a 20-year-old book arguing that a well-known linguist and philosopher was a Holocaust denier. It has been adequately cataloged by assigning the name heading for the linguist along with Holocaust denial. The proposal was not necessary.[45]

The following communication from the Policy and Standards Division was received on May 10, 2016:

> Re: (Holocaust deniers)
>
> Your subject heading proposal, which appeared on monthly list 1604, was not approved or is to be resubmitted. For further information, see the Summary of Decisions of the editorial meeting or contact your Library of Congress Cooperative Cataloging team liaison.
>
> (Policy and Standards Division, Library of Congress)[46]

010 sp2015002930
040 $a CoU $b eng $c DLC
150 $a Holocaust deniers
450 $a Deniers, Holocaust
450 $a Holocaust revisionists
450 $a Revisionists, Holocaust
670 $a Work cat: Evans, Richard J. Lying about Hitler: History, Holocaust and the David Irving Trial, 2001 : $b page 227 ([judgment of Judge Charles Gray] "Irving treated the historical evidence in a manner which fell far short of the standard to be expected of a conscientious historian." It was "incontrovertible" that "Irving qualifies as a Holocaust denier.")
670 $a LCCN: 96105703. Cohn, Werner. Partners in hate: Noam Chomsky and the Holocaust deniers, 1995.
670 $a Lenski, Robert. The Holocaust on trial: the case of Ernst Zundel, 1989: $b Page I
(. . . for some years now, a small but persistent group of people who call themselves "revisionists" has been disputing the seemingly undisputable. They insist that the Holocaust is a myth. Canada's best-known and most flamboyant revisionist is a gregarious and determined immigrant from Germany's Black Forest region named Ernst Zundel. For publishing a slim booklet entitled Did Six Million Really Die?, he was twice put on trial and convicted on a charge of spreading "false news.")
670 $a United States Holocaust Memorial Museum, viewed December 8, 2015 $b Holocaust encyclopedia (Holocaust deniers ignore the overwhelming evidence of the event and insist that the Holocaust is a myth, invented by the Allies, the Soviet communists, and the Jews for their own ends.)
670 $a The Atlantic, viewed December 8, 2015 $b Grappling with Holocaust deniers by Conor Friedersdorf, July 22, 2009 (Bradley Smith is much closer to the common perception of a classic Holocaust denier, singularly obsessed with disproving the existence of the Nazi machinery of death.)
670 $a The New York Times, viewed December 8, 2015 $b Israel Fading, Iran's Leader Tells Deniers of Holocaust by Nazila Fathi, December 13, 2006 (A two-day gathering of Holocaust deniers and white supremacists ended Tuesday with President Mahmoud Ahmadinejad welcoming participants in his office and telling them Israel would not survive long.)
670 $a The New York Times, viewed December 8, 2015 $b Netanyahu Denounced for Saying Palestinian Inspired Holocaust by Jodi Rudoren, October 21, 2015 (Prof.
Moshe Zimmermann, a specialist of German history at Hebrew University, said, "With this, Netanyahu joins a long line of people that we would call Holocaust deniers." Many Israelis have vilified Mr. [Mahmoud] Abbas as a Holocaust denier because of a book he wrote that challenged the number of Jewish victims and accused Zionists of collaborating with Nazis to propel more Jews to what would become Israel.) 675 $a Britannica online
952 $a The subject headings "Holocaust denial" and "Holocaust denial literature" are being used in the bib records for the works by Evans and Lenski. Since these deal with the deniers themselves, a more specific heading is needed to convey the true content. The 670 for Lenski is included to support the variant for "holocaust revisionists." Also, "new" Holocaust deniers (e.g., Ahmadinejad, Abbas, etc.) are being identified every day, this would further substantiate the need for this proposal.

Record: 25346
Added: Tue Dec 8, 2015
Modified: Tue Dec 8, 2015

Figure 8. Resubmitted Proposal for *Holocaust Deniers*

The fact that the subject heading was not rejected, and could be resubmitted, gives the author hope that the right work will be discovered and that a new proposal can be reformulated and accepted at a future date.[47]

Conclusion

Exposing LCSH's policies and procedures to catalogers has had a profound effect on how new LCSH subject headings are proposed, approved, and implemented. It is up to original catalogers, working with LC's COOP experts and OCLC's Cooperative Online Resource Catalog team, to institute the needed changes to LCSH's structure that, as McGrath claims, "could create a vocabulary that better supports browsing and navigation in faceted interfaces."[48]

This paper has provided a glimpse into the process by which subject headings are conceived, researched, proposed, vetted, and integrated into LCSH—a perspective that has not been thoroughly treated in the literature and needs to be better understood by the general library community. This paper sought to show that, while controlled vocabularies and user-generated keywords and tags are complementary in many ways, and the use of faceted subject interfaces loom large over our community, the proven LCSH mechanism for creating and maintaining the largest controlled vocabulary system in the world will remain still unsurpassed while most library patrons (including librarians) appear to rely almost exclusively on keyword searching for library resources. Svenonius sums up this idea best: "There will always be a need for controlled precoordinate subject languages. As the pre-eminent of such languages, LCSH is not only a national treasure, providing access to many millions of documents, she is on her way to becoming a significant force for bibliographical control at an international level."

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Appendix. Authorized Subject Heading for Holocaust Deniers

010 $a sh2016002460
040 $a CoU $b eng $c DLC $d DLC
150 $a Holocaust deniers
450 $a Deniers, Holocaust
450 $a Holocaust revisionists
450 $a Revisionists, Holocaust
550 $w g $a Persons
670 $a Work cat: Holocaust deniers: Ernst Zundel, Fred A. Leuchter, David Irving, Mahmoud Ahmadinejad, Bobby Fischer, Nick Griffin, David Duke, 2010.
670 $a United States Holocaust Memorial Museum, viewed October 25, 2016 $b Holocaust encyclopedia (Holocaust deniers ignore the overwhelming evidence of the event and insist that the Holocaust is a myth, invented by the Allies, the Soviet communists, and the Jews for their own ends.)
670 $a Lenski, Robert. The Holocaust on trial: the case of Ernst Zundel, 1989: $b Page I (. . . for some years now, a small but persistent group of people who call themselves "revisionists" has been disputing the seemingly undisputable. They insist that the Holocaust is a myth.)
670 $a 96105703: Cohn, Werner. Partners in hate: Noam Chomsky and the Holocaust deniers, 1995.
670 $a The New York Times, viewed October 25, 2016 $b Israel Fading, Iran's Leader Tells Deniers of Holocaust by Nazila Fathi, December 13, 2006 (A two-day gathering of Holocaust deniers and white supremacists ended Tuesday with President Mahmoud Ahmadinejad welcoming participants in his office and telling them Israel would not survive long.)
675 $a Britannica online

Record: 342962
Added: Mon May 15 09:36:37 2017
Modified: Wed Jun 14 14:39:33 2017

Notes on Operations

Doing More with Less

Adoption of a Comprehensive E-book Acquisition Strategy to Increase Return on Investment while Containing Costs

Rebecca Schroeder and Rebecca Boughan

Brigham Young University, willing to experiment and pilot new e-book models, has established a comprehensive e-book strategy that includes demand-driven acquisitions, short-term loans, evidence-based acquisitions, subscription packages, purchased packages, and title-by-title purchases. This broad approach has reduced the number of titles purchased under the general domestic approval plan. At the same time, it has added value by providing access to more content, increasing usage, and lowering cost per use while maintaining the same annual expenditure.

Libraries have used the concept of acquiring materials on approval since the latter half of the nineteenth century.[1] The practice of using it as a library-collection management and acquisition tool grew in popularity in the 1960s and soon became a widespread and accepted acquisition model. During this time, the government started encouraging education and supporting libraries with increased funding at both the state and federal level, enabling approval plans to gain traction. As the demand for material increased, libraries used the approval plan model as a cost-effective method of acquiring library books. Using this model, librarians, working with their vendors, created profiles that mirrored their collection development policies. Libraries then received shipments of newly published titles that matched their plan and received new title notifications for items that did not match the plan. Approval plans proved to be an effective way for libraries to acquire material that resulted in savings of both time and money.

Brigham Young University (BYU) is primarily an undergraduate institution with selected PhD and master's programs and enrolls about thirty thousand students. Its Harold B. Lee Library (HBLL) has developed robust general approval plans with extensive US and UK coverage, and more specialized approval plans for fine arts, music scores, and Latin American material. Since the HBLL started using approval plans, the number of books it acquired and the amount it spent on them steadily grew, peaking in 2003. Since then, both the annual numbers of items acquired and dollars spent have continually decreased. Like many libraries at the turn of the twenty-first century, the HBLL was exposed to the disruptive introduction of electronic publishing and the acquisition of e-books. The staff started investigating and launching different e-book acquisition measures, and has since established a comprehensive e-book acquisition strategy. New acquisition models unique to e-books enabled the library to introduce additional cost-savings measures without sacrificing the time savings gained through approval. This study examines what effect the adoption of a comprehensive e-book acquisition strategy has had on the library's domestic approval plan and how these changes have affected content availability and library expenditure.

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Literature Review

An abundance of literature has been written about approval plans and the acquisition of e-books, including patron-initiated purchasing. The literature on approval plans focuses on their implementation and management, and the evaluation of their effectiveness, including benefits and drawbacks. Many of the studies attempted to discover whether a significant difference existed in the usage of books acquired through approval plans and those selected by subject librarians. An early study and its follow-up endeavored to determine effective acquisition methods by measuring use, and concluded that books selected by librarians were used more than books purchased through an approval plan.[2] A more recent study at the University of Houston found that the usage between the two acquisitions methods was not significant, although firm orders or those selected by subject librarians were again used more frequently than approval books.[3] Other studies reviewed the goals and purposes of approval plans to develop a more rounded collection and to simplify the acquisitions process.[4] Rossi collected literature from 1967 through 1986, creating a bibliography on approval plans that referenced material on both general plans and studies that attempted to evaluate them.[5] He wrote that approval plans were of great importance to librarians in the 1960s and 1970s who both "scorned and praised" them, and that the single most important aspect of an approval plan is the profile.[6] Case's more recent bibliography attempted to fill gaps from earlier papers and give librarians methodologies, data, and conclusions that could help them evaluate their own studies.[7]

As e-books gained traction with the growth and widespread use of the internet, the professional literature on e-books exploded, giving researchers and librarians a varied and large body of information. In 2007, Connaway and Wicht reviewed the literature about e-books and tried to determine the factors that influenced the offerings and slow adoption of e-books in academic libraries by listing the barriers to e-book acceptance.[8] More recently, Blummer and Kenton reported on best practices for acquiring, cataloging, maintaining, and promoting e-books, while Walters investigated the difficulties associated with selection, licensing, and the acquisition and management of e-books in academic libraries.[9] Shelburne reported on usage patterns and library patron attitudes toward e-books whereas Ashcroft's literature review offered guidance for the promotion of e-books.[10]

In their 2014 paper, Pickett, Tabacaru, and Harrell described the expansion of approval plans to include digital content. They suggested that libraries should have the flexibility to manage their e-book purchases through an existing approval plan and take advantage of the cost effectiveness, profiles, and streamlined workflow approval plans provide. The study documented their evaluation process for implementing an e-preferred approval plan, and was offered as an example to libraries considering adopting this acquisition model.[11] Buckley and Tritt recounted their successful 2008 experiment with an e-book approval plan where they managed a dual integration of print and e-books into their collection and acquisition workflow. Using an e-book profile, they established both subject and nonsubject parameters that allowed the e-books to arrive automatically. Their paper describes the implementation, benefits, and limitations of an e-book approval plan, and provides librarians with a list of major factors to consider in designing any plan.[12]

Approval plans were further affected by demand-driven acquisition (DDA) models. DDA, referring to "the automated purchasing of e-books based on patron use," was identified by the Association of College and Research Libraries' (ACRL) Research Planning and Review Committee as one of the top ten trends in academic libraries in 2012 and now includes short-term loans (STLs) and evidence-based acquisitions (EBA).[13] Much has been written about the advantages and value of these models. Notable publications include Fulton's literature review, special issues of *Collection Management*, and books such as *Patron-Driven Acquisitions: History and Best Practices* and *Customer-Based Collection Development: An Overview*.[14] *Against the Grain* published a DDA issue in 2011 and an STL issue in 2015.[15] This body of professional literature describes DDA as a cost-effective, efficient model and provides information regarding setup, assessment, and management.

Price and Savova describe and evaluate recent e-book acquisition strategies.[16] They provide recommendations to maximize access by minimizing cost, but do not discuss the effect these acquisition methods have had on a general approval plan. In a 2016 paper, Roll presents the positive effect of a DDA-preferred approval plan on the Fuller Library's ability to provide access to more content at a lower cost. However, the scope of Roll's paper was limited to two fiscal years of data and to only one of the available e-book acquisition models.[17] The literature review did not uncover research detailing how new e-book acquisition methods work together to change how libraries acquire and provide content to their patrons.

Method

To measure the effect of the HBLL's e-book strategy on its general domestic approval program, staff first obtained expenditure reports and lists of titles sent from its primary approval vendor, GOBI**,** formerly YBP Library Services. These reports were then compared with the data pulled from the integrated library system (ILS). The reports were

Table 1. Number of Books Purchased on Approval by Format

Format	2009	2010	2011	2012	2013	2014	2015	2016
E-books	0	209	346	596	184	329	274	343
Print books	9,457	8,019	6,867	5,850	4,918	3,956	3,665	3,792

Table 2. Number of Titles in DDA Pool Compared to Annual and Cumulative Titles Triggered

	2011	2012	2013	2014	2015	2016
Annual titles triggered	83	541	911	1,065	2,616	2,316
Cumulative titles triggered	83	624	1,535	2,600	5,216	7,532
Number of available titles	2,595	7,518	15,203	24,826	34,955	40,892

used to determine the number and cost of approval print and e-books plus information regarding amounts spent on DDA and STLs. Amounts spent on EBA and e-book subscription packages were obtained from the library's Electronic Resource Management system, Verde. Data for the number and cost of subscriptions and unpurchased EBA/DDA pool titles was obtained from publisher and aggregator websites. Print approval usage data was obtained from the ILS, and both checkouts and in-house browsing statistics were considered. E-book usage statistics were obtained from vendor platforms. Cost and usage were then compared to evaluate value. Firm orders for both print and electronic content were excluded from the scope of this study.

Comprehensive E-book Strategy and Results

The library's general domestic approval plan is administered using GOBI Library Solutions from EBSCO, a web-based acquisitions tool. The approval plan covers all subject areas and includes both notification slips and automatically shipped titles. Subject librarians set the parameters of the approval profile for their assigned collecting areas. The library revised its well-established approval plan in 2010 to be e-preferred. E-books matching the approval profile may be processed as a single title purchase or added to the patron-driven pool if the publisher offers that option. Table 1 shows the number of print and e-books purchased on approval from 2009 through 2016.

The library began experimenting with DDA in 2009 and 2010. These pilots were successful, and starting in 2011, e-books that matched the approval profile and were available via DDA were added to the DDA pool instead of being automatically purchased. The HBLL has a price cap of $200 on titles loaded from the approval profile. However, once in the pool, a title may increase in price. The library regularly reviews the pool to remove titles that have increased in price above the $200 limit. Most of the library's current DDA pool resides on ProQuest's ebrary platform. The ebrary pool has more than 40,000 titles from 244 publishers. Table 2 shows how the number of titles available has expanded and depicts both the annual and cumulative number of titles purchased through DDA each year. The primary benefit of DDA is that the library does not pay for a title until a trigger event occurs. A trigger event is defined as either ten unique pages viewed or ten minutes of active viewing time during a single browsing session, or a single page being either printed, copied, or downloaded. Front and back matter, defined as the first and last 5 percent of a title's pages, are excluded from causing a trigger event. A trigger event can result in either an immediate purchase or an STL in which the library is charged a fraction of the purchase price to grant patron access for a limited period (either one or seven days).

The HBLL has opted to participate in the STL program, with two seven-day STLs taking place before a purchase is triggered on the third use. When the STL option is not available, a purchase is triggered on the first use. Only 12 percent of the HBLL's total DDA pool is not eligible for STL. All e-books acquired this way are purchased with a single user license unless requested otherwise by the subject selector. This strategy has saved the library thousands of dollars while providing greater access to content. In the past two years, STL rates have increased from 15–30 percent to 15–90 percent. However, even with these increases, the average STL rate has only increased 19–32 percent. Although removing titles with high STL rates from the pool is possible, the library has opted for the titles to remain available. Fewer than 10 percent of the library's STLs during 2016 had a loan rate of more than 50 percent of the book's cost. This, combined with the fact that only 9 percent of the DDA titles that receive a first use also receive the second and third use necessary for a purchase to occur, means that the library is seeing overall cost savings even in the face of high STL costs from some publishers. The library hopes that using a DDA approach combined with STL will result in purchases that have consistent demand and that will receive long-term use.

Another way that the HBLL makes e-book content available to its users is through EBA. The library has agreements with both Wiley and Elsevier that allow it to provide online access to most these publishers' e-book libraries for a single payment. The years of content included in the agreement are subject to publisher negotiations and the terms specific to the HBLL are confidential and proprietary. Payment is rendered at the beginning of the term and selections for perpetual access are made at the end of the term. In this way, selectors have access to the usage data that was gathered during the term and can use this in their decision-making. The total dollar amount selected may be up to the amount of the original prepayment. EBA has been an effective method of controlling costs while still providing patrons with in-demand content. Table 3 provides the number of titles available through the EBA program and shows that the number of titles used is far higher than the number that the library is obligated to purchase at the end of the term.

Subscriptions to aggregator packages are an additional e-book strategy that the library uses to provide its users with a large library of titles at a controlled cost. Currently, the library subscribes to both ebrary's Academic Complete and EBSCO's Academic Comprehensive. Although these two products overlap somewhat, they also contain unique content and the library is satisfied with the value it receives by subscribing to both. The main drawbacks of these package subscriptions are that they do not provide perpetual access and most of the content is several years old. The exception is Safari Tech Books, for which the library currently has the opposite problem. The agreement with Safari is for the most recent two years of content. This causes some titles to drop off suddenly, which is especially problematic when a professor has chosen a Safari title as a course textbook and it disappears in the middle of a semester. Even with these drawbacks, the subscription package has the best cost per title, and when patron usage is considered, it provides a significant return on investment (ROI).

Another e-book approach that the library has previously used was to purchase publisher packages to secure perpetual access to content for a lower rate per title. After evaluating and analyzing the data for this acquisition model, it was found not to be a cost-effective option for the HBLL and not to provide the necessary ROI to justify continued use. The library has suspended this tactic. The use of this model in the past has had little effect on its current approval purchases.

These new acquisition models have changed how the library spends money. Table 4 shows how the allocation of the library's acquisition budget has shifted away from the approval plan and toward these different collecting methods.

Table 3. EBA Availability, Use, and Purchases

	2013	2014	2015	2016
Available	14,985	18,721	27,453	29,560
Used	2,611	3,214	4,677	6,976
Purchased	534	654	779	776

Discussion

The HBLL began experimenting with e-book acquisitions with the purchase of a NetLibrary collection and expanded its acquisition practices as more content became available and the use and purchase options improved. Early on, the library saw success in its title-by-title e-book purchases, package subscriptions, and a DDA pilot program, and it added these models to its e-book acquisition plans. More recently, the library augmented these strategies with STL and EBA models. Each of these e-book acquisition models has affected the approval plan in some way. Instituting these strategies has reduced the number of approval books purchased and the amount spent on these purchases. At the same time, the library has seen a greater ROI because of a lower cost per use.

DDA directly affects the approval plan by decreasing the number of books automatically purchased and increasing the number of titles to which the library can provide access. In this acquisition model, any e-books that match the approval profile are not purchased but are instead added to the DDA pool and purchased after a patron trigger event. This has resulted in a significant cost savings. DDA also provides access to a range of titles that the library could not afford to purchase through the approval plan. For example, by adding titles that only matched the approval profile as notification slips, the library allows patrons to discover a large segment of titles that would not have been acquired through a traditional approval plan. DDA also gives students and faculty a much wider range of titles from which to draw in their research. As seen in figure 1, the library can provide access to a pool of titles that is much larger than a pool of titles triggered annually or cumulatively.

Although the library has been satisfied with the value and cost savings realized by implementing a DDA model, two drawbacks have arisen. One is that the amount spent each year can be unpredictable; the other is patron-information overload. With such a large pool, patrons could trigger potential tangential content when they could have been equally satisfied with previously purchased material. Monitoring, evaluating, and weeding the pool is critical to keeping it relevant and beneficial. Because of budgetary constraints, the HBLL implemented such procedures in 2016 and weeded titles that were added from exclusion slips that were judged to be less relevant to its collecting areas.

Table 4. Percent of Monograph Acquisitions Budget by Acquisition Method

Acquisition Method	2009	2010	2011	2012	2013	2014	2015	2016
Approval print	87	75	75	61	46	40	33	34
Approval e-books	0	4	6	11	3	7	5	6
Subscription E-books	13	16	18	18	18	19	18	19
DDA e-books	0	5	1	10	10	8	23	16
EBA e-books	0	0	0	0	23	26	21	25

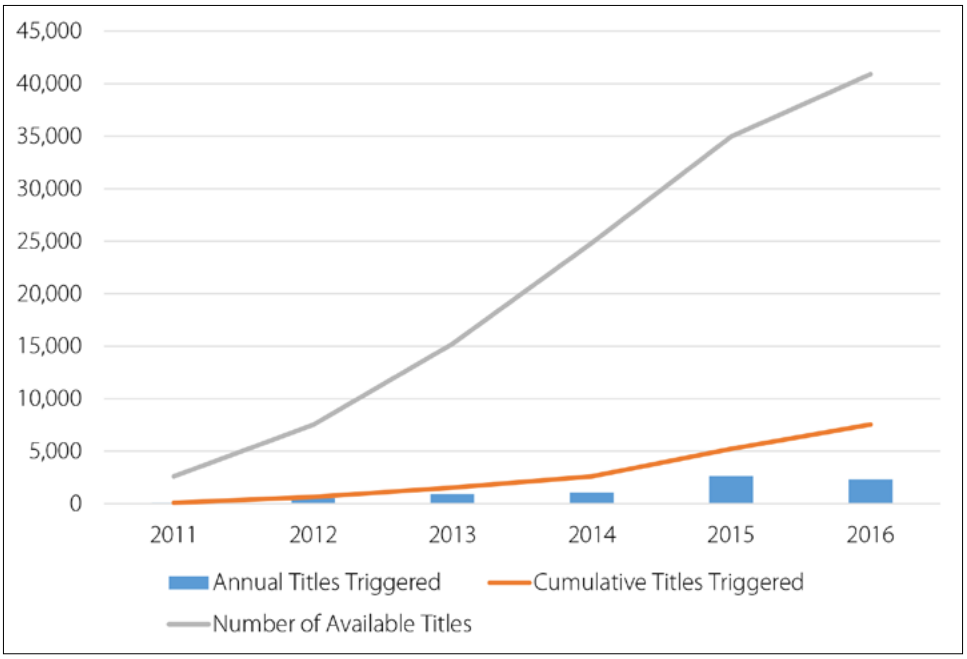

Figure 1. Number of Titles in DDA Pool Compared to Annual and Cumulative Titles Triggered

The addition of STLs in 2013 further reduced costs while still providing access to a large pool of titles. If not for the additional cost savings provided by STLs, the library would have been forced to shrink the available pool of DDA titles at an earlier date. As a subset of DDA, STLs alone did not affect the approval plan, but they demonstrated the volatility of the current e-book market, which affects approval titles. As publishers react to their changing environment by increasing STL costs, the library carefully tracks and analyzes how these changes increase its expenditure to ensure that participating in STLs continues to be beneficial. After studying the budgetary effects for the past three years, library staff concluded that STLs are still an excellent strategy. Additional changes to STL and DDA eligibility has affected what is eligible for inclusion in the DDA pool and what is purchased through the approval plan.

The major change to the approval plan that accompanied the adoption of EBA was exclusion of the participating EBA publishers from the titles that are automatically sent. Excluding these publishers prevented duplicate purchases and double payments. The HBLL financed its EBA programs by averaging the annual expenditure on titles from the publisher and reallocating that money toward the EBA program. This took money from the approval plan and repurposing it toward a patron-focused initiative. Although the cost and the number of titles acquired via approval decreased, the library provided access to many more titles while keeping costs steady. Figure 2 illustrates the value of the EBA program. In 2016, the library provided access to almost thirty thousand titles through EBA. Patrons used 24 percent of the available titles, but the library purchased only 3 percent of the total pool. That 3 percent represents what the library could have afforded to purchase through the approval plan. Because EBA includes backlist titles, the library can provide access to materials not previously received on approval. The large increase in number of titles available in 2015 was from the library negotiating with one of the EBA providers to add additional years of backlist content to the pool. Unlike DDA, the annual expenditure on EBA titles is known and capped, and having a larger pool presents no drawbacks.

The HBLL employs and has used e-book package models, both perpetual-access models and aggregator-subscription models, in its e-book strategies. Because both models are principally for older content and approval plans consider newly published material, this e-book strategy has had little effect on the decline in the number of titles purchased through its approval plan. These packages have added to the increase in the content the library provides

without significantly increasing library expenditures.

Starting in 2010 when the approval profile was changed to e-book preferred, the number of e-books purchased on approval and the annual expenditure for these purchases steadily grew. Figure 3 demonstrates a dramatic drop in 2013 because of the implementation of the EBA programs with Wiley and Elsevier. When the EBA programs were launched, these publishers were removed from the approval profile to avoid duplicate purchases. However, the drop was short-lived, and in the following year the number of e-books purchased on approval nearly doubled. Some of the increase can be explained by a few publishers reacting to loss of income by removing their titles from DDA eligibility. Any titles from these publishers that were received on approval in 2014 or 2015 were then purchased instead of being added to the DDA pool. The trend over the past two years has continued upward. When comparing e-books and print books acquired through approval, e-books appear to be underutilized because this comparison does not include the DDA. As previously stated, all approval books that were DDA-eligible were added to the DDA pool and not purchased outright, leaving only those ineligible for DDA to be purchased title-by-title. Title-by-title purchases herein refer to approval profile e-books.

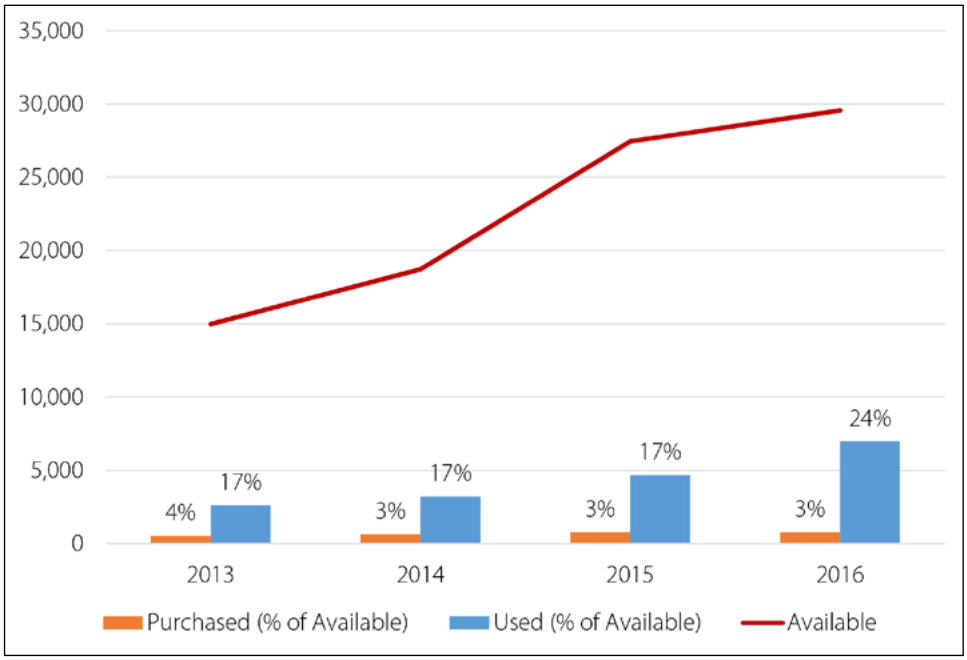

Figure 2. EBA Availability, Use, and Purchases

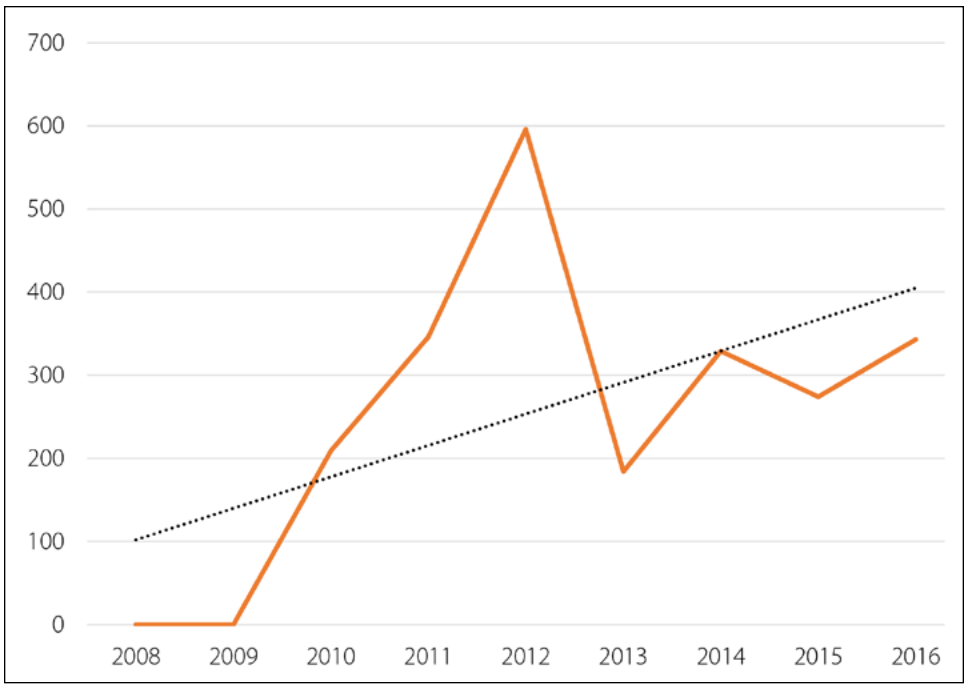

Figure 3. E-books Purchased on Approval

Figure 4 compares HBLL's spending for print approvals to its e-books strategies, including e-book approvals, subscription packages, DDA, and STL. It shows that the sum spent for print approval purchases has steadily declined. It also shows that as the library incorporated additional e-book purchasing models, the combined costs remained fairly level. Within the approval titles, the average cost per title rose from $45 in 2009 to $49 in 2015. However, because of the incorporation of DDA and EBA, the HBLL saw an average cost per title of $1.24 in 2015. In a time of flat budgets and rising material costs, it is

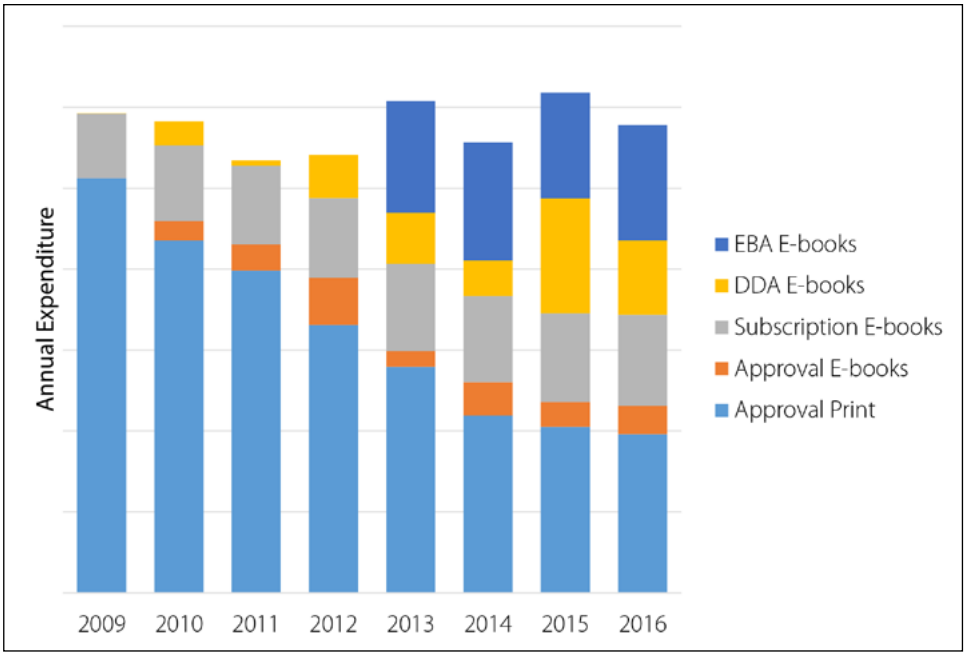

Figure 4. Annual Spend by Acquisition Method

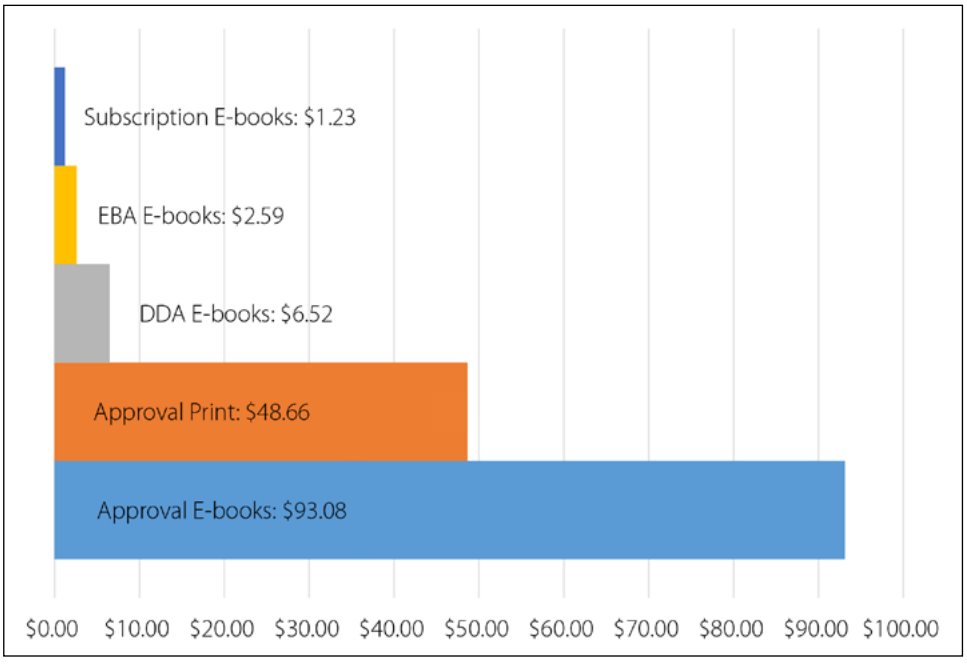

Figure 5. Cost Per Use by Acquisition Model

significant that instead of seeing its buying power decrease, the library expanded access to thousands more titles with the same level of expenditure.

Adoption of a comprehensive e-book strategy and the addition of new ways to acquire material has had several positive effects on the HBLL and its patrons. First, patrons can choose from a much broader selection of titles than what the library could have acquired using only the approval plan. E-books are always available and can be accessed from anywhere. While the library defaults to a single-user license for e-book approval and DDA purchases, the EBA and subscription model provide access for an unlimited number of users. This is particularly beneficial if the material is for a course assignment, a practice the library has seen increase since the implementation of the comprehensive e-book strategy. E-books add value for the end user and increase the library's relevance to the teaching faculty who use the materials for their courses. Almost 90 percent of the library's most used e-books are assigned as course materials. Faculty regularly express their appreciation to the library staff for making these e-books available.

Usage statistics clearly show that patrons have embraced e-books. A close study of the library's Wiley EBA usage shows that for titles categorized as "humanities"—which the library is most likely to have an existing print copy—60 percent of the most used had a print counterpart. This comparison showed 1,045 electronic uses (chapter downloads) and 14 print uses (checkouts or in-house) during 2016. Only a third of the print counterparts were used during 2016. Figure 5 shows the cost per use of the library's different acquisition methods, excluding firm orders. DDA, EBA, and subscriptions have significantly lower cost per use than either the print or e-book approval plans. The comparison between the print and e-book approval-acquisition models shows that the cost per use for e-books is nearly twice that for print books. This wide gap is partly the result of the difference in the cost of the items. The HBLL is a paper-preferred library for content only available in print,

and these books have a lower list price than the cloth or e-book editions. The HBLL also receives a discount on print titles, further reducing their initial cost, which means less usage is necessary for a lower cost per use. Another reason for the considerable difference might be because the e-book approval books are the smallest segment of titles. The library annually purchases an average of 326 e-books through the approval profile. All other e-books that match the profile are added to the DDA pool, and are not purchased outright. With so many e-book choices, it is possible that the subset of e-books purchased on approval were not used because patrons were presented with too many alternatives in the search results. However, even though the cost per use for e-book approval titles is almost double that of print approval titles, figure 6 shows that the cost per use of all purchased e-book models (approval, DDA, and EBA) is much lower than that of the print approval titles. The value is clear. Because of the nature of the programs, 100 percent of the titles purchased through DDA received at least one use and those with STLs, along with EBA titles, were used multiple times before being purchased. This helps to keep the cost per use low. In contrast, fewer than half of the titles purchased through approval over 2013–16 were used in the same period.

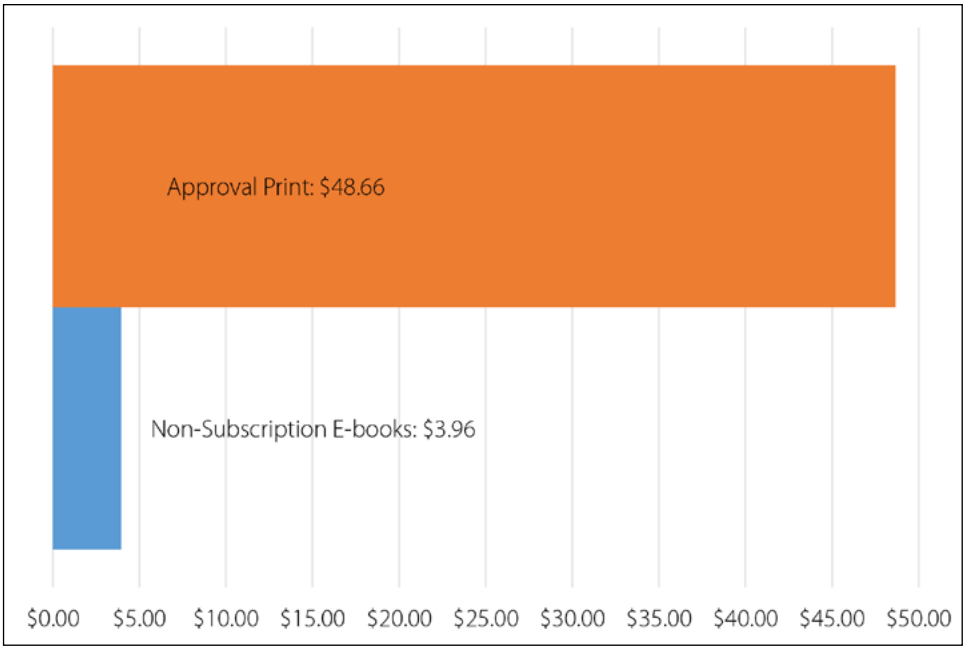

Figure 6. Approval Print Cost per User vs Non-Subscription E-books Cost per Use

Conclusion

Switching to an acquisition model that favors e-books has helped the library financially and has led to a better patron experience. Patrons have access to a wider range of materials and benefit from the convenience of online content, which can be accessed anywhere at any time, often by an unlimited number of simultaneous users. The HBLL's comprehensive e-book acquisition strategy includes title-by-title purchases through approval, aggregator subscription packages, publisher packages, and DDA, STL, and EBA. These strategies provide great value to the library because they provide access to many more titles than the library could afford to purchase outright. The cost of the usage of titles available through these programs is much lower than the library achieves with the print books acquired through its approval plan. However, this study has also revealed the relatively low usage of approval e-books purchased outright. The library will examine these purchases specifically to determine whether continuing the policy to purchase approval e-books when they cannot be added to the DDA pool is still appropriate.

In assessing the consequences of each of the other acquisition methods, the library is satisfied with its approach. As new acquisition models emerge, the library should evaluate them to determine what benefits they might provide. For example, testing the ProQuest new Access-to-Own (ATO) model may show that it will help stabilize the volatility of STLs while providing similar benefits. From the preliminary information ProQuest has made available, ATO will allow the library to purchase backlist content with three equal loans of 35 percent each, leading to a final purchase cost of 105 percent of the list price. For frontlist material, two loans of 55 percent would lead to a final purchase cost of 110 percent of the list price. The current STL model with variable rates between 15 and 90 percent results in more cost volatility and a higher final purchase price. Even the lowest rate of 15 percent results in a final purchase price of 130 percent under the HBLL's current program of two STLs before a purchase. Under ATO, the loan cost for backlist material is very close to the current average the library experiences on STLs; even with the higher loan rates on frontlist material, it is worth investigating to determine whether the lower final purchase costs balance out. Experimenting with a print demand-driven program could also prove beneficial to the library.

DDA and EBA have reduced approval purchases by 55 percent since 2009. Nonetheless, the HBLL continues to engage in a robust approval plan. Additional studies might include monitoring the approval program to see if purchases continue to decline and weighing the options to tweak it, discontinue it, or significantly adjust the profile. As approval plans are an ownership model, future discussions could consider the value of ownership versus access. This conversation would complement investigating the usefulness of reinstating publisher packages, particularly compared to subscription packages. The threat of shrinking monograph budgets may require the library to rely more on leased content available through the subscription packages, which provide the lowest cost per title. If this were to occur, understanding the access-versus-ownership implications and having a plan in place would be imperative. For now, the HBLL is satisfied that its current e-book strategy has led to cost savings, a larger pool of available titles, and a highly positive ROI.

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Notes on Operations

Swimming with the Fiches

Reviving the International Aerospace Abstracts Collection to Make It Discoverable and Accessible to Researchers

Angela R. Davis and Jeff Edmunds

When the authors discovered a forgotten microfiche collection, they knew they needed to determine a process to make the information discoverable and accessible to researchers. Using a combination of manual data entry, cross-checking against printed indexes, and batch conversion of data using MarcEdit, they devised processes and workflows for creating reasonably good metadata for this large collection and for loading the MARC records into their local integrated library system. Their methods can serve as a model for any collection for which basic metadata would be useful in enhancing discovery and access.

Imagine yourself stumbling upon a forgotten microfiche collection in the far reaches of your library. Fiche is no longer a preferred format for information storage, but before online databases were commonplace, microformats allowed libraries to provide access to large collections in a small footprint. This format is alien to many of today's users. With the rapid evolution of research libraries away from warehouses for physical items and toward spaces for collaborative creation, research, and learning, many uncataloged or undercataloged collections are being moved off-site or discarded. This may cause these collections to become lost. Microformat collections are especially susceptible to this fate because few libraries have cataloged these collections at the title level. The absence of good title level metadata makes it difficult for libraries to know what they own and for users to find what they seek.

A newly discovered or rediscovered microformat collection raises many questions: Is the collection still useful to users? Has it been cataloged? If not, does metadata exist? What are the best methods for ensuring discovery and access? Does the library still own the equipment required to access the information in this format?

These questions were explored through a case study of an extensive collection of full-text aerospace engineering papers issued on microfiche from 1967 to 1973 held at Penn State University (PSU) Engineering Library that are abstracted and indexed in International Aerospace Abstracts (IAA), published by the Technical Information Service of the American Institute of Aeronautics and Astronautics (AIAA). Microformats are flat pieces of film containing microphotographs of document pages. The IAA papers are a collection of journal articles, conference papers, monographs, and theses from mostly Soviet Bloc scientists and engineers. This collection is important to researchers because it covers international aerospace research during the height of

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the space race between the Soviet Union and United States. Most of the papers are in English or Russian, and approximately two dozen other languages are represented. While the information contained in the collection is partially duplicated in other sources, IAA is one of the only resources to gather Soviet Bloc technical aerospace information in one place.

Microfiche collections in STEM (science, technology, engineering, and mathematics) subjects are particularly easy to overlook because this format is far less prevalent than in the humanities or social sciences. In Heynen's extensive survey of microformat collections held by libraries, the vast majority of sets are historical, literary, or humanistic in focus. Of the eighty-five sets given highest priority for cataloging by libraries, only three are science-related: Landmarks of Science parts 1 and 2, and United States National Technical Information Service Selected Reports in Microfiche (SRIM). IAA does not appear on the lists.[1] The goal of this case study is to help librarians tasked with making decisions about microformat collections and, more broadly, about any collection that runs the risk of being overlooked. Decision points, workflows, results, and cataloging practices are explored.

Literature Review

Libraries acquired microforms for a variety of reasons. They offered a way for libraries to provide access to large collections in an economical and space-saving way.[2] Additionally, microform collections contained research material that was not readily available electronically and did so in a format ideal for long-term preservation.[3] These factors made microformat collections desirable to libraries since the 1940s. Even in the digital age, some information is still only available on microform. Despite this fact, microforms are often not treated in a similar manner to other library materials.[4] Almost all library-held microform collections are under- or uncataloged, resulting in a lack of understanding of the value these collections bring to the library.[5]

Since the first use of microforms, user perceptions of them have been relatively poor. This has been further compounded by the prevalence of electronic formats and the rise of web search engines. Users prefer information in a format that is easy to access, which is typically not the case for microformats.[6] Libraries tend to rely on print indexes or finding aids to provide access to their microform collections. Patterson notes, "Most users today neither understand nor gracefully accept a structure which requires that they consult multiple online or print guides, each presenting a variety of layouts, command languages, and retrieval methods."[7] This creates a barrier to access and devalues the wealth of information available on microform. Librarians are not immune to these perceptions; Banerjee discovered that librarians also avoid searching these print indexes.[8] Patterson asks, "If we [librarians] don't value [microformats] by providing a comparable level of detailed access points, is there any reason for our users to?"[9]

The resistance to microformat use was created in part by a lack of good cataloging. Libraries have been faced with the challenge of cataloging large microform collections for years, and literature on the topic dates backs several decades. With the advent of online catalogs, creating and sharing metadata became more feasible, and the literature discusses approaches to bringing microforms under bibliographic control. Wilson's work on bibliographic control provides the rationale and foundation to make materials discoverable and accessible.[10] Additionally, Reichmann and Tharpe provide an overview of the status in 1972 of microform bibliographic control and methods to improve it, which is still a challenge for libraries today.[11]

Heynen's 1984 report, described above, is a good summary of the state of microforms cooperative cataloging at that time.[12] That same year, Lucas described OCLC's attempts to spearhead and coordinate the cataloging of what it called "major microforms collections."[13] Two years later, Joachim extended the discussion with a paper describing recent developments in the bibliographic control of microforms, detailing efforts by the Association of Research Libraries, OCLC's Major Microforms Project, the Research Libraries Group, and various individual libraries to catalog and share cataloging for microform sets.[14]

The technological aspects of making microforms discoverable and accessible came to the fore in literature of the late 1980s and 1990s. Jones discussed online catalog access, and Dodd described efforts to cooperatively load tapes for major microform sets.[15] Some authors described efforts to catalog specific sets, such as the Slavery Pamphlets Collection or the Nineteenth-Century Legal Treatises Microfiche Collection.[16] More recent publications have focused on the organizational and procedural aspects of improving access to microforms.[17] Despite these efforts, libraries are prevented from fully cataloging microform collections because of several factors, including workload, complexity, and lack of staff, resources, and institutional commitment.[18]

The literature suggests that progress has been made on creating at least minimal bibliographic records for microforms. Duffy and Weisbrod wrote that the most common way that microform collections are cataloged is with a single record for the entire set, though this perpetuates the need for users to rely on print indexes and guides to locate individual titles.[19] In a later study, they acknowledged that while these printed guides provide minimal access, they cannot help users locate the physical item.[20] These extra steps continue to increase user resistance to using microformats.

Table 1. Significance Criteria

Collections Council of Australia Criteria	IAA Collection
Historic significance	Collects papers from Soviet Bloc aerospace engineering (space science) during the height of the space race (1967–71)
Artistic significance	Not applicable
Scientific or research significance	Contains information not widely available during the period and provides access to international scientific research
Social or spiritual significance	Not applicable

Although title level cataloging of microforms presents challenges, its many benefits make it a worthwhile investment for libraries. The literature suggests that in any collection, items with better quality cataloging tend to receive more use.[21] Libraries collect materials that are beneficial to users and want these items to be used; cataloging microforms makes them more visible and can be leveraged to encourage researchers to use these valuable resources.[22] Providing title-level catalog records for microform collections also enables libraries to evaluate their collections for duplication and to make retention decisions.[23] With space becoming ever more precious, title-level cataloging allows libraries to create cooperative agreements to share microforms across multiple locations, thus reducing the microform footprint at a single library.[24]

These issues are still occurring in today's information environment, and libraries need to better administer their microform collections. Libraries increasingly face deteriorating microformats or pressure to withdraw these seldom-used materials.[25] Cheney states that even if they are not withdrawn, "over time, if current practices continue or are not addressed, these collections will become entirely invisible," and the valuable research they contain is in danger of being lost.[26] Nonetheless, microforms still have a place in the library because they provide a variety of materials for users in a stable, space-saving format.[27]

Finding the IAA Collection

In a dark corner of the PSU Engineering Library are four microfiche cabinets bearing the ambiguous label "R1-R4." They sat undisturbed for many years and were largely ignored because of their out-of-the-way location and staff turnover. This collection was rediscovered as part of a larger project to get a clearer picture of all microfiche collections held in the Engineering Library. The discovery of approximately sixty thousand IAA microfiche issued from 1967 to 1971 came as a shock to the authors, who then had to determine exactly what this collection was and if it was still a useful collection.

Determining the Significance of the Collection

When a microfiche collection is discovered, the first step is to determine exactly what it contains and its significance to users and the library. The Collections Council of Australia provides criteria on assessing collection significance.[28] For a collection to be considered significant, it must have historic, artistic, scientific, or research potential, or it must have social or spiritual value. The IAA collection meets two of these criteria, as outlined in table 1. In addition to these criteria, the authors determined significance from the number of libraries that held the collection and the cost to originally purchase the collection, as described in detail below.

Once the significance of the collection was determined, the next step was to research the library's acquisition of the collection. If possible, tracking down how the library first purchased the collection is useful. For some microfiche collections, libraries subscribed and received fiche as it was published, similar to how libraries currently subscribe to online databases. Because of retirements at the authors' institution, the knowledge of the acquisition and local importance of the IAA collection was lost. The next means to determine significance was to use guides to the literature.[29] These books provide an overview of the collection, its contents, and libraries that held the collection in the past. Guides to the literature were invaluable in determining the IAA collection's significance. They provided publisher information, type of information contained on the fiche, and a starting point to view other libraries' catalogs to provide guidance on cataloging practices. During this initial phase, it was discovered that the authors' institution held print IAA serial indexes for 1967–73, which had been regularly compared to the fiche collection. Fortuitously, the print indexes were marked with red check marks to indicate which fiche pieces were owned. These indexes were crucial because the library did not collect everything published that is indexed in the serials for the years held. Papers published as part of AIAA conference papers were excluded from the IAA collection because of a simultaneous direct subscription to print full-text AIAA conference papers. Additionally, by using the guide to the literature and

the indexes, the authors determined that the information contained in the microfiche is partly duplicated in other sources. This was indicated in the indexes by notation of original publication sources, such as the AIAA conference. However, the microfiche is one of the only resources to gather full-text Soviet Bloc technical aerospace information into one collection.

The authors next searched OCLC WorldCat to determine whether the collection or parts thereof were cataloged and available to library users. No records were found, either for print versions of the titles reproduced in the microfiche or for the microfiche themselves. Despite this, WorldCat was useful in determining that the IAA collection was abstracted and indexed in the ProQuest Aerospace database. The full text of the items themselves, however—monographs, theses, conference proceedings, meeting papers, and journal articles—were unavailable, either in the database or in print. Many current library users are unfamiliar with microfiche and expect information to be accessible digitally, so determining a method to make this material accessible to users was critical. Furthermore, according to *Aeronautical Engineering: A Continuing Bibliography with Indexes*, as of 1982, IAA microfiche were available at $4.00 per fiche on demand or $1.35 per fiche for standing orders.[30] Earlier supplements were priced lower; for example, standing-order fiches were $1.10 in 1980. The authors believe that the PSU Libraries acquired the collection on standing order in the late 1960s and early 1970s. Pricing information for these years suggests a figure of $.50–$1.00 per fiche, which would place the cost of acquiring the collection at between $30,000 and $60,000 because some titles are filmed on multiple fiche. Adjusting for inflation, a cost of $30,000 in 1967 is more than $200,000 in 2016 dollars—another compelling reason to make the collection discoverable and accessible.[31] All these factors combined demonstrated significance to the authors; the collection contained historically valuable and rare information, no other library appeared to have access to the collection, and the price to acquire it was considerable.

Determining How to Catalog

For almost thirty years, the only access provided to the collection was via a single collection-level record in the local catalog for the "IAA papers"—a cryptic title that barely hinted at the extent of nearly sixty thousand unique titles and the richness of the highly specialized aeronautics texts in more than twenty languages (see figure 1).

For unknown reasons, the record was never submitted to WorldCat. As a result, only researchers using the local catalog were aware of the collection's existence. Because the IAA papers reproduce the full text of tens of thousands of titles, it was determined that the best method to provide access was to individually catalog each fiche in addition to updating the set record. This approach would provide title, author, and accession number access to users.

The authors first contacted the original publisher, AIAA, to determine whether they had metadata available for the collection. AIAA had sold all rights to ProQuest and could not provide assistance. The lack of representation in WorldCat confirmed the importance of devising a method to make the titles in the collection discoverable. Digitization would have been ideal, but constraints on staff resources, ProQuest's rights ownership of the metadata, and access to a functioning microformat reader in the authors' library meant that the most efficient and timely method to provide access was through title-level catalog records.

The PSU Libraries is no stranger to cataloging large microform collections to enhance discoverability and access. In the mid-1990s, the Libraries undertook a project to catalog titles in the extensive microfilm collection Victorian Fiction and Other Nineteenth Century Fiction. More than sixteen hundred MARC records were created in the local catalog for this collection by reading catalog cards and examining the film reels. These records were contributed to WorldCat for use by other institutions. The Victorian fiction project was completed within several months by a copy cataloger versed in AACR2 (the prevailing cataloging rules at that time), MARC format, and the features of the local OPAC. A copy cataloger was not available to catalog the IAA papers, nor were there catalog cards from which data could be transcribed, so a more streamlined approach was devised that required neither cataloging expertise nor knowledge of the local integrated library system. Staff in the Engineering Library transcribed information from the fiche headers into a spreadsheet, which was transformed into rudimentary MARC records using MarcEdit. The basic MARC records were enhanced using a combination of global edits and more sophisticated data manipulation involving regular expressions. As in the Victorian fiction project, creating full-level cataloging records for thousands of titles was not feasible, and a minimal-level approach was used. For each title, library staff transcribed the accession number, the primary author's name, the title, the language of the original resource, the number of pages, the year of publication, and the journal or other source from which the text had been reproduced. With many years' experience serving aerospace faculty and students, the engineering librarians were confident that these materials would be searched for and located by citation information (i.e., author, title, or accession number rather than by subject area), so no attempt was made to assign subject headings apart from the generic "Aeronautics" added to every record. Geographical subdivisions were deemed inappropriate given the global coverage of the collection: texts in twenty-four languages from both

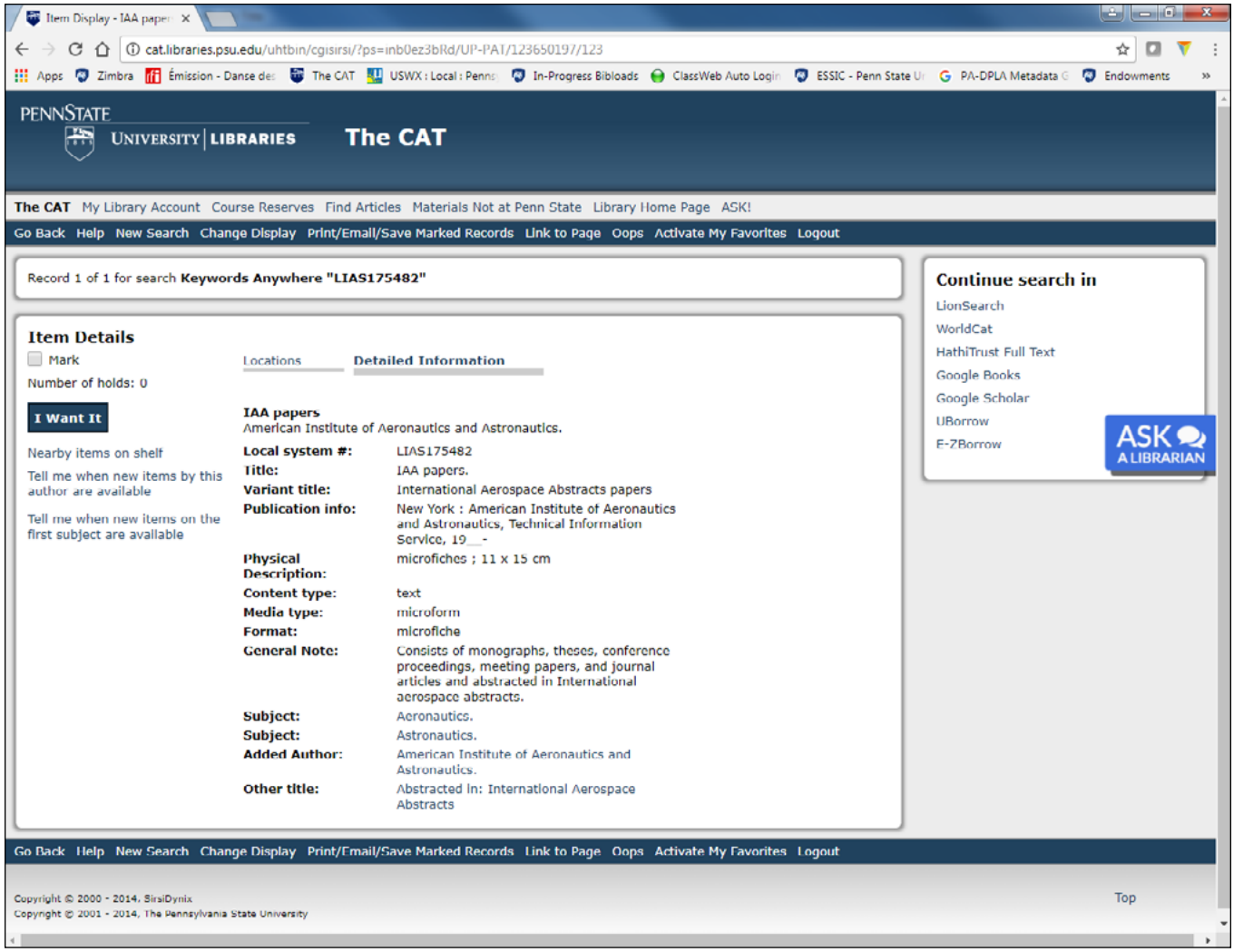

Figure 1. Local Collection-Level Cataloging Record of IAA Papers.

hemispheres. Additionally, this allowed the cataloging to occur in a timely manner because each title did not need to be closely examined to assign subject headings. Similarly, the fiche are filed in drawers based on accession number, and it was decided that a base call number using Library of Congress Classification, TL500.I572, would be assigned to correlate with the print indexes. The accession number was appended to the base call number (e.g. TL500.I572 no.A68-17730).

In the interest of project management and quality assurance, metadata creation was undertaken in batches corresponding to year of issuance. The collection covers materials issued 1967–71, with a few titles from 1973. A spreadsheet was created for each year, and the metadata was entered: English transcription of the title and name of the principal author as it appeared on the fiche, accession number, language of the text, etc. When cataloging for a year was complete, the data was transformed into MARC, loaded into the test version of the local catalog for review, and the metadata capture was refined to make the process as efficient as possible. For example, the authors realized that any boilerplate data (e.g., the year of publication because all items in a spreadsheet dated from the same year, or base call number information) could be added during manipulation of the record with MarcEdit and did not need to be entered during metadata capture. Several iterations of these processes were necessary to ensure that the records met local standards and accurately reflected the items they describe. As a final step for quality control, dozens of records were manually spot-checked against the ProQuest Aerospace Engineering Database to ensure that accession numbers matched authors and titles.

MarcEdit allowed the following enhancements for each record:

- Unique record IDs were created to facilitate metadata management (e.g., iaa00000045482). This will enable the authors to batch delete or overwrite records as necessary in the future.
- Publication year was copied from MARC subfield 260 $c and written to MARC field 008 because many library systems, including PSU Libraries, use the 008 as a source for date for display and sorting of search results in the public catalog. The authors note that they chose to use the MARC field 260, and not 264, since records new to their catalog are sent monthly to Backstage Library Works for both authorities and RDA processing, which means that 264 fields would be generated automatically as part of this ongoing workflow.
- Like most scientific literature, titles in the IAA papers collection frequently had multiple authors. For pragmatic reasons, a decision was made to transcribe only the first author, assumed to be the primary or corresponding author. The qualifier "$ecorresponding author" was added to all MARC 100 fields (Personal author) to alert users to the fact that the name in the 100 field was not necessarily the only author.
- The RDA MARC fields 336, 337, and 338 were added to make clear the nature and medium of the resources (textual resources on microfiche).
- A note was added to make clear that the full text of the papers is abstracted in IAA, which is available online, to help researchers determine whether the material is of enough interest to consult the microfiche.
- The accession number (e.g., A70-32094) was written to a keyword-searchable MARC 500 field to ensure that researchers could find the fiche by accession number alone.
- Notes specifying the source (usually a journal or conference proceedings) of the reproduction were included when available on the fiche.
- A MARC 533 reproduction note was added to make it clear that the materials are microfiche reproductions of print.
- The language of the text was provided in a MARC 546 field (e.g., "In Russian"). The rationale was that the titles on the fiche are provided in English, even when the texts are in languages other than English. The authors lacked the time or the expertise to transcribe the titles in the original languages, which appear only in the text of the fiche, and not on the header, where the English transcriptions and indication of full-text language appear, visible without the use of a fiche reader. Additionally, the language of the text was converted to a language code (e.g., "rus" for Russian) and written to positions 35–37 of MARC field 008 to facilitate limiting search results by language. Writing language codes to 008 allows users to conduct a search of "all IAA papers in Russian," for example.
- A corporate author entry (MARC 710) for "American Institute of Aeronautics and Astronautics, Technical Information Service" was added because they originally issued the microfiche.
- The authors included a local title collection field (MARC 793) for "IAA papers" to facilitate batch retrieval of records for the entire collection.
- As previously noted, a class-together Library of Congress call number followed by accession number (e.g. TL500.I572 no.A70-3209) was assigned to ensure the materials would be easily findable in the drawers and would electronically shelf list with other materials about aeronautics and aeronautical engineering.

Finally, two additional cataloging-related questions were addressed: should the MARC records be shared with OCLC for inclusion in WorldCat, and should the MARC records be sent to Backstage Library Works for authority control processing? After consulting with the authority control librarian and members of the Bibliographic Services Council—the group charged with making policy decisions related to cataloging—the authors opted not to send the records to WorldCat. This decision was made primarily because, despite the enhancements made using MarcEdit, the records fall short of OCLC's standards for even minimal-level good metadata. For example, the titles are provided in English despite the language of the text being in another language. However, the authors opted to send the records to Backstage for authority control processing on the chance that some of the personal author names might benefit from authorities processing. All these steps ensure that the microfiche is now discoverable in the library's catalog and will help users locate information in this unique collection.

Processing the Physical Collection

Once the collection was cataloged, the physical microfiche pieces needed to be processed to ensure that they could be located and to address any preservation problems. The easiest step was to relabel the cabinets with "IAA" instead of "R1-R4." Next, it was determined that the current microfiche envelopes were acidic, so all sixty thousand pieces were transferred to new envelopes to ensure better archival storage. While changing envelopes, some papers were discovered that required multiple microfiche cards. To ensure ease of access by users, papers with multiple microfiche cards were consolidated into one envelope. Finally, each

envelope was stamped with the base call number to provide a consistent method for refilling after use.

Conclusion

This project took just over one year to complete and was coordinated by the engineering librarian. The initial stage to convert indexes' checkmarks to editable spreadsheet format and gather header information from the microfiche took five staff members from various library locations three months to complete. Afterward, the engineering librarian manipulated the data, adding subject headings and call numbers. Because of other responsibilities, this was a month-long process. In the following month, the digital access coordinator and a cataloger with programing knowledge developed the process to convert the spreadsheet data into MarcEdit. Finally, the records were loaded into the library's catalog and spot-checked by librarians. This took an additional month, as there was some data cleanup necessary to ensure all the records were consistent. During preparations for physically processing the collection, it was discovered that a cabinet drawer of fiche published in 1970 was skipped in the data-capturing stage. The process that was in place to catalog these materials made it easy to do a supplementary load of these seventeen thousand titles. One staff member took approximately two months to convert the metadata into a spreadsheet and then manipulate and load it into the catalog. The consolidating and transferring to new fiche envelopes took three to four staff members approximately three months, in additional to their regular responsibilities. Once the collection was cataloged, a user request was placed, something that was impossible before this project was completed. The engineering librarian plans to promote this collection to interested researchers beginning in the fall 2017 semester to increase collection usage.

The authors gained valuable information about cataloging microfiche collections and plan to use this process as a template for additional hidden microformat collections at PSU Libraries. Time permitting, they would like to include additional metadata, including detailed subject headings, multiple authors, and cross-references to other publication sources.

The library literature and this case study have demonstrated that hidden collections are used by researchers almost immediately after they become discoverable. Furthermore, in a time of tightening library budgets, librarians should be leveraging all their collections, not just those that are the most convenient to access. Moreover, in some cases, significant personnel and monetary resources were expended to acquire these microformat collections, and most of the collections provide access to valuable information not available elsewhere. Libraries should ensure that this information is accessible to users. Before a microformat collection can be cataloged, one should determine the extent of the library's entire microformat collection and determine what subjects have been overlooked. This allows a librarian to investigate the significance of these collections and what benefits improved access could have for users. Access can be improved through the creation of finding aids, collection-level catalog records, or title-level catalog records. Recent technological advances have made creating title-level catalog records easier using tools such as MarcEdit. The desire to improve access needs to be balanced against the time commitment involved for cataloging librarians. All these factors demonstrate that microfiche collections deserve attention from librarians and will provide users with access to unique materials.

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Book Reviews

Elyssa M. Gould, Editor

Getting Started with Digital Collections: Scaling to Fit Your Organization. By Jane D. Monson. Chicago: ALA Editions, 2017. 192 p. $69.00 softcover (ISBN: 978-0-8389-1543-1).

Collections of digitized cultural materials are becoming common in libraries, archives, and museums. However, many small and midsize institutions have found the creation of such collections to be difficult given organizational priorities and budgetary and staff restrictions. Monson's book seeks to explain the basics of creating and sharing digital collections in ways that will allow smaller organizations to work on a scale suited to their needs and available resources.

The book is divided into two parts: "Managing Projects" and "Basic Skills." "Managing Projects" chapters cover issues related to digitization in smaller institutions, working as the only digital librarian in an organization, and working across departments within one institution and across institutions. "Basic Skills" chapters cover information and issues surrounding image conversion, metadata, digital collection management systems, copyright and digital collections, and preservation of digital assets. Each chapter includes references, many chapters include recommended resources in the chapter text or at the end, and each of the "Basic Skills" chapters includes necessary basic vocabulary and numerous examples. The book concludes with a glossary and index.

"Managing Projects," encompassing chapters 1–4, examines issues commonly found in smaller institutions interested in starting a digitization program and suggests ways to create practical, sustainable digital collections programs. Monson notes that each institution will have different reasons for maintaining digital collections and must be clear about how digitization will make their materials more accessible, better preserved, and more valuable to current and potential users. Understanding why they are digitizing materials will help institutions create solid digital collection policies and plans, and explain those plans to administrators and stakeholders. These chapters examine challenges unique to smaller institutions, advantages of being small, important skills for those working as solo digital librarians, potential collaborators within an institution, workflows and best practices when collaborating on project management, and potential options and pros and cons of collaborating with external organizations. Thinking through the questions and concerns raised in these chapters will provide guidance to anyone considering starting a digital-collection program.

One of Monson's most important points, repeated throughout the book, is the necessity to bring in the right people when planning digital collections programs. Technical services staff members can provide expertise in working with materials, cataloging and working with metadata, and digitization technology, but if a digitization program will handle archival materials or museum artifacts, coordinating with archivists or curators is vital to ensure that such items are correctly described and not placed at risk of damage during the digitization process. Representation from various areas of expertise is also required when evaluating potential digital content management systems, as different users may seek different tools, metadata schemas, or digital-preservation supports.

Monson reviews technical terminology and best practices for image conversion, metadata, and digital-collection management systems in chapters 5–7 of the "Basic Skills" section; she also addresses preservation metadata at length in the book's final chapter. Chapter 8, "Copyright and Digital Collections," and chapter 9, "Preserving Your Digital Assets," provide necessary basic knowledge about two topics in which many librarians and archivists often have little background: copyright issues pertaining to digital and archival materials and the preservation of materials once they are in digital format. For example, Monson explains the difference between rights to digitize unpublished versus published materials and how to secure the appropriate permissions.

Early in the book, Monson makes the distinction between digitizing materials to preserve them by having additional copies (or copies that can be more safely used by patrons than the original object) and the preservation of born-digital materials or those that have been reformatted from some physical form. Digital asset preservation is revisited in chapter 9, where Monson states, "Preservation should be taken into consideration from the point of creation of the digital object, and ideally even earlier in the form of well-articulated institutional policies and guidelines" (156). Digital materials require regular reviews and other active management, which should be built in to the collection planning process. Building a strong digital collection and putting time, effort, and money into a digitization system is pointless if the digital assets degrade and become inaccessible from inadequate preservation.

Monson's aim is "to assemble in one place the key information necessary to get a digitization program off the ground," focusing "on the needs of professionals at small and midsize cultural heritage institutions who do not have previous experience with digital collections" (viii). She notes that while she trained in digital collections work during her graduate program and went directly into work as a digital librarian, not all institutions need to hire a digital library specialist. Many libraries can achieve good results by equipping current staff members with basic knowledge about digital collections and training in the appropriate tools. This book succeeds in providing sufficient fundamental information on digitization project management and technical skills and concerns, while including extensive references for further reading and training.—*Monica Howell (mhowell@nwhealth.edu), Northwestern Health Sciences University, Bloomington, Minnesota*

Digital Rights Management: The Librarian's Guide. Edited by Catherine A. Lemmer and Carla P. Wale. Lanham, MD: Rowman and Littlefield, 2016. 212 p. $45.00 softcover (ISBN: 978-1-4422-6375-8); $110.00 hardback (ISBN: 978-1-4422-6374-1).

Passion for digital rights management (DRM) does not typically lure anyone into the library profession; however, DRM is an essential topic for librarians driven to serve their users well. DRM is a daily challenge for libraries and their users, and librarians have a role to play in ensuring public access to information and privacy are considered, counterbalancing the rights of copyright holders. Only by being knowledgeable on the topic can librarians educate and advocate for library users. To this end, Lemmer and Wale have compiled a valuable guide on the basics of DRM for both public and academic librarians. It forms a strong foundation for those unfamiliar with a librarian's perspective of DRM, and the latter half of the book will be engaging even for experienced librarians. Instructors will be pleased with the sequencing of chapters. They scaffold from basic to more complex concepts, and many of the questions prompted along the way are answered in a subsequent chapter. Though some chapters fall short, most readers will discover something valuable in this collection.

The first three chapters define DRM and explore the technologies that enable it. Chapter 4 addresses staffing and workflows, pointing out the need for greater interaction between public services and technical services staff. A familiar scenario is described wherein users "rarely blink an eye at a DRM contract that pops up on a DVD or e-book without necessarily understanding to what they are agreeing." The authors assert that librarians lacking a solid understanding of DRM are "equally guilty of this level of resigned, well-intentioned compliance, and where there is poor communication about DRM in the workplace, the intersection of public and technical services in DRM causes additional issues" (67). Any library has more staffing issues to consider than is presented here, including scheduling, cross-training, personalities, and perhaps available legal counsel. Chapter 5 adds a layer to the foundation by examining collections policies and offers considerations. While more in-depth exploration, and perhaps even sample workflows, requirements for gathering documents, or case studies would have improved chapters 4 and 5, they still provide a grounding for considering a library's circumstances. These chapters would be a strong starting point for a practical online course in the future. Together, the first five chapters could provide a "crash course" on DRM for librarians.

Chapters 6–9 are engaging and timely, covering open access (OA), information privacy, and copyright. Keele and Odell examine in chapter 6 specific DRM techniques that further OA. Instead of focusing on how librarians can accommodate DRM, they explore how DRM can work for librarians. In a world of reuse, where the creators of some works intend for them to be passed hand-to-hand or shared online, DRM ensures that the license remains attached and accessible to any end user. The authors state that OA is the fastest growing section of the scholarly publishing market. As electronic collections are becoming more difficult for libraries to sustain, particularly academic collections in STEM fields, OA resources are appealing. It is argued that we need to know how to make these resources easily available and useful to patrons through metadata, usability, and preservation. This overview of technologies to provide access and protect authors' rights is valuable, whether libraries are collectors or publishers, and shows a slightly different side of DRM.

Studwell and Jefferson offer a complex and detailed discussion of privacy and DRM in chapter 7. Since the publication of this chapter, the landscape regarding information privacy has changed.[1] However, this chapter still provides an essential and engaging discussion. To be better able to critically analyze ongoing changes in government regulation, and possible future changes, the broad understanding chapter 7 provides is essential. It starts with personal privacy issues, addresses historical regulation and case law, and ends with information-privacy responsibilities of libraries. For individuals, privacy often conflicts with convenience, efficiency, and even safety, and the library is just one setting where this conflict occurs. This chapter clearly explains how information that can be used to identify a person

creates privacy problems when combined with other data, or when it is stored, aggregated, and analyzed.

Unfortunately, consumer interest and education, privacy policies of businesses, judicial interpretation of US law, regulatory agency policy, and US data law have not necessarily advanced to protect consumers as commercial practices in collecting consumer data have. Users face the often uncomfortable choice of relinquishing personal privacy to access information or not accessing that information at all. "If we don't have the conversation about why reading and reader privacy matter, the choice will still be made, but it will be made only by companies interacting with the market" (134). Further, the authors argue that a clear opportunity exists for libraries to step up by articulating library privacy policies and those of third parties operating in and through libraries' physical and digital spaces, and by educating communities. The author also express hope for efforts, such as NISO, to pull libraries together with software and content providers to draft principles that acknowledge all interests and roles in user privacy.[2]

In the final chapter, Neacsu argues that the Digital Millennium Copyright Act (DMCA) has positioned "knowledge as a luxury good" and that DRM generally contradicts copyright's spirit of "overall progress and knowledge production" (174). The author argues that DRM makes fair use "inoperable" through its assumption that any use not expressly approved is illegal. Further, DRM interferes with libraries' role in balancing information inequality, and it stifles innovation. Moving from the philosophical to the practical, the author illustrates myriad ways library departments and functions are hampered by DRM, proposing next steps for advocacy and alternative models for libraries. This final chapter concludes with considerations for agitating more broadly through consortia, library associations, and even the Librarian of Congress.

For librarians new to the profession or new to DRM, or those seeking to better serve their patrons regarding information access or privacy, this book is essential. It guides readers while not being restrictively prescriptive. It prompts questions and curiosity. Readers may find that when they finish it they are eager to get to work.—*Laura Schmidli (laura.schmidli@gmail.com), Madison, Wisconsin*

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Sudden Selector's Guide to Government Publications. By Alexandra Simons. Chicago: ALA Editions, 2017. 52 p. $30.50 softcover (ISBN: 978-0-8389-8915-9). ALCTS Collection Management Section Sudden Selector's Guides Series.

The Sudden Selector's Guide to Government Publications is designed to provide the latest information to those involved in collection development and management and user reference. It is geared toward the novice but may also be useful to more experienced librarians who wish to brush up on the resources available. While Simons clearly intends for the book to be referenced by librarians librarians newly working in a library that participates in the Federal Depository Library Program (FDLP), it is not limited to that specific audience as the information it details could be useful for anyone wishing to obtain a further understanding of government publications.

Divided into five chapters, topics range from how to manage a government publications collection to general information on issues, challenges, and opportunities related to the FDLP and Government Printing Office (GPO). It also features direct links to US government sources. The opening chapter provides a list of useful guides, ranging in publication from 1999 to 2016. The guides, published by the American Library Association, Libraries Unlimited, and *Information Today*, among others, focus on collection development and information on agencies and policies. In just fifty-three pages, Simons effectively communicates historical and current needs of library users and the tools and directives on how to serve those library users.

Several of the chapters include a recommended reading section. While the recommended reading in the final chapter appears useful, the few sources listed were published more than four years ago. Given that the chapter is titled "Issues, Challenges, and Opportunities," a more recent recommended reading list is desirable. With so much changing in how government documents are being disseminated, identifying all the relevant sources appears to be difficult. This reviewer confirmed that few pieces have been published on the topic in recent years. This lack of information draws attention to the fact that there is a lack of literature addressing issues, challenges, and opportunities related to government publications. The opportunities outlined in this text involve the creation of an online presence and instruction and promotional activities. An opportunity not

mentioned is the room for expansion on the literature currently published about these topics.

While all readers of *The Sudden Selector's Guide to Government Publications* may not have access to certain academic databases noted in the two-page list of recommended sources, database options could have been expanded upon, whether or not they have access to it. Familiarity with databases associated with government documents research would provide depth to librarians assisting patrons who may have access to these databases via other methods.

While the lack of recent publications makes this book more valuable given that much has happened since its publication, it has its shortcomings. Simons could have touched more on the concern for government documents disappearing and preserving those government documents, and could have better addressed additional resources. With the current political climate, this reviewer was a bit curious whether any of the links in *The Sudden Selector's Guide to Government Publications* were inactive. The author is self-aware when she states in the first chapter that "some of the websites listed in these guides may no longer be available or the URLs may have changed" at the time of publication (1). However, all of the links tested were active at the time of this review. Whether the content in these resources is the same remains another matter.

Although primarily designed for librarians participating in the FDLP, this text is a worthy addition to any public or government documents librarians' ready reference collection. The links supplied are useful not only to government document librarians, but librarians and library personnel concerned with business, medical, geographic, statistical, historical, and legal research.—*Delia Tash (dmt25@psu.edu), Penn State University, Abington College*

Fundamentals of Electronic Resources Management. Alana Verminski and Kelly Marie Blanchat. Chicago: Neal-Schuman, 2017. 264 p. $65.00 softcover (ISBN 978-0-8389-1541-7).

The North American Serials Interest Groups's (NASIG) *Core Competencies for Electronic Resources Librarians*, published in 2013, casts light on a growing problem in twenty-first-century libraries: aspiring electronic resources librarians need an astonishing variety of skills.[1] Because of their complex nature, these skills must be cultivated on the job. This book, by academic librarians Verminksi and Blanchat, provides a practical approach for such cultivation. Readers new to e-resources will find value in the authors' clear descriptions of daily workflows, while those with more experience will find the explanations of "the interconnection between workflows and systems" (vii) enlightening. Chapters are divided into sections, each of which could warrant an entire book. This organizational structure provides readers with guideposts by which they can navigate the chapter or branch out into further research.

The book opens with a solid overview of the current state of e-resources management (ERM), including explanations of Pesch's Electronic Resources Life Cycle,[2] Emery and Stone's Techniques for Electronic Resource Management (TERMS),[3] and the previously mentioned *Core Competencies for Electronic Resources Librarians*, all of which have been adopted and adapted by the ERM community in the last ten years. This first chapter establishes the authors' use of text boxes to highlight important concepts and bold text to indicate that a word is defined in the book's glossary. These text boxes are well placed and add context to the surrounding text.

In some ways this book is similar to the seven books published on e-resources in the past five years. For example, chapters 2 and 3 cover the well-trod ground of purchasing and evaluating e-resources. Still, as with most technology, ERM changes rapidly, and publishing must reflect those changes. The authors' attention to both process and context adds value to what might otherwise be merely repetitious of existing books. However, the unique value of this book lies in other chapters.

Verminski and Blanchat begin chapter 4, "Changing the Rules: Selecting and Managing Open Access Resources," with one of the clearest explanations of the varieties of open access (OA) that this reviewer has read. This description is followed with their characteristic how-to material, educating the reader on how to select and evaluate OA resources and integrate them into existing discovery systems. The chapter concludes with a discussion of how to advocate for OA on campus. Appendix A supplements this chapter with a sample rubric for assessing OA resources.

Chapter 5, "Negotiation and Licensing for Electronic Resources," is another particularly informative chapter. After a brief introduction, the authors offer a list of do's and don'ts for negotiating. The chapter ends with two extensive lists, "Sample Clauses and Descriptions" and "Problematic Language." Chapter 8, amusingly titled "What You Might Want to Ask a Library Vendor (But Never Thought You Could)," provides additional insight on effective communication with vendor representatives. It suggests questions to ask and avoid, and why. Appendix B contains a handy license review checklist that supplements these chapters.

By far the most valuable chapter, "Keeping the Lights On: Setting Up and Maintaining Access" (chapter 6) tackles the often daunting technical side of ERM from setup to activation. Full of diagrams, case studies, and other visuals,

this chapter explains authentication, OpenURL, and discovery before launching into an excellent guide to troubleshooting. The section "Link Resolvers and OpenURL" provides a useful visual of how an OpenURL should look, and how it might look if not working properly.

The book's other chapters are equally useful, if nothing new. Chapter 7 provides a clear explanation of COUNTER usage statistics and examples of tools to use when comparing usage data. Even with ten years of experience in ERM, this reviewer learned some new Microsoft Excel skills from this chapter. Chapter 9 covers marketing electronic resources, with some helpful examples. Finally, chapter 10 rounds out the book with a look at current trends and speculation about the future of ERM.

Although clear and instructive, this book is not without its flaws. The text is, unfortunately, full of typos and grammatical errors. Further, the book suffers from some pacing issues. For example, of the twenty-three glossed terms introduced in the first chapter, thirteen of them are in the penultimate two and a half page section. Introducing so many terms in such a small space could be overwhelming to readers new to the subject. However, these flaws do not negatively affect the value of the content. The authors' heavy use of checklists and step-by-step instructions provide clear guidance for beginners, chapters conclude with suggestions for further reading, and special features, such as glossed vocabulary, highlighted text boxes, and appendices contribute to the book's ease of use. While not explicitly stated, the book focuses on academic libraries, likely because of the authors' backgrounds. This book will be a welcome addition to the collections of seasoned e-resources librarians and newcomers alike.—*Jennifer C. Williams (jennifer.williams@athens.edu), Athens State University*

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