

# Library Resources & Technical Services

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**Evolving Roles of Preservation Professionals: Trends  
in Position Announcements from 2004 to 2015**

*Mary Miller and Martha Horan*

**Towards Sustainable Partnership: Examining Cross  
Perceptions of Public and Technical Services  
Academic Librarians**

*Cathy Weng and Erin Ackerman*

**What Does Giving Primacy to a Certain Entity  
Cause in a Conceptual Model for Cataloging? An  
Expression-Entity Dominant Model Revisited**

*Shoichi Taniguchi*

#### NOTES ON OPERATIONS

**Full Stream Ahead: Designing a  
Collection Development Workflow for  
Streaming Video Content**

*Mary Wahl*



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ISSN 2159-9610

October 2017

Volume 61, No. 4

**Editorial** 178

**ALCTS Annual Report** 180

## FEATURES

**Evolving Roles of Preservation Professionals** 183  
Trends in Position Announcements from 2004 to 2015  
*Mary Miller and Martha Horan*

**Towards Sustainable Partnership** 198  
Examining Cross Perceptions of Public and Technical Services  
Academic Librarians  
*Cathy Weng and Erin Ackerman*

**What Does Giving Primacy to a Certain Entity Cause in a Conceptual Model for Cataloging?** 212  
An Expression-Entity Dominant Model Revisited  
*Shoichi Taniguchi*

## NOTES ON OPERATIONS

**Full Stream Ahead** 226  
Designing a Collection Development Workflow for Streaming  
Video Content  
*Mary Wahl*

**Book Reviews** 267

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Association for Library Collections & Technical Services (ALCTS)

For current news and reports on ALCTS activities, see the ALCTS News at <http://www.ala.org/alctsnews>.

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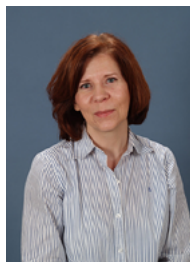
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# Editorial



I am excited to share news about a *LRTS* feature that will debut shortly after the 2017 ALA Annual Conference. *LRTS* has published literature reviews at various times. Their future was uncertain due to factors such as lack of funding to support research and page limits for the journal. However, ALCTS leadership and members are creative and innovative, and a solution was developed. The details are currently being resolved.

Literature reviews will be solicited for various technical services topics, including scholarly communications, preservation, and resource description. They will undergo double-blind peer review like any other *LRTS* submission; however, the difference is that they will be published as a supplement to the journal and will be completely open access. In addition, authors may deposit them in their institutional repositories. There are still many details that need to be resolved before the new feature becomes available. Information for authors on the *LRTS* website will be updated accordingly, and there will be periodic calls for submissions. I look forward to implementing this new feature, and thank ALCTS Executive Director Keri Cascio for making this excellent suggestion. Thanks also go to *LRTS* Editorial Board members for their input and suggestions regarding literature reviews and associated processes.

This is the last volume of *LRTS* for 2017. The year has passed quickly and it feels strange to already be planning volume 62, no. 1 (January 2018). In closing, I draw your attention to this issue's contents:

- In "Evolving Roles of Preservation Professionals: Trends in Position Announcements from 2004 to 2015," Mary Miller and Martha Horan explore how professional positions in preservation have evolved to meet the changing needs of academic and cultural institutions. Their research included collecting and analyzing position announcements for professional preservation positions in libraries and archives from 2004 through 2015, and they provide the details of their analysis.
- Cathy Weng and Erin Ackerman address the long-standing issue of perceptions of public and technical services librarians towards each other in "Towards Sustainable Partnership: Examining Cross Perceptions of Public and Technical Services Academic Librarians." Their paper both confirms and refutes some perceptions and offers suggestions for bridging the differences between these two areas of librarianship.
- The issue of which entity is given primacy in a conceptual model for cataloging is important to metadata interoperability. In his paper "What Does Giving Primacy to a Certain Entity Cause in a Conceptual Model for Cataloging?: An Expression-Entity Dominant Model Revisited," Shoichi Tani-guchi discusses the implications and consequences of giving primacy to different entities among models.
- The demand for academic libraries to collect and maintain streaming video continues to increase. There are numerous challenges associated with collecting and maintaining these resources. Mary Wahl details how her library examined streaming video activity and developed a workflow for incoming requests in "Full Stream Ahead: Designing a Collection Development Workflow for Streaming Video Content."

- This issue includes book reviews courtesy of *LRTS* Book Review Editor Elyssa Gould, which I hope you enjoy.

Happy reading!

# Association for Library Collections and Technical Services Annual Report 2016–17

Vicki Sipe, ALCTS President 2016–17

For sixty years, the Association for Library Collections and Technical Services (ALCTS) has provided opportunities in education, discussion, publishing, and collaboration to the library community. A division of the American Library Association (ALA), ALCTS is the premier organization for professionals in acquisitions, collection management, cataloging and metadata, continuing resources, and preservation. Our engaged members lead the way in developing standards and best practices for creating, identifying, selecting, acquiring, organizing, managing, and preserving recorded knowledge in all formats. This annual report summarizes our activities for the 2016–17 year.

## 60th Anniversary of ALCTS

Celebrating a diamond anniversary is a big job, and two groups were charged with creating a variety of events to mark the special occasion. The 60th Anniversary Steering Group, under the leadership of Dina Giambi, provided several events throughout the year. A forum at Midwinter brought together a panel of ALCTS leaders sharing personal histories and organizational achievements. It celebrated lifelong friendships rooted in ALCTS, outreach to welcome new members, and giving back to the profession through our many ALCTS programs. An e-Forum held in mid-June asked members to consider the impact of ALCTS on careers and personal lives. The Steering Group also coordinated a \$60 for 60 fundraising campaign with every donor recognized as a Diamond Donor. The campaign exceeded all expectations, raising over \$15,000 by April 2017. A friendly competition among the ALCTS sections over which would have the highest percentage of participation concluded with recognition of the winning section at the ALCTS Awards Ceremony during ALA Annual in Chicago. It is noteworthy that the ALCTS Board led the way with 100 percent participation in this personal giving campaign.

The Exchange Working Group, led by Karla Strieb, concentrated on a singular event held over several days. The entirely online event took place over four days in four-hour sessions of live streaming presentations and activities. A website for the event includes readings, drop-in chat spaces, virtual posters, and recordings of the live stream activities. It will remain available to registrants of the event for a year. Over 300 user accounts were created to access materials. Feedback from presenters and participants has been enthusiastic, with some offering to

assist ALCTS with future program planning, and others expressing interest in presenting at future ALCTS events. Many complimented the breadth of the topics touched upon during the four days. This time and labor intensive experiment in programming has created recognition and credibility for ALCTS among new networks of colleagues and around a broad range of topics.

Though not specifically focused on the anniversary, it is appropriate that the ALCTS Mentoring Program began in this diamond anniversary year. We have a long history of informal mentoring within ALCTS, and organized programs through the Cataloging and Metadata Management Section (CaMMS) Recruitment and Mentoring Committee. This new program intends to augment our existing networks. The ALCTS Mentoring Subcommittee, under Regina Gong's leadership, has worked tirelessly for over a year to bring the program to fruition. In what we hope will become an annual event, the first cohort of ALCTS mentors and mentees began their partnerships on June 1.

### Financial Sustainability

Over the past several years, ALCTS has very strategically reduced expenses with the goal of a balanced budget. These efforts, coupled with some modest gains in revenue, led to a fiscal year 2016 (2015–16) with a deficit of only \$2,850. After several years of five-figure deficits, this was welcoming news. In this current fiscal year (2016–17), ALCTS appears to be headed toward a similar or perhaps even smaller deficit. Expenses have been reduced in publications, in part by relying on the skills of staff for copyediting, and placing a page limit on each issue of *Library Resources & Technical Services (LRTS)*. Several ALCTS monographs are being published by ALA Editions, saving ALCTS the upfront costs of production in exchange for receiving future royalties.

In an attempt to realize reliable revenue from advertising, ALCTS entered into a contract with a firm to sell advertising for *LRTS*. The firm has been used with success by other ALA divisions, and proved a good value for ALCTS. The ALCTS Continuing Education Committee offerings have blown the doors off all projections this past fiscal year. With a couple of webinar series, the committee has done an excellent job of identifying issues of the moment presented by recognized practitioners. Web courses continue to sell out, even with the addition of more sessions, and an increase in class size for some sessions. A new Fundamentals web course has been developed and will be offered in the near future. The ALCTS Monographs Editorial Board is working on a new series, *Sudden Positions*, geared toward the person taking on a new role in technical services. Fundraising has been extremely successful this year, particularly with the addition of personal giving around the anniversary. Events

such as the Midwinter Symposium, pre-conferences, and the ALCTS Exchange have all generated revenue, providing additional financial stability for the organization.

Reductions in expenses, coupled with revenue increases in some areas, have improved ALCTS's financial situation. However, declines in membership numbers, subscriptions, and book sales have taken a toll over several years, and long-term financial health is not yet restored. Creativity in programming, continuing education offerings, fundraising, and additional revenue generation will be needed.

### Equity, Diversity, Inclusion

Perhaps in response to our turbulent times, we have felt the need to become more explicit and deliberate around the principles of equity, diversity, and inclusion both at the ALA level and within ALCTS. Among the activities sponsored by ALCTS, the 2017 Midwinter Symposium, organized under the leadership of Charles Wilt, took as its theme "Equity, Diversity, and Inclusion: Creating a New Future for Library Collections." Courtney Young opened the day, with Mark Puentes closing. We waived registration fees for ALA Spectrum Scholars, and twelve chose to attend. Especially given the theme of the symposium, we wanted to support this important program focused on building diversity within our profession. We hope to establish the practice of free or subsidized registration to Spectrum Scholars for a variety of ALCTS programs.

Three of the speakers from the Midwinter Symposium moderated an ensuing e-Forum on equity, diversity, and inclusion in library technical services. Emily Drabinski, Paolo P. Gujilde, and Harrison W. Inefuku led a discussion that asked why equity, diversity, and inclusion are important and how librarians are integrating these values into technical services work.

In a lead-up to Annual, ALCTS held the virtual pre-conference "Diverse, Inclusive, and Equitable Metadata." Presentations highlighted how these values can inform the creation of metadata for institutional repositories, digital collections, and zines. Spectrum Scholars have been offered free registration for this online event, and many have indicated interest in attending.

At Annual 2017, ALCTS partnered with the Public Library Association (PLA) and the American Indian Library Association (AILA) to sponsor the program "Diversity, Inclusion and Social Justice in Technical Services." Also at Annual, we invited the Library Leadership and Management Association (LLAMA) to partner with us for a joint ALCTS/LLAMA Presidents' Program. Chicago's own Dorri McWhorter, CEO of the YWCA Metropolitan Chicago, was the program speaker, and her presentation centered on how we create social impact and a world where everyone has value. In addition to

these events and activities, ALCTS sections have sponsored a variety of activities, including a Facebook Live event for Preservation Week, that have focused on these themes.

To make our commitment to these principles clear, the ALCTS Board discussed a draft equity, diversity, and inclusion statement at its Midwinter meetings. Jacquie Samples and Chelcie Rowell volunteered to draft a more comprehensive statement, and the Board voted on this statement at our Annual meeting. When adopted, it will stand alongside the ALCTS Mission Statement.

## ALCTS as a Vibrant, Relevant Organization

We have developed a strong culture of evaluation and assessment of programs and services within ALCTS with the goal of maintaining a vibrant, relevant organization. In a five-year cycle, every division committee, section, and interest group undergoes an evaluation for renewal by the Organization & Bylaws Committee. Additionally, ALCTS leadership submits reports on activities throughout the year. Since the adoption of the current Strategic Plan, which covers 2015-2018, the Planning Committee and the Board have worked together to make the reporting process a tool for fostering strategic thinking and evaluating current strategies. A template for the reports developed by the Planning Committee, asks ALCTS leadership to relate the activities of their group directly to the goals of the Strategic Plan. The Planning Committee compiles the reports, creating a critical tool used by the Board to assess progress on the goals.

For this year's report at Annual, the Planning Committee was asked to expand their analysis to include those areas of the Strategic Plan that have not been addressed by activities in the organization. This report should serve as a starting point for updating the current Strategic Plan, a process that will culminate with Annual in 2018.

The Leadership Development Committee, under Jennifer Bowen's guidance, generated a report that identifies gaps in professional development opportunities within ALCTS. The Board discussed this report at the 2017 Annual Conference. The information and recommendations it contains highlight potential opportunities for ALCTS to fill the gaps. It also suggests collaborations within ALCTS and with other ALA divisions.

CaMMS brought the Core Competencies for Cataloging and Metadata Librarians document to the Board for discussion at the 2017 Midwinter Meeting, and it was approved. The document was drafted by the Cataloging Competencies

Task Force of the ALCTS CaMMS Competencies and Education for a Career in Cataloging Interest Group and supplements the ALA Core Competences of Librarianship. Based on a literature review and a survey of advertisements for professional catalogers, it highlights three core competency areas and acknowledges a responsibility for advancing diversity issues within the broader information community.

The joint ALCTS/Library Information Technology Association (LITA) Metadata Standards Committee developed Principles for Evaluating Metadata Standards. The principles are intended to inform and support the development, maintenance, selection, and assessment of metadata standards. They include the guidance that metadata standards should be inclusive and transparent about historical and cultural biases.

We announced the creation of the CaMMS Lois Mai Chan Professional Development Grant this spring to a well-received response from the library community. This grant will provide librarians and paraprofessionals from under-represented groups new to the metadata field with the opportunity to attend a professional conference and encourages professional development through active participation at the national level. CaMMS will appoint a grant jury in spring 2017, and the first grant will be awarded in 2018.

## Enough Said . . . Almost

In looking back at the accomplishments and direction of ALCTS during this past year, it is easy to lose sight of the fact that volunteer members and a handful of exceptionally talented and extremely dedicated staff made all of these things (and so much more) possible. The ALCTS staff consists of Keri Cascio (Executive Director), Julie Reese (Continuing Education & Meetings Manager) and Brooke Morris (Communications Specialist), each of whom deserves more thanks than we can ever give them. My heartfelt thanks go out to my fellow Executive Committee members who provided wise counsel and helpful levity throughout the year—Mary Beth Thomson (President-Elect), Norm Medeiros (Past-President) Andy Hart (Division Councilor) and Keri Cascio. Most especially, thank you to the members and ALCTS for your patience and support as I attempted to do my part in assuring a bright future for our organization.

I am grateful for the opportunity to have served as president of ALCTS, and humbled by the knowledge, skills, and commitment of those with whom I have served.



# Evolving Roles of Preservation Professionals

## Trends in Position Announcements from 2004 to 2015

Mary Miller and Martha Horan

*As research libraries continue to expand the scope of content they acquire, manage, and make accessible, the preservation charge within organizations is broadening. Libraries and other cultural heritage institutions must balance the preservation of books, manuscripts, archives, and audiovisual materials with born-digital and digitized content. As preservation challenges and strategies evolve, professional positions in preservation must also evolve to meet the needs of academic and other cultural institutions. The ability to quantify how preservation positions are changing, and to identify the required skill sets and educational backgrounds needed for preservation professionals, is central to navigating this shift. To begin to address this, the authors collected and analyzed announcements for professional preservation positions in libraries and archives from 2004 through 2015. They compared the contents of announcements between earlier and more recent years to identify potential trends in preservation employment.*

**I**n the 1989 paper, “Evolution of Preservation Librarianship as Reflected in Job Descriptions from 1975 through 1987,” Cloonan and Norcott analyzed the contents of position announcements to trace the early growth of the preservation profession.<sup>1</sup> During the time period that they studied, key developments took place in the field that necessitated the study of preservation employment. First, the School of Library Service at Columbia University established degree programs for conservators and preservation administrators. Second, the Association for Research Libraries (ARL) Preservation Statistics Survey documented increased grant funding and expenditures for preservation in libraries.<sup>2</sup>

In the years since, innumerable changes have taken place, both in the field of preservation and in libraries. In 2009, ARL discontinued its Preservation Statistics program. That same year, the University of Texas at Austin ended its conservation and preservation administration certificate programs, a program formerly hosted by Columbia University. These events signaled a time of transition, and perhaps reduction, for the profession. At the same time, one of the most significant changes for both preservation and libraries in the last few decades—the rise of digital technologies—has greatly expanded the scope and complexity of preserving content to support current and future research and scholarship. Libraries and other cultural heritage institutions now balance the preservation of books, manuscripts, archives, and audio-visual materials with born-digital and digitized content. Preservation

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activities extend far beyond the traditional center of activity, the preservation department, to information technology (IT), metadata departments, collection management, and beyond. Collaborative, large-scale models for preservation have emerged, such as the HathiTrust Digital Library and shared print repository programs, such as the Western Regional Storage Trust (WEST).

As preservation challenges and strategies evolve, professional positions in preservation—both traditional and digital—must also evolve to meet the needs of research institutions. It can be challenging to measure and characterize changes in preservation positions, particularly because a set of core competencies has not been defined for the profession. This study sets the framework for the future work of determining competencies for the field. The purpose of this study is to identify the changing roles of preservation professionals in libraries, including potential changes in position functions, and changes in the competencies and credentials that employers require for preservation positions. To accomplish this, the authors examined the content of job advertisements, or position announcements, for professional positions with significant preservation responsibilities from 2004 through 2015. Administrative and other generalized positions were included, plus specialized positions, such as those that focused on digital content or audiovisual media. In undertaking this analysis, the authors sought to answer the following questions:

1. How have the range and scope of preservation responsibilities changed over time, specifically from 2004 to 2015?
2. Which educational backgrounds, skill sets, and types of experience do employers most frequently require? Have these requirements changed over time?
3. Has the role of preservation administrator changed significantly in the last decade?
4. What potential “core” preservation knowledge and skills can be identified from studying position announcements?

## Literature Review

Although the field of preservation librarianship has evolved dramatically in the twenty-seven years since Cloonan and Norcott’s study, there have been no further studies on position postings and there is relatively little literature on the content of positions or employer requirements. Instead, authors have largely focused on characterizing and measuring preservation activities, programs, and expenditures through surveys, reports, and literature reviews.

In their study, Cloonan and Norcott examined the content of job advertisements and concluded that preservation

librarians possessed an MLS in most instances and functioned in a largely administrative role. Their findings also demonstrated a considerable variation in the perceived roles and functions of preservation professionals. They noted that, although there was an increase in the number of positions since the first preservation librarian position appeared in 1978, “there was little consensus as to what duties this position entailed,” and “there seems to be little consensus among library hiring committees about what qualifications preservation librarians should have.”<sup>3</sup> As the number of preservation programs in academic research libraries grew nationally, authors following Cloonan and Norcott sought to define the scope of such programs. In a 1991 report recommending program models, Merrill-Oldham, Morrow, and Roosa identified ten components of a comprehensive preservation program:

1. Preservation administration
2. Environmental control
3. Replacement and reformatting
4. Conservation
5. Mass deacidification
6. Commercial library binding
7. Shelf preparation
8. Stack maintenance and collections improvement
9. Emergency preparedness
10. Staff training and user awareness<sup>4</sup>

The report signaled both an expansion in the scope of preservation work in libraries, with new areas such as mass deacidification, and recognition that some existing library functions, such as shelf preparation, were closely linked to preservation efforts. Several authors equated the integration of preservation with other library activities as a sign of growth in the profession. In a 1993 literature review, Drewes described the field of preservation as a maturing profession “as evidenced by its broadening base.”<sup>5</sup> Merrill-Oldham, Morrow, and Roosa described the necessary integration of preservation work with other library functions as part of life-cycle management: “Preservation activities are being thoroughly integrated with all other library functions. Threats to the long-term survival of library material arise in every aspect of library operations . . . a sensitivity to preservation issues must be pervasive among library staff.”<sup>6</sup> Drewes noted that preservation staff must also nurture close relationships with staff in a variety of areas of the library, because of the “interrelatedness of many issues as they affect various formats.”<sup>7</sup> During this period, the roles of preservation administrators were also more clearly defined. Merrill-Oldham, Morrow, and Roosa asserted that this role encompassed: a) coordination of activities in balance with the library’s other major programs; b) advocacy with both libraries staff and constituents; c) recommending and enforcing policies; d)

development of operational components of a preservation department; e) representation in professional forums and participation in national affairs; and f) application of standards and up-to-date techniques.<sup>8</sup>

In the first decade of the twenty-first century, as libraries focused efforts on digitization and, increasingly, digital preservation, the literature focused, yet again, on the expanding scope of preservation activities in academic research libraries. In the introduction of a 2002 Council on Library and Information Resources (CLIR) report on the state of preservation programs in college and research libraries, Marcum noted the concern of preservation specialists facing the increasing complexity of preserving digitized and born-digital content, and stated that preservation librarians could not successfully “meet the challenges ahead without assistance from all parts of the library organization.”<sup>9</sup> In a 2006 ARL report on the evolution and expansion of preservation activities, Meyer asserted that preservation could not be considered the purview of a single department, and emphasized both intra- and extra-institutional collaborative approaches in providing preservation functions, such as partnerships with campus IT centers, plus third-party solutions, such as the Stanford Libraries-based LOCKSS program and Portico, Ithaka’s digital preservation service.<sup>10</sup>

During this same period, individuals and organizations began characterizing the work associated with digital preservation, and the relationship between stewardship of physical and digital content. In 2007, the Preservation and Reformatting Section (PARS) of the Association for Library Collections and Technical Services (ALCTS) drafted short, medium, and long definitions of digital preservation. The medium-length definition states, “Digital preservation combines policies, strategies and actions to ensure access to reformatted and born digital content regardless of the challenges of media failure and technological change. The goal of digital preservation is the accurate rendering of authenticated content over time.”<sup>11</sup> In *Digital Preservation for Libraries, Archives, and Museums*, Corrado and Moulaison divided the human resources required for digital preservation into three broad categories: technical (systems), metadata (cataloging), and collection specialists, noting that sufficient administrative structure and support was also required.<sup>12</sup> Some definitions of digital preservation highlighted similarities, at both philosophical and practical levels, between preservation of physical and digital formats. Meyers noted that, while the term “digital preservation” was frequently used to describe activities such as harvesting web content, the same administrative components required—resource management, storage considerations, development of policies, and implementation of appropriate preservation techniques—applied to both books and bytes.<sup>13</sup>

Reflecting on the development of the first digital preservation position at the University of Michigan, Zachary

also noted the similarities between traditional and digital preservation positions:

This position was highly important for each operation and each collection, but it was bigger than any of them: it needed to reach across all digital collections. In this moment, digital preservation started sounding a lot like preservation...The work is fundamentally administrative and managerial, but with a strong technical component. It bridges across all collections in the library, although different strategies might be applied to different groups of material depending on their nature, use, value, and desired longevity. Much of the effort is developing overarching policies and finding technical solutions that can make preservation happen.<sup>14</sup>

In recent years, efforts have been made to describe the specific areas of responsibility for digital preservation professionals. In 2012, the National Digital Stewardship Alliance (NDSA) Standards and Practices Working Group surveyed eighty-five academic institutions to learn how digital preservation functions were staffed and organized, plus what qualifications they desired for new digital preservation managers.<sup>15</sup> Survey results indicated that passion and motivation for digital preservation and knowledge of digital preservation standards, best practices, and tools were the most sought-after qualifications. The survey findings highlighted the complexity of digital preservation and its multifaceted nature. It also confirmed the variety of responsibilities desired by employers; when asked which activities were in scope for digital preservation positions, everything on the list was in scope for over half of the respondents, with the exception of emulation:

- Selection for preservation
- Digitization
- Metadata creation/extraction
- Descriptive cataloging
- Transformation/migration of formats
- Creation of access copies
- Normalization of files
- Fixity checks
- File format identification
- File format validation
- Emulation
- Content replication
- Secure storage management
- Technology watch
- Development and maintenance of tools
- Preservation planning
- Development of preservation policies and strategy
- Development of guidelines for content creators

- Research
- Preservation education, training, and outreach<sup>16</sup>

Recent literature also suggests trends for the future work of preservation professionals. Peterson, Robertson, and Szydlowski offered evidence that expenditures for some traditional preservation activities have decreased significantly.<sup>17</sup> They reported on findings from fiscal years 2012 to 2014 for the American Library Association (ALA) Preservation Statistics Survey, a national survey on the preservation activities of cultural heritage institutions introduced in response to the discontinuation of the ARL Preservation Statistics program. When they compared the results of the 2013 statistics with similar categories of the 2008 ARL statistics, they found that commercial binding expenditures dropped 45 percent, and expenditures for conservation treatment of bound volumes (including both circulating and special collections materials) was down by 76 percent, even when comparing only institutions that completed both the 2008 and 2013 surveys. The decrease was driven by Level 1 treatments (those which require fewer than fifteen minutes of staff time). The reduction of these activities, typically performed by paraprofessional staff, suggests a reduction in nonprofessional staffing for preservation. The survey also highlighted gaps in preservation programs; in particular, that programs continue to focus on text-based materials, with relatively little emphasis on digitization and conservation of media formats, despite the urgency of degradation of magnetic tape media.

In their 2012 review of preservation literature, Gracy and Kahn predicted that, as libraries become collaborative spaces, making more room for users and shifting print collections off-site, “preservation professionals will engage less in custodial activities and more in the work of making long-lasting, accessible digital products through the processes of digitization and digital curation.”<sup>18</sup> In his paper, “Preservation in the Age of Google,” Conway suggested a future where, following the digitization of millions of volumes, preservation work should focus on protecting physical collections through quality environments, building collaborative digital preservation partnerships, and rescuing audiovisual resources. As he noted in his conclusion, the future of preservation is where it has always been—transforming cultural heritage into usable new forms and extending its useful life.<sup>19</sup>

### Position Announcement Studies in Library and Information Studies (LIS)

Although there are no other recent studies of job announcements in preservation, researchers have conducted numerous similar studies in related LIS areas, notably in academic

librarianship. These studies were both instructive in the development of a methodology for this study, and provide insights into general trends in LIS employment in recent years. Because most preservation professionals work in academic environments, studies that consider a single position type or broader trends within academic librarianship may help to put special collections librarianship in context. In a 2011 Australian study, Wise, Henninger, and Kennan reviewed job advertisements and found that, in general, there was a “move to the generic,” or a demand for information professionals to have a broader range of skills and be adaptable, with higher demands for records management skills, business content management skills, web management and management of information systems.<sup>20</sup> Choi and Rasmussen verified that staffing needs and required qualifications have shifted toward a focus on digital collections, services, and technology applications in academic libraries in their study on job advertisements for digital library positions.<sup>21</sup> Bajjaly’s 2005 survey of hiring managers in academic libraries found that personal qualities, along with less specialized qualifications, were most valued in the final consideration of a candidate.<sup>22</sup> White’s study of subject specialist librarians in 1998 found generalized qualifications such as communications skills to be the most commonly cited. Han and Hswe’s survey of cataloging and metadata librarian job descriptions, posted over a nine-year period, showed that the most important qualifications were flexibility in work and the ability and willingness to learn new skills.<sup>23</sup>

A number of studies also considered employment prospects for new graduates, or examined the relationship between graduate education and employment. Beile and Adams’s 2000 study found that less than 20 percent of positions in academic libraries were suitable for new graduates.<sup>24</sup> Hansen’s 2011 study on special collections positions available for recent LIS graduates suggested a possible gap between the expected duties and qualifications that hiring institutions look for in an entry-level candidate, management and administration, suggesting that employers are willing to allow applicants to develop the necessary skills and competencies on the job.<sup>25</sup> Other studies compare LIS curriculums with job advertisements. In 2015, Maceli compared North American ALA-accredited LIS program curricula with jobs listed on Code4Lib, a popular discussion list that covers LIS-related job listings, to understand what technology topics dominate current course offerings, and what technology skills employers are seeking in technology-related job listings.<sup>26</sup> Cragin and her colleagues examined data curation job postings to investigate the educational background and skills needed for data curation, and to characterize the data curation employment landscape.<sup>27</sup>

Numerous papers also compare job advertisement content with the standards for proficiencies and core

competencies within a given field. Gold and Grotti investigated the extent to which the skills and proficiencies mentioned in the Association for College and Research Libraries (ACRL) Standards for Proficiencies for Instruction Librarians and Coordinators are represented in job advertisements.<sup>28</sup> In a 2008 IMLS-funded survey of digital curation professionals, Tibbo, Hank, and Lee studied digital job advertisements to identify primary competencies for digital curation professionals.<sup>29</sup> Kim, Warga, and Moen expanded upon their work in 2013.<sup>30</sup> While these papers vary widely in subject and scope, the authors almost unanimously acknowledge their limitations—studies such as these can provide insights into the past and future of the LIS profession, but are only one piece of the puzzle.

## Methodology and Data Collection

To glean data from preservation job advertisements from 2004 through 2015, the authors read each advertisement, manually collected qualitative and quantitative data from them, and recorded it in a Google Documents spreadsheet. Because relatively few preservation positions are posted each year, the authors collected position listings from a twelve-year period to gather a significant amount of data. A total of 106 job advertisements were included in the study.

Job advertisements were initially collected from the ALA Preservation Administrators Interest Group (PAIG) electronic discussion list archives. The PAIG list archives were selected because of the group's relevance to the library preservation community, and since the list serves as a primary venue for communication with and among preservation professionals. Later, job advertisements were collected from the ALA Digital Preservation discussion list's archives, the Code4Lib website job board, and the Digital Library Federation (DLF) website job board. Code4Lib and DLF were selected because they represent significant communication channels for digital library and digital preservation professionals in the cultural heritage sector. The *Chronicle of Higher Education* and Higher Ed Jobs websites were also searched for job advertisements with the term *preservation* from 2004 through 2015.

In some instances, employers posted an abbreviated position description and referred the reader to a web page, which did not persist beyond the position's posting period. In these instances, the authors contacted the institutions and requested the full description. When a more complete description was received, it was included; if the description was too brief to provide essential job functions, it was omitted from the study. Re-postings of the same job advertisement were eliminated from the study, but iterations of a position that were posted multiple times over the twelve-year period were included. When two versions of a

job posting were found, the most complete one was used. Authors saved all job postings gathered online in PDF format, so that they had access to original job listings throughout the research study.

## Selection Criteria

The study's scope was limited to positions that met two basic criteria. First, the position must be primarily comprised of preservation-related responsibilities, as described in the literature review. Conservation positions were not included, unless there was a significant preservation administration component present. While conservation and preservation are closely related, *preservation* emphasizes collection-level strategies for protecting cultural heritage, whereas *conservation* focuses on treatment of individual items.<sup>31</sup> Second, the position must require a master's degree. Initially, the scope of the study was limited to positions that required a Master of Library Science (MLS) or Master of Information Science (MIS) degree. After an initial review of job advertisements, the authors found that many employers required an MLS/MIS or an equivalent degree, and they determined that limiting the study to positions that require an MLS/MIS would eliminate many otherwise pertinent positions.

With the exception of these criteria, advertisements were collected to reflect the majority of professional preservation positions available in libraries in the US in the last twelve years. These included generalized, administrative positions, and positions that were more specialized and focused on preservation of a particular format (such as audiovisual media or born-digital content) or a specific method of preservation (such as digitization). Job advertisements were collected from a variety of institutions, including private and public academic libraries.

## Data Processing and Coding

A system was developed to analyze job advertisement content by coding individual elements in a Google spreadsheet. The elements were identified in a pilot, in which the authors reviewed a sample of advertisements that spanned the period of the study. The descriptions were examined independently by both authors, who compared assessments and developed a common understanding of specific position characteristics, functions, and qualifications. The authors captured the following types of data from position announcements:

- Position title
- Year position posted
- Institution type and ARL membership
- Position status (whether the position was permanent, full-time, tenure-track, new, or combined with other, non-preservation duties)

- Salary
- Job duties/responsibilities
- Required education, experience, skills, and knowledge
- Preferred education, experience, skills, and knowledge

Position responsibilities and required and preferred qualifications were further categorized. Each category was coded “1” for information present, and “2” for information not present. Institution type, degree required, and salary information were coded into categories. Notable text, particularly regarding position responsibilities and qualifications, was also recorded. With the exception of ARL membership status, only data that was available in the position description was included in the study.

### Study Limitations

Although the collected data provide some indication of trends, it is also too incomplete to provide definite conclusions. The position descriptions collected for this study cannot be considered a full set of data for several reasons. Preservation positions may be advertised via many sources, or, in cases where positions are filled within the institution, they may not be advertised. When positions were listed on a website, expired listings may be unavailable. There are other inherent limitations to a study of position descriptions; some duties may not be explicitly mentioned in the announcement but are implicit; for example, *program planning and oversight* may have been listed, but not *budget oversight*, although the two are interrelated. The data analysis is largely qualitative, and therefore, subjective. Due to the small sample size, true statistical analysis was not possible, so trends are identified rather than measured. Additionally, job postings reflect the ideal candidate, and candidates who possess all the qualifications listed may not exist. Finally, there is variability in both the terms and the level of specificity used to describe positions; this is especially true for emerging areas like digital preservation.

### Findings and Analysis

To identify potential trends, the authors analyzed data over the twelve-year period and compared data collected from earlier position listings (2004–2010) with that of more recent listings (2011–2015). The year 2011 was identified as significant because it was when the first position comprised entirely of digital preservation responsibilities appeared among the collected listings. It also marked the beginning



Figure 1. Distribution of Professional Preservation Position Listings by Year, 2004–15

of a general decrease in the number of positions with no digital component.

### Demographic Data

A total of 106 position listings were analyzed. The number of listings collected for a single year ranged from four positions in 2011 to sixteen positions in 2005 (see figure 1). While the number of collected positions fluctuated from year to year, the data suggests a slight decline from 2008 through 2011. Over the course of the twelve-year period, the top employers of preservation professionals were public academic research libraries (36 percent), private academic research libraries (29 percent), state and federal libraries and archives (14 percent), and non-profit preservation organizations (12 percent). Out of the total 106 position postings, 57 percent were from ARL institutions. Among job listings from institutions eligible for ARL membership (private and public academic research libraries, public, special, and state or federal libraries), 89 percent were ARL libraries. The number of ARL and non-ARL positions that were collected fluctuated proportionally over individual years.

Of the total number of listings, 85 percent of the positions were permanent. The majority of the term, or temporary, positions were from public and private academic research institutions. A total of 9 percent of listings indicated that the position was new; 69 percent did not indicate whether the positions were new or established. The vast majority of positions were full-time (97 percent). Among positions at academic research institutions, 17 percent of listings indicated that the positions were tenure-track or equivalent, 46 percent indicated that they were not tenure-track, and 36 percent did not specify. During the twelve-year period, no trends were observed in the number of term, full-time, new, and tenure-track positions available.



While salary data was collected for the study where it was present, 74 percent of position listings did not include minimum salary information, and 80 percent did not include maximum salary information. Because little salary data was collected for individual years, the authors were unable to analyze trends in salary for preservation positions.

## Position Responsibilities

The duties and responsibilities sections of position listings were reviewed and coded into twenty-five types of responsibilities falling into four major categories: planning and administration, care and treatment of physical collections, digitization, and digital preservation. Each category is explained further below.

### Planning and Administration

For the purposes of the study, the planning and administration duties included responsibilities in six areas: preservation planning, assessment, and prioritizing; development of policies, standards, and best practices; budget administration; education, outreach, and training; grants and donor relations; and professional involvement. These categories align closely with Merrill-Oldham, Morrow, and Roosa's characterization of administrative duties.<sup>32</sup> If one component of a category was present (such as "planning" from preservation planning, assessment, and prioritizing) the listing was recorded as having that responsibility. While it was assumed that planning and administration responsibilities cover a range of collection formats and content types, some administrative responsibilities pertaining to digital preservation were assessed separately and are discussed under "digital preservation"; these included preservation planning, assessment, and prioritizing, policy development, establishing standards and best practices, and budget administration.

Preservation planning, assessment, and prioritizing was present in 85 percent of positions from 2004 to 2010, and 60 percent of positions from 2011 to 2015 (see figure 2). From 2004 to 2010, 89 percent of listings included a planning, assessment, or prioritization component for either physical or digital collections, and 22 percent mentioned both. This ratio continued in more recent years; from 2011 to 2015, 88 percent of listings included a planning, assessment, or prioritization component for either physical or digital collections, and 24 percent mentioned both.

Development of policies, standards, and best practices was present in 55 percent of position listings from 2004 to 2010, and 54 percent of positions from 2011 to 2015. When position listings from preservation organizations are omitted from the total, the percentage increased only slightly to 60 percent from 2004 to 2010, and 59 percent from 2011 to 2015. Preservation organizations may recommend policies,

best practices, and standards to organizations in a consulting capacity, but lack the authority to establish them. From 2004 to 2010, 64 percent of listings included a policy development component for either physical or digital collections, and 14 percent mentioned both. This increased moderately in recent years; from 2011 to 2015, 76 percent of listings included policy development for either physical or digital collections, and 24 percent mentioned both.

Budget administration was present in 28 percent of all job listings from 2004 to 2010, and 18 percent of position listings from 2011 to 2015. Looking across all types of preservation positions (including positions that were specifically digital preservation), no digital positions mentioned budget administration from 2004 to 2010, and 23 percent mentioned some budget administration component from 2011 to 2015.

Education, outreach, or training was present in 56 percent of position listings from 2004 to 2010, and 42 percent from 2011 to 2015. The authors hypothesized that these percentages might decrease if listings from preservation organizations were removed from the analysis since almost all positions in this category included a significant education component. Rather, they found that when preservation organizations were excluded, the numbers dropped proportionally to 50 percent and 39 percent over the two date ranges.

Professional involvement, including representing the institution at conferences and scholarly contributions to the profession, was present in 54 percent of all job advertisements from 2004 to 2010, and 38 percent from 2011 to 2015. Grants and donor relations was present in 39 percent of all job advertisements from 2004 to 2010, and 22 percent from 2011 to 2015. The majority of listings specified grant writing as a position responsibility. Among the thirteen listings that included only digital preservation responsibilities, 13 percent included education, outreach, and training, 20 percent included professional involvement, and none listed grants and donor relations.

### Care and Treatment of Physical Collections

The authors identified nine position responsibilities pertaining to care and treatment of physical collections, including print and photographic collections, microforms, and audiovisual media. Categories included: conservation, circulating book repair program, binding and shelf preparation, enclosures and rehousing, vendor relations, environmental monitoring, security, emergency planning and response, and exhibition preparation (see figure 3). The term "conservation" was used broadly in position announcements, in some instances to indicate specialized treatment, and in others to indicate more generalized collections care. If a position announcement specified repair, repair was coded. If the position listing specified collections care conservation,

conservation was coded. In some cases, the institution posting the position did not specify special collections conservation, and it was not always clear whether conservation referred to special or circulating collections treatment.

In each of these nine areas, the presence of these responsibilities decreased from the period of 2004 to 2010 to the period of 2011 to 2015. The most dramatic decreases were in binding and shelf preparation (46 percent to 14 percent), circulating book repair treatment (41 percent to 11 percent), and emergency planning and response (from 69 percent to 31 percent). Other categories decreased to a lesser extent: position listings with conservation decreased from 43 percent to 33 percent; environmental monitoring decreased from 34 percent to 27 percent; vendor relations (not necessarily specific to physical or digital collections) decreased from 33 percent to 20 percent. The authors did not separate conservation responsibilities by format (e.g. book and paper, photographic, objects), but the vast majority of references to conservation focused on paper-based materials. Peterson, Robertson, and Szydlowski also highlighted this in their survey, where they found that bound volumes and unbound documents made up 89.8 percent of items that received conservation treatment.<sup>33</sup> Over the twelve-year period, the percent of position listings with responsibilities related to physical collections only (meaning they included no digitization or digital preservation duties), decreased gradually (see figure 4).

### Digitization and Reformatting

The authors examined digitization and other reformatting duties with respect to both general programmatic oversight and format-specific responsibilities, including books and paper, media, and microforms (see figure 5). When the position listing did not cite specific formats to be digitized, only digitization oversight was coded. From 2004 to 2010, 54 percent of positions included some type of digitization responsibility, which decreased to 42 percent from 2011 to 2015. “Digitization oversight” was the most common responsibility listed and dropped from 38 percent to 33 percent; “book and paper digitization” decreased from 34 percent to 11 percent, audiovisual media digitization decreased from 18 percent to 11 percent,

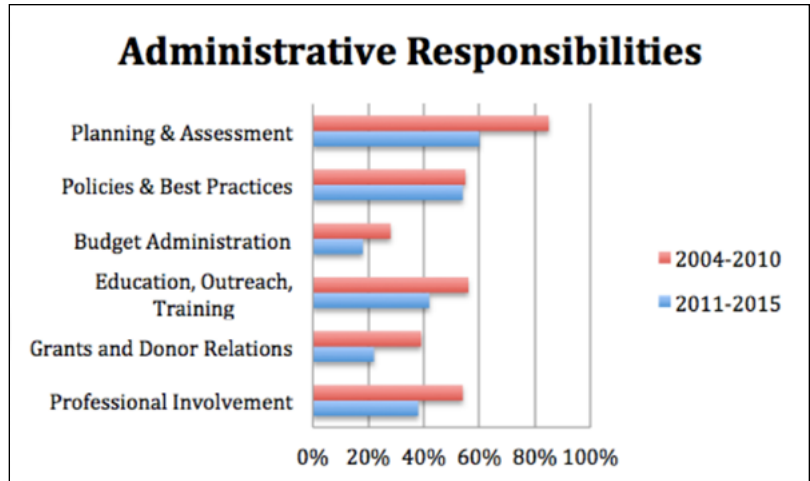


Figure 2. Percentage of Administrative and Outreach Responsibilities Present in Position Listings, 2004–10 and 2011–15

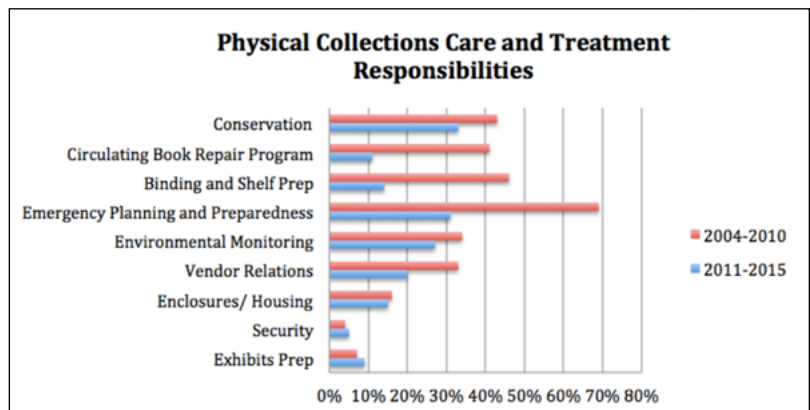


Figure 3. Percentage of Physical Collections Care and Treatment Responsibilities Present in Position Listings, 2004–10 and 2011–15

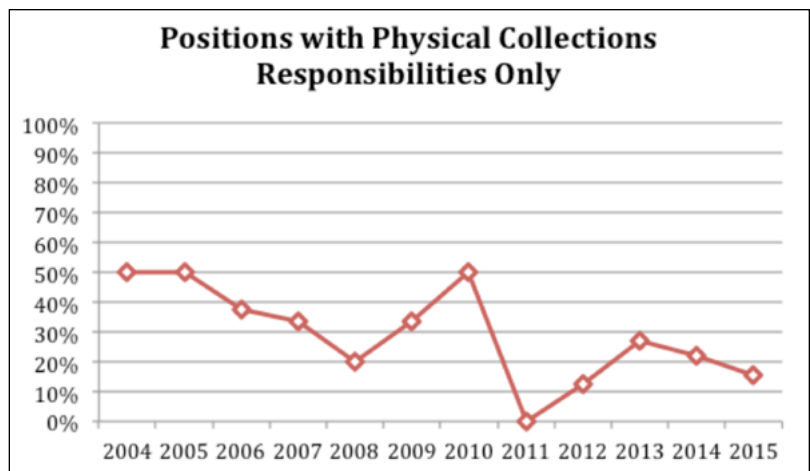
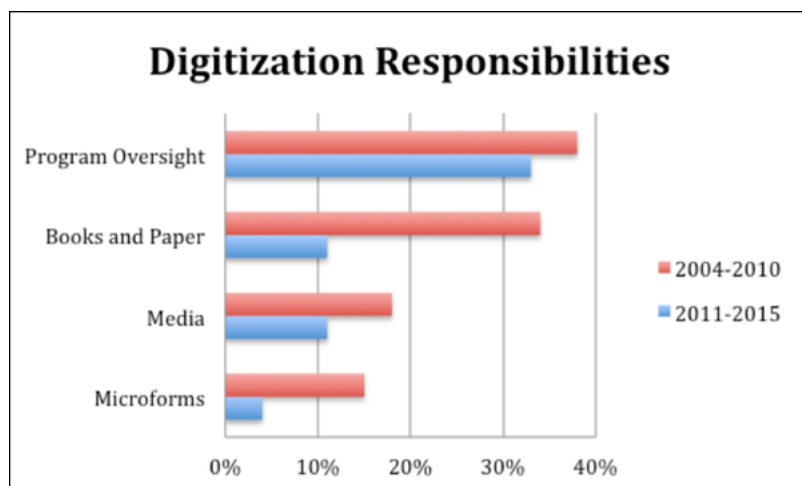


Figure 3. Percentage of Position Listings with No Digitization or Digital Preservation Responsibilities By Year, 2004–15



**Figure 5.** Percentage of Digitization Responsibilities Present in Position Listings, 2004–10 and 2011–15

and microfilm digitization dropped from 15 percent to 4 percent.

### Digital Preservation

Identifying categories for digital preservation duties proved challenging. First, the earlier position announcements tended to be less specific, often describing digital preservation responsibilities in general administrative terms, such as “develop, document, and implement a digital preservation program.” This could indicate a lack of technical expertise or understanding by administrators, or a desire to provide digital preservation staff with flexibility to define the responsibilities of a new position or department as deemed appropriate. A second related issue is the complexity of digital preservation and considerable number of responsibilities and variety of skills needed to address digital preservation issues. This was made evident by the substantial number of digital preservation responsibilities identified by library administrators in the survey conducted by Atkins et al.<sup>34</sup>

Following the pilot review of position listings, the authors initially identified the following responsibilities for coding: digital preservation planning, assessment, and prioritizing; development of policies, standards, and best practices for digitized and born-digital content; developing and maintaining external partnerships; collaboration with a diverse range of library staff (curators, IT, archivists, collection managers); disaster planning and response; and budget management (see figure 6). Planning, assessment, and prioritization was present in 26 percent of position postings from 2004 to 2010, and 51 percent from 2011 to 2015. Developing policies, standards and best practices for digitized and current digital holdings also increased dramatically from 11 percent to 49 percent. Developing

external partnerships such as the Stanford University Libraries-based LOCKSS Program and HathiTrust Digital Library increased from 3 percent to 18 percent, and collaboration with other libraries units increased from 13 percent to 44 percent of position listings. The scope of collaboration described in position listings ranged from the advisory (for example, “advises staff and digital content creators all phases of the life cycle of digital content”) to the technical (for example, “works with Archives, Knowledge Services, IT, and other experts to research, test, specify, and implement technology for a sustainable digital preservation repository system,” or “work closely with others to understand the complexities of technical and administrative metadata associated with digital objects”). Budget administration for digital preservation was not present in listings before 2011, and only 4 percent of listings from 2011 to 2015. The absence of budget responsibilities from position listings may be attributed to the fact that, at least initially, new digital preservation programs may lack an established budget line. Another possibility is that budget responsibilities are implicit where other administrative responsibilities (such as planning) are listed. Collections emergency response for digital preservation was similarly represented, with no mention in listings prior to 2011, only 7 percent of listings from 2011 to 2015. This may be because emergency planning and recovery activities are under the purview of campus information technology departments, or it may indicate a significant gap in emergency preparedness efforts in libraries.

While coding position listings, the authors also recorded notable text. The following job responsibilities were identified in at least 4 percent of positions from 2011 to 2015; metadata policy and creation workflows, digital repository development oversight, and digital preservation program oversight.

Digital preservation responsibilities were first included in position listings in 2005, and, as previously noted, the first position listing comprised entirely of digital preservation duties occurred in 2011. From 2011 to 2015, 29 percent of position listings included exclusively digital preservation duties. From 2004 to 2010, 31 percent of listings included some digital preservation duties, compared with 64 percent from 2011 to 2015.

### Qualifications Summary

The authors reviewed and coded required and preferred qualifications, including degree, years of general and supervisory experience, knowledge, and expertise and skills. As

with position responsibilities, trends in qualifications were assessed by comparing the time periods 2004 to 2010 and 2011 to 2015. Qualifications that could be applied broadly to professional positions, such as “problem solving skills” or “ability to work in a collaborative environment,” were not analyzed. When a job listing included qualifications but did not specify between preferred and required, the qualifications were categorized as required.

### Degree

As noted in the Methodology section, position listings were limited to those that required a master’s degree. The vast majority of listings stated that a Master of Library Science (MLS) or Master of Information Science (MIS) degree was required, or offered the option of an MLS/MIS *or* another degree (see figure 7). From 2004 to 2010, 52 percent of position listings stated an MLS/MIS was required, compared with 40 percent from 2011 to 2015. Sixteen percent of listings from 2004 to 2010 stated that an MLS/MIS “or equivalent” was required, which increased to 27 percent from 2011 to 2015. The increased use of “equivalent” is perhaps an acknowledgement that no one degree can cover all of the skills and knowledge needed for the position, while allowing employers to attract and hire candidates from a broader range of disciplines.

Some listings specified an alternative degree to an MLS/MIS. The most commonly listed alternative was a graduate degree in Conservation, which appeared in 13 percent of all job listings from 2004 to 2010, and 2 percent from 2011 to 2015. Conservation appeared even more frequently as part of a list of several possible MLS/MIS alternatives, which included graduate degrees in fine arts, museum studies, or archival studies. Computer science first appeared as an acceptable alternative in 2012. From 2011 to 2015, a total of 4 percent of institutions specified that a graduate degree in computer science was acceptable,

Of the job listings that included only digital preservation responsibilities (beginning in 2011), 62 percent required an MLS/MIS, 23 percent required “LIS or equivalent,” and 15 percent required an advanced degree in computer science.

In addition to graduate degree requirements, 2 percent of job listings also required an advanced certificate in preservation, and 6 percent listed a certificate in preservation as a preferred qualification (all of these positions were posted before 2011). Several listings did not explicitly require a preservation certificate but required an MLS/MIS “with

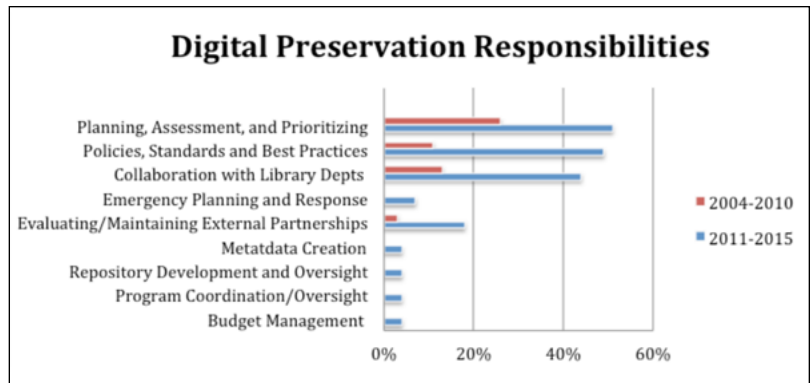


Figure 6. Percentage of Digital Preservation Responsibilities Present in Position Listings, 2004–10 and 2011–15

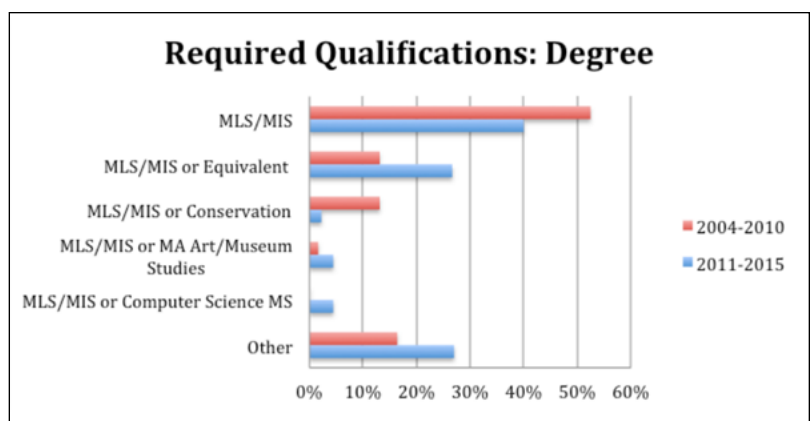


Figure 7. Percentage of Graduate Degree Requirements in Position Listings, 2004–10 and 2011–15. “Other” category includes listings that identified more than two possible alternatives to MLS/MIS.

advanced study in preservation or conservation,” a “master’s degree from a recognized preservation or conservation training program,” or a “master’s degree with a specialization in Preservation Management.” Several others required an emphasis on audio and/or moving image preservation studies.

### Years of Experience

Qualifications for years of experience included both years of experience performing similar work and years of experience with supervising staff (see figure 8). No trends were observed over time, so percentages include all positions from 2004 to 2015. Eight percent of announcements did not specify a requirement for similar work experience. Of the position listings that specified some type of required or preferred experience, 33 percent required one year or less related experience. Forty-nine percent of listings required 2-3 years of experience, and 16 percent required 4-5 years of experience. Less than 1 percent required more than five



**Figure 8.** Distribution of Experience Requirements in Position Listings by Year, 2004–15

years of related experience. Since 2011, the majority of listings required less than three years of experience. Across all twelve years, 73 percent did not indicate a preferred amount of experience, but the most frequently stated preference, at 17 percent, was two years.

Supervisory experience requirements were mentioned in 37 percent of listings; of those that required this, 21 percent required one year or less experience, 16 percent required 2–3 years of experience, and none required more than three years supervisory experience. The terms “supervisory ability” or “supervisory skills” frequently appeared as an alternative to specifying a number of years; the authors noted them in at least 12 percent of positions. Where supervisory experience was listed as a preferred qualification, again the most commonly stated preference was two years.

### Experience, Skills, and Knowledge

The authors determined general trends for desired qualifications through an analysis of both required and preferred qualifications. They identified common categories of knowledge, skill and experience qualifications that encompassed traditional and digital preservation, plus overall professional requirements. Knowledge of preservation principles, practices, and issues was required in 70 percent of positions from 2004 to 2010, and 56 percent of positions from 2011 to 2015 (see figure 9). Knowledge of digital preservation principles, practices, and issues was a requirement in 11 percent of positions from 2004 to 2010, and 44 percent of positions from 2011 to 2015. Experience with professional engagement was required in 29 percent of positions from 2004 to 2010 and 27 percent from 2011 to 2015 (see figure 10). Project management and assessment experience was required in 34 percent of positions from 2004 to 2010 and 44 percent from 2011 to 2015. Both of these were listed as a preferred qualification

approximately 10–11 percent over the twelve-year period. Digital repository development and management experience was required in 11 percent of positions from 2004 to 2010 and 27 percent of positions from 2011 to 2015; as a preferred qualification it rose from 3 to 7 percent. Grant writing experience was required in 8 percent of positions from 2004 to 2010, and 7 percent of positions from 2011 to 2015. Grant writing was included more frequently as a preferred qualification and was listed at 16 percent and 11 percent during the two time periods. Experience treating physical collections (most frequently listed as book repair) was listed consistently at 15 percent and 16 percent over the two time periods, but was almost never included as a preferred qualification. Other required and preferred qualifications noted by the authors

included experience with general digital preservation program coordination oversight, digital conversion, digital curation, using Machine Readable Cataloging (MARC) 21, and using markup languages such as XML and HTML. Several employers also listed “strong computing” or “strong technology” background from 2011 to 2015. The authors noted that experience with creating preservation metadata and/or experience with metadata standards appeared in at least 16 percent of position listings from 2011 to 2015.

### Preservation Administrator Positions Overview

The authors assessed announcements for preservation administrator positions to identify trends. Merrill-Oldham, Morrow, and Roosa defined the preservation administrator position as a senior library officer who “is responsible for recommending preservation policy and has the authority to enforce policies that have been approved by library administration.”<sup>35</sup> The authors identified preservation administrator positions both by the presence of administrative duties and that the individual in the position oversaw a department, regardless of the number of staff in the department. Because only information present in position listings were used, this was sometimes difficult to ascertain, and the numbers may not fully represent the number of positions that meet this definition. Overall, approximately 55 percent (or fifty-eight) of the total number of positions fit this definition for preservation administrator positions. This was consistent across the twelve-year period of the study (the number increased slightly from 54 percent to 56 percent between 2004 to 2010 and 2011 to 2015). Among these positions, there were a variety of position titles, but those most frequently used were “Preservation Librarian” and “Head of Preservation.” This remained relatively constant over time,



and as equivalent positions for digital preservation began to appear, the most frequently used titles were “Digital Preservation Librarian” and “Head of Digital Preservation.”

The first position listing to include digital preservation duties, which appeared in 2005, was a preservation administrator position. From 2004 to 2010, 39 percent of the positions included digital preservation duties. This increased to 72 percent from 2011 to 2015, although nine positions were administrative positions in digital preservation; 56 percent of general administrative positions included responsibilities in digital preservation.

### Discussion

The data yielded from this highly qualitative study confirmed some suspicions and revealed some surprises. It highlighted a number of areas where preservation employment has changed relatively little over the twelve-year period. The types of institutions offering professional positions, and the ratio of positions offered by each type of institution, remained relatively constant throughout the period studied. Private and public academic research libraries were consistently the top two employers, and the vast majority of these were ARL institutions. The authors hypothesized that, during periods when the number of positions decreased in cultural heritage institutions, there might be a corresponding increase in demand for outsourced preservation work, creating an increase in positions in preservation service providers, including vendors and non-profit preservation organizations. Instead, position offerings in libraries and preservation service providers increased and decreased proportionally over the twelve-year period.

Regarding other general employment characteristics, the authors also observed relative stability. There were no significant shifts observed in the ratio of permanent to term positions, or full- or part-time positions over the course of the study. The vast majority of positions were permanent and full-time. Prior to surveying position listings, the authors hypothesized that there might be a growing number of positions that combined significant preservation responsibilities with those from other areas in technical and collection services, such as collection development and management. However, no significant shifts were observed in this area either. Because of the limitations of studying position listings, further study is required to determine whether

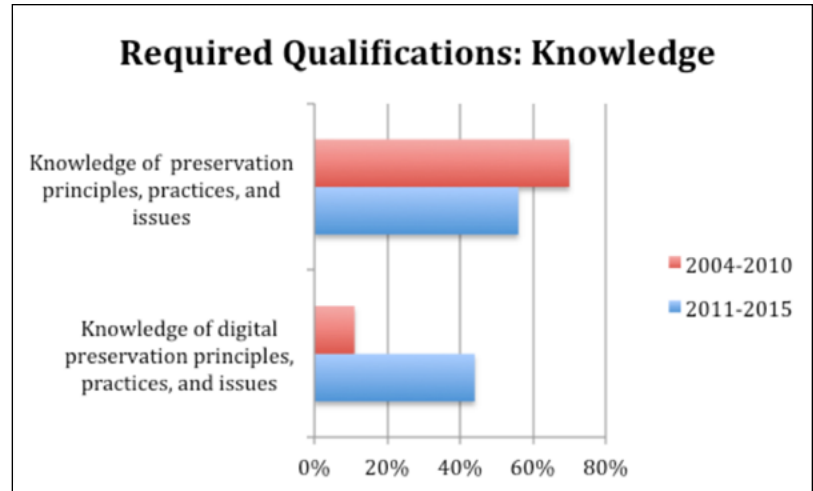


Figure 9. Distribution of Knowledge Requirements in Position Listings, 2004–10 and 2011–15

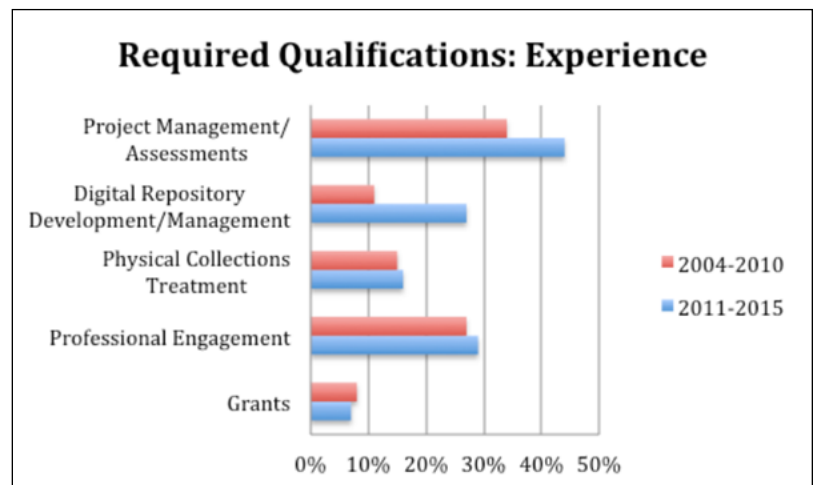


Figure 10. Distribution of Most Frequently Listed Experience Requirements in Position Listings, 2004–10 and 2011–15

meaningful changes have taken place in the number, or percentage, of tenure positions offered by academic institutions. However, the data indicates that, among the institutions that indicated whether a position was tenure-track, the percentage of tenure-track positions has remained relatively stable over time.

While some aspects of preservation employment appear relatively unchanged, in comparing two time periods, 2004 to 2010 and 2011 to 2015, the authors identified some significant shifts in position listings. Among the most intriguing findings were dramatic changes in the frequency with which some responsibilities appeared in position announcements between the two time periods. For example, binding and book repair responsibilities dropped by 32 percent and 30 percent, respectively, between the two time periods.



Collection emergency planning and preparedness was also mentioned significantly less in recent years, despite the ongoing and universal need for this activity. The authors anticipated that responsibilities specific to physical collections might decrease in recent years, and these changes may simply reflect the shift towards electronic-only acquisitions, and/or a decreasing emphasis on physical, circulating collections. But while the decrease in references to these activities may not be surprising, it is unclear whether it truly represents a decrease in the perceived importance of some traditional library preservation activities, or it is because some activities are viewed more broadly as a library responsibility rather than a preservation responsibility. Despite an overall decrease in references to physical collections care and treatment, references to conservation decreased to a lesser extent. Conservation is far more likely to fall squarely under preservation, while activities such as binding may be located in other departments that process physical materials. A third explanation is that some traditional preservation duties may be considered implicit in a generalized preservation position. For example, many institutions, particularly those with well-established preservation programs, have mature collections emergency plans that require maintenance rather than development.

As previously noted, because the language used to describe digital preservation responsibilities varied significantly, coding for these positions was limited and the authors did not fully capture the scope of responsibilities addressed in position announcements. To some extent, this may parallel Cloonan and Norcott's experience of reviewing preservation positions in 1989, where they also noted a lack of consensus in what the position detailed.

Finally, there are two areas that the authors did not originally code that were listed so frequently that they merit mention. The first was knowledge of copyright issues, which was listed frequently as a required or preferred qualification. It was most often referenced in conjunction with digitization or digital preservation. For example, desired qualifications in this area included "Demonstrated understanding of copyright laws and rights management issues in a digital environment," and "Basic knowledge of copyright and fair use as it relates to digitization and format conversion." Preservation work in libraries has long required understanding of and application of Section 108 of United States copyright law for microfilming and other reformatting programs, but these references may reflect the increasing complexity of applying Section 108 and the Digital Millennium Copyright Act (DMCA) to digital formats requiring multiple redundant copies and ongoing migration and maintenance.

The second was collaboration, which was one of the most prevalent themes across all preservation positions. It was so pervasive in the sample of digital preservation positions that the authors coded both internal and external

collaboration as a position responsibility for the study. While not surprising, it is notable in that it suggests the level of emphasis placed on intra- and extra-institutional cooperation in tackling preservation challenges.

### For Future Investigation

While analyzing listings for positions produced valuable data about trends and changes in the preservation specialization of librarianship, there are numerous areas where further study is necessary to draw definite conclusions. For example, a follow-up study might include surveys or interviews with recently-hired preservation professionals to determine whether their current positions have aligned with or differ from the responsibilities outlined in the position announcement. A complementary study might focus on interviewing employers to characterize the perceived future needs for staffing for preservation, how preservation is situated within an organization, and how institutions characterize preservation activities. This would be a timely study; as leaders in the field who began their careers in the late 1980s and early to mid-1990s retire, the profession will need to consider how organizations will plan for the next generation of preservation administrators.

There is also a need for research that addresses the relationship between preservation employment and graduate education. Further study is needed to determine whether LIS graduate programs are responding to the needs of preservation employers and how educators and employers are influencing and communicating with each other. Finally, further study and discussion is needed to develop a set of core competencies for preservation, or perhaps, more realistically, several competencies that outline basic requirements for generalists and specialists in digital and media preservation.

### Conclusion

This paper explores a set of interrelated research questions about the role and responsibilities of preservation professionals.

1. How have the range and scope of preservation responsibilities changed over time, specifically from 2004 to 2015?

The survey indicates that the range and scope of possible responsibilities have broadened in recent years. For general positions (those that include responsibilities over a range of formats), newly hired preservation professionals are far more likely to have responsibilities over a mix of physical and digital collections. The data underscores, in recent years, de-emphasis on many aspects of treatment and care of circulating collections. Conversely, the data also indicates

that responsibilities such as environmental monitoring and special collections conservation are more likely to remain present.

2. Which educational backgrounds, skill sets, and types of experience do employers most frequently require? Have these requirements changed over time?

The data indicates that employers are amenable to hiring relatively new professionals; the vast majority of positions consistently required three or fewer years of related experience, and a new graduate with one year or less experience would be eligible for about one-third of the positions. Throughout the study, many employers indicated that an MLS or MIS degree was required; however, the percentage of employers explicitly requiring an MLS or MIS appears to be decreasing. Additionally, an increasing number of employers are listing an MLS/MIS "or equivalent," requirement, which suggests that, while flexibility in degree requirements is necessary to recruit the best applicants, and MLS/MIS continue to be preferred by employers, including those posting digital preservation positions.

When examining all preservation positions (physical and digital), knowledge of physical preservation principles, practices, and issues is a moderately decreasing requirement, and knowledge of digital preservation principles, practices, and issues is increasing significantly. Several experience requirements that spanned digital and traditional positions remained consistent or increased in significance over the twelve-year period, including professional engagement experience and project management and assessment experience. Although digital responsibilities are increasing, and physical care duties are decreasing, physical preservation duties are still required at a higher level, demonstrating that they are core to preservation positions.

3. Has the role of preservation administrator changed significantly in the last decade?

The most significant change in the last decade is the dramatic increase in digital preservation responsibilities for preservation administrators. The majority of preservation administrator positions now include some digital preservation responsibilities, including oversight of digital preservation staff. However, it remains unclear what level of technical expertise in digital preservation is required of administrators in generalist positions. For administrators with digital preservation positions, the data suggests that some traditional responsibilities associated with preservation administration, such as grant writing and education and outreach, are emphasized less in their positions than in those of their traditional counterparts.

4. What "core" preservation knowledge and competencies can be identified from studying position announcements?

Several areas for possible core competencies were identified based on the data. Because they were represented in

20 percent or more of the positions included in the study, the authors suggest the following for preservation professionals in generalist positions:

- Developing and establishing policies, standards, and best practices for physical and digital resources
- Planning, assessment, and prioritizing for physical and digital resources
- Grants and donor relations
- Education, outreach, and training
- Conservation knowledge
- Emergency planning, and response
- Environmental monitoring
- Vendor relations
- Digitization

However, further work is needed to develop a set, or sets, of core competencies for preservation professionals, particularly for digital preservation professionals.

Overall, the study underscored that, while much has changed in the preservation profession in the last twelve years, core elements, including policy development and assessment and prioritization, remain intact. Additionally, a continuing emphasis on collaboration conveys an understanding that preservation requires communication and partnership between those with technical knowledge and those with collection knowledge to ensure that availability of cultural heritage for future generations.

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# Towards Sustainable Partnership

## Examining Cross Perceptions of Public and Technical Services Academic Librarians

Cathy Weng and Erin Ackerman

*Public services (PS) and technical services (TS) librarians play equally crucial roles in providing library services to meet user needs to support institutional goals. For PS and TS librarians to develop effective workplace collaborations, both groups must have a better understanding of the other side's perspectives, values, and concerns. This paper sought to learn how librarians in the two areas currently perceive and/or stereotype each other. The authors conducted a survey on cross perceptions of public and technical services academic librarians. The study tested and confirmed assumptions that previous papers have made about the negative perceptions of TS librarians held by PS librarians. Analysis of survey results, however, found that TS respondents expected to be viewed more negatively than was evidenced by the PS responses. Nonetheless, both PS and TS respondents recognized and agreed on the important role that library technical services play within the larger context.*

Public services and technical services librarians play equally crucial roles in providing library services to meet user needs that support their institutional mission and growth. Historically, this so-called “Primal Division” or “Great Divide” points to the essential distance between the type of work, priorities, and goals of public services (PS) and technical services (TS) librarians.<sup>1</sup> As Gorman humorously noted, the difference between the two kinds of librarians is that public services librarians “dwell in the light and serve the readers and [their] glory shall be great,” while technical services librarians “dwell in the darkness. Secret shall be [their] ways and hidden [their] practices.”<sup>2</sup> This division, common in contemporary libraries, is mostly driven by library functional specialization and how users are served by librarians, either directly or indirectly. For the purposes of this paper, the authors define the role of PS librarians as providing reference and instruction support, circulation/access services, reserves, interlibrary loan, scholarly communications, and digital commons/knowledge expertise. TS librarians provide support for electronic resources, serials, cataloging, acquisitions, collection development, and systems. Such divisions can inadvertently create barriers to communication and understanding. The barriers can arise from “physical distance, lack of social interaction, communication barriers and differences in organizational culture.”<sup>3</sup>

In the 1980s, some argued that the rigidity of such compartmentalization created potential impediments to communication and thus reduced opportunities

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for networking and collaboration among TS and PS librarians.<sup>4</sup> These developments were seen as having a potentially negative impact on user service. As a result, some libraries introduced crossover functions (or cross-training) or staff rotation programs between TS and PS.<sup>5</sup> The concept of “renaissance librarians” or a “holistic approach”—i.e., gaining a big-picture view of the library and performing a broader range of tasks—to managing library operations was a frequent topic of discussion.<sup>6</sup> Despite the recognition of barriers to communication and collaboration, prior research, such as that of McComb and other research by Larsen, revealed that implementing a holistic operational system has been possible only for smaller institutions where staff are able to manage cross-divisional responsibilities due to the relatively smaller size of their collections and operations.<sup>7</sup>

In light of the variation in work environments and job descriptions, it is important for PS and TS librarians to develop a shared vision, achieve common objectives, and build constructive partnerships to deliver sustainable service to the library community. To accomplish this, a better understanding of both sides’ perspectives, values, and needs can lead to a successful partnership.

To promote a better mutual understanding and to improve relations between PS and TS librarians, an effective approach has been to learn how and why librarians in the two areas perceive or stereotype one another. Based on these perceptions, we can then determine strategies to use to craft a more productive relationship and to resolve potential issues caused by negative or false perceptions. Studies have shown that stereotypes can influence how people are judged and treated, and profoundly affect people’s behavior. Exposure to negative perceptions can lead to low professional self-image and low work status, creating an unsatisfying and unproductive work experience. However, stereotype threats (being at risk of conforming to stereotypes about one’s social group) and “their undesirable consequences can be reduced by strategies that render the fact of the situation, and one’s representation of the situation, as less likely to deliver social identity-based devaluation.”<sup>8</sup>

This study sought to learn how PS and TS librarians currently perceive or stereotype each other. The authors examined and analyzed results of a survey conducted in 2014 to investigate the institutional role and value perceived by both groups of librarians, and the perceived significance of collaboration in the context of achieving institutional goals. The survey represents a timely intervention into recent discussions of librarian stereotypes by investigating the perceptions librarians have of each other and by considering how factors such as years of career experience may influence these perceptions. The authors hope that the study findings can shed some light on cross perceptions of PS and TS librarians. By learning how their colleagues perceive them and how they believe they are perceived,

we seek to find connections between librarian perceptions and the potential impact on collaboration. It is our hope that through the survey findings, some misconceptions and misunderstandings can be identified and mutual trust can be developed to achieve long-term sustainable partnerships to better serve users.

## Literature Review

There has not been an empirical research study investigating the perceptions of PS and TS librarians and their perspectives on the value of their colleagues in the context of advancing institutional goals. Literature commenting on perceptions of PS and TS librarians provides mostly anecdotal remarks and is largely based on incidental evidence. The current study attempts to build on the literature by collecting real, empirical data to investigate the validity of anecdotal reports or comments.

There is an abundance of literature on images and perceptions of librarians in general. The image and character of PS and TS librarians have been frequently discussed in the literature, though separately in most cases. PS librarians have been perceived, as Leach describes, as “flighty, aggressively friendly, loud know-it-all who hate math and pay no attention to detail,” or according to Manley, as “imprecise, impractical, and illogical.”<sup>9</sup> Much of the literature on the perceptions of TS librarians is generalized from stereotypes of catalogers.<sup>10</sup> Catalogers, mostly working behind the scenes, have been stereotyped as “overly serious, out-of-touch, socially dysfunctional nitpicker[s].”<sup>11</sup> They often have been viewed, according to Banush, as one-dimensional “bibliographic hermit[s], typically housed in some back room.” Similarly, Brice and Shanley-Roberts describe catalogers as “bastion[s] of outmoded thinking and stubborn resistance to change,” and as exercising a back-room mentality implying their avoidance of participation in activities beyond their workplace.<sup>12</sup> The clichéd image of TS librarians being “bookish, quiet, somewhat quirky and not very social or outgoing” or “never seeing natural light or interacting with other human beings” is also stereotyped in the media and by the general public.<sup>13</sup>

Perceptions of PS and TS librarians and relations between the two groups have been discussed, though almost exclusively anecdotally, in the literature. As noted earlier, PS and TS librarians are expected to develop the individual expertise essential to serving users. The specialization of knowledge and skills is, as described in the literature, similar to creating “a profession within a profession.”<sup>14</sup> As a result, there has been a general feeling that librarians in the two areas of specialization “speak two different languages, look at the world from very different viewpoints, and are generally incapable of having a productive conversation.”<sup>15</sup> The

relationship between PS and TS librarians illustrated in the literature has not been favorable. The relationship was once described as “shaky, if not rocky” or “uncomfortable.”<sup>16</sup> Between the two groups, there exist “rivalries, antagonism, narrowness and misunderstanding.”<sup>17</sup> Librarians in the two areas “often did not relate well to one another.”<sup>18</sup> The conflict between PS and TS was referred to as “war” or a “cold war.”<sup>19</sup> There is also an impression that PS has been valued more within the profession. Reference work was once regarded as the only real professional work that took place in the library.<sup>20</sup> Many TS librarians felt that the value of TS work was often discounted among library professionals.<sup>21</sup> TS positions have not been as highly valued.<sup>22</sup> Such an impression is evidenced by the fact that some institutions do not grant faculty status to TS librarians. TS has been said to have “little appeal” to library school students, and students expressed greater interest in reference services as compared to other subfields.<sup>23</sup> Furthermore, there exists in libraries an implicit attitude, as Bachus bluntly stated, of “first- and second-class professional positions, reader services the former and technical services the latter.”<sup>24</sup> This coincides with Manley’s informal survey findings in perceptions of reference librarians (PS) and catalogers (TS), in which some negative perceptions of catalogers have appeared among the top “pet peeves” of reference librarians. For example, reference librarians surveyed felt that catalogers refuse to work at the reference desk where one can “find out what the real world is like,” and that catalogers “dress like slobs and then complain about their image.”<sup>25</sup> Not surprisingly, catalogers have felt stung at being referred to by reference librarians as “support staff.”<sup>26</sup>

This difficult relationship, as Moody indicated, “stem[s] from the nature of the roles each takes, the difference in the daily work and issues they struggle with, and the difference in priorities and goals,” which speaks to the underlying differences.<sup>27</sup> Bluh attributes it to personal and professional competition in the organization, and each side’s desire for recognition for the services it offers.<sup>28</sup> More importantly, a lack of understanding and communication between PS and TS librarians was considered as one of the major factors causing the discord.<sup>29</sup> Recognizing the conflict and the unproductiveness of this relationship, many have issued pleas for increased dialogue and communication for better understanding of each group’s work and perspectives.<sup>30</sup> Others advocated cross-training to learn the other’s work to promote a better understanding of and respect for each individual’s expertise and unique contributions to user service.<sup>31</sup>

The existing literature has focused on the content of the perceived images and stereotypes of PS and TS librarians (Manley and Banush, for example) and the relationship between the two groups (Bluh, Moody, Bachus, Wallbridge, McCombs). Such findings, illuminating as they are, consist primarily of anecdotal comments. Evidence-based

investigation of how PS and TS librarians perceive their colleagues, or how they believe they are perceived by their professional counterparts, will help clarify stereotypes and relationships, or possible misconceptions of PS and TS librarians.

As indicated in the literature, negative perceptions of TS librarians are common. These negative perceptions are associated with considerations of TS work as less professional or less valuable, and perceptions of TS librarians as being narrow-minded. It should be noted that the authors of those remarks were mostly TS librarians. Such perceptions (i.e., the thinking that PS librarians did not respect or appreciate TS librarians and their work) were known to be shared by TS librarians, which can be interpreted as one aspect of how TS librarians perceive PS librarians. Are these perceptions also shared by PS librarians and to what extent? The current study is intended to investigate perceptions of TS librarians, not only from the viewpoint of TS librarians themselves, but also those of PS librarians. The authors believe that such a study is needed to clarify potential misconceptions between the two broad areas of specialization within librarianship. It is hoped that the study’s findings can contribute to a more communicative and collaborative work environment. The goal is to establish a sustainable partnership among PS and TS librarians.

## Methodology

To investigate the common perceptions of PS and TS librarians towards each other, the authors conducted a survey study in 2014.<sup>32</sup> The survey, administered using the online survey software Qualtrics, was distributed to professional discussion lists used by divisions of the American Library Association (ALA), the Association of College and Research Libraries (ACRL), and other library organizations whose members have PS or TS specializations. The survey used Likert-scale and open-text-response question formats. Only the questions that pertained to consent to participate in the research and self-identification as a TS or PS librarian required responses; whether respondents chose to answer any of the remaining questions was voluntary. Upon self-identification as a PS or TS librarian, respondents were directed to separate parts of the survey. In addition to four demographic questions (institution type, years of service, size of collection, and size of student body), there were nine questions tailored to TS respondents and eight questions tailored to PS respondents. The two parts of the survey contained the same questions, but in a slightly different order and with wording adjustments to reflect the group to which the questions were directed. TS librarians were also asked some questions that did not appear on the PS portion of the survey. These questions pertain to current TS initiatives and



potential organizational changes that might improve the environment for TS.

The study sought to understand the perceptions that TS and PS librarians have of each other. As indicated in the literature, the relationship between PS and TS librarians has not been positive. Low regard and negative anecdotes were associated with TS librarians. Comments from TS librarians often indicated that they felt disrespected by PS librarians. In light of these remarks and observations, the current study was subsequently designed to focus on “shared PS perceptions of TS librarians” as seen by both PS and TS respondents. The authors asked both groups what they thought PS librarians in general think of TS librarians. The purpose was to probe what both groups believe are commonly held perceptions of TS librarians. This is different than what the individual PS librarian survey respondent might think of the TS librarians with whom he or she works, and, instead, gets to the perceptions that are part of the culture of librarianship.

The authors created a codebook to categorize answers for open-text responses. For each open-text question, the authors identified a set of themes emerging in the responses and determined which theme(s) an individual response best exemplified. Categories and themes for particular questions are explained in the Results section. The researchers promoted intercoder reliability by coding overlapping sets of responses for each open-text question and resolving differences in interpretation.

A total of 868 library professionals answered the survey. The overwhelming majority of survey respondents (68 percent, or 586) were academic librarians. Since this part of the study was focused on academic librarians, responses from non-academic librarians were not included.

## Results

### Demographics

Survey respondents were asked to self-identify as TS or PS librarians. Of the 586 academic librarian respondents, 360 survey respondents (61 percent) identified themselves as TS and 226 (39 percent) as PS. The majority of respondents in both groups had been librarians for more than ten years; 74 percent in the TS category and 58 percent in PS. The distribution of survey respondents by type of academic institution was similar in both groups, with 55 percent identifying as working at research universities, 39 percent at four-year undergraduate institutions, and just over 5 percent at community colleges (see table 1).

### Core Qualities

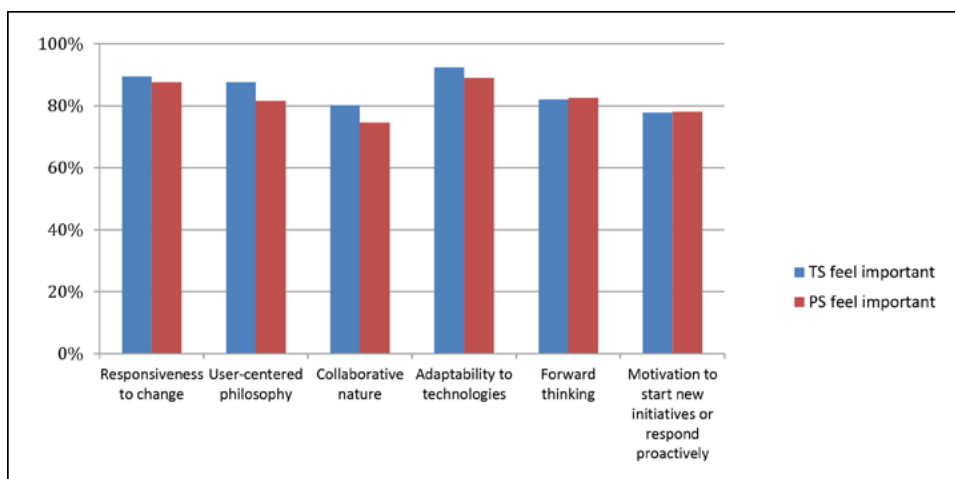
In this study, the authors attempted to explore perceptions of core qualities of PS and TS librarians. The results will

**Table 1.** Survey Demographic Information

| Types of Institutions | Percentage (all respondents) |                 |
|-----------------------|------------------------------|-----------------|
| Four-year Undergrad   | 39.3%                        |                 |
| Four-year Research    | 55.1%                        |                 |
| Community College     | 5.6%                         |                 |
| Years of Service      | Percentage (PS)              | Percentage (TS) |
| > 10 years            | 58%                          | 74%             |
| 5-10 years            | 22%                          | 16%             |
| 1-5 years             | 18%                          | 9%              |
| < 1 year              | 2%                           | 1%              |

help us learn about librarians’ expectations associated with core qualities. They asked each group of librarians what they thought were the necessary core qualities that TS and PS librarians needed to support the library and its users. The survey question presented respondents with a list of qualities (responsiveness to change, user centeredness, collaborativeness, adaptability to technologies, forward thinking, motivation) to rank on a spectrum from most important (5) to least important (1).<sup>33</sup> Core qualities were not ranked against each other, and it was possible for a respondent to determine that several qualities merited being labeled as “most important.” There was general agreement between TS and PS librarians regarding the importance of each quality. The majority of respondents (on average, more than 82 percent of PS respondents and 85 percent of TS respondents, as shown in table 2) felt that it was “most important” or “very important” that TS librarians possess the six qualities presented in the survey, with “adaptability to technologies” being the highest (89 percent of PS respondent and 92 percent of TS respondents felt important) followed by “responsiveness to change” (87.6 percent of PS respondents and 89.5 percent of TS respondents) (see figure 1).

A follow-up, open-text question asked TS and PS librarians to specify any other qualities they thought were needed by TS librarians to support the library and user needs. As noted in the methodology section, the authors identified a set of categories and themes into which responses were grouped. Individual responses could be placed in more than one category if relevant. For this question, the main categories identified were labeled as communication/interpersonal skills, creativity (defined as “Flexibility, problem-solving, ‘big picture’ orientation, open mindedness, inquisitive, repurposing workflows and products”), detail-orientation, outreach/advocacy, technology, and time management/efficiency. Of those who chose to respond, the first quality both TS and PS respondents emphasized were attributes the researchers grouped under the theme of creativity, especially flexibility, problem-solving, and “big picture” orientation. The second



**Figure 1.** Core Qualities of TS Librarians

**Table 2.** Other TS Core Qualities

| TS Respondents                              | PS Respondents                              |
|---|---|
| 1. Creativity, flexibility, problem solving | 1. Creativity, flexibility, problem solving |
| 2. Detail oriented                          | 2. Ability to communicate with co-workers   |
| 3. Ability to communicate with co-workers   | 3. Technology                               |

**Table 3.** Other PS Core Qualities

| TS Respondents  | PS Respondents  |
|---|---|
| 1. Ability to communicate with patrons and co-workers | 1. Ability to communicate with patrons and co-workers |
| 2. Creativity, flexibility, problem solving           | 2. Creativity, flexibility, problem solving           |
| 3. Appreciation of technical services                 | 3. Outreach/advocacy                                  |

quality identified by TS respondents to the open-text question was the need for TS librarians to be detail-oriented, that is, attentive to detail, rules, and standards. Few PS respondents mentioned this as a quality needed by TS librarians. PS librarians cited communication and interpersonal skills as the second most needed core quality not represented on the original list, while it ranked third among comments from TS librarians. Ranking third among the open-text comments from PS librarians for TS core qualities was the need for TS librarians to possess knowledge of new technology and technological trends and standards (see table 2).

Similarly, regarding core qualities for PS librarians, the majority of respondents (on average, more than 84 percent of PS respondents and 89 percent of TS respondents, as shown in table 3) felt that it was most important or very important for PS librarians to possess the same six qualities, with “user-centered philosophy” ranked highest (98 percent of PS respondents and 99 percent of TS respondents) (see figure

2). Both PS and TS respondents shared a similar view of two qualities, “forward thinking” and “motivation to start new initiatives or respond proactively.” These qualities were considered slightly less important among the six qualities. Disparities among PS and TS respondents were also found for these two qualities. Eighty-three percent of TS respondents (73 percent of PS respondents) felt “forward thinking” was an important PS quality. Additionally, 80 percent of TS respondents (72 percent of PS respondents) felt “motivation to start new initiatives or respond proactively” was an important PS quality.

As with the previous questions, all survey respondents were given the opportunity to specify other qualities not provided in the questionnaire that they thought PS librarians needed to support the library and its users. As shown in table 3, both TS and PS respondents mentioned communication and interpersonal skills most often. Among TS and PS responses, the need for PS librarians to be flexible, problem-solvers, open minded, inquisitive, and maintain a “big picture” orientation ranked second. PS librarians also emphasized the need for PS librarians to engage in outreach and advocacy by marketing and promoting services, seeking feedback from users, and assessing user needs. Among TS librarian respondents to this question, quite a few suggested a need for PS librarians to appreciate and understand technical services. Interestingly, no PS librarian comments cited this.

## Perceptions

Both groups were asked how they thought PS librarians as a group perceived TS librarians. Respondents were presented with a list of six positive perceptions (responsive to change, user centered, collaborative, adaptable to technologies, forward thinking, motivated) and four negative perceptions (inflexible, disconnected from users, reluctant to change, and care too much about MARC records). The six core qualities that respondents had already ranked on a scale of most

to least important were repeated here as the positive perceptions to facilitate comparison of perspectives. Respondents then indicated the degree of agreement on a Likert scale (strongly agree to strongly disagree) regarding how much they thought PS librarians perceived TS librarians in each respect.

There were statistically significant ( $P < 0.05$ ) disparities of levels of agreement between TS and PS respondents for eight of the ten perceptions. Among those eight, five were positively framed aspects (figure 3) and three were negative (figure 4). For each of these perceptions, TS librarians expected to be viewed far more negatively by PS librarians than the actual aggregate responses indicated. This can also be seen in averaging combined percentages of PS and TS respondents on shared perceptions. As shown in table 4, 40 percent of PS respondents agreed that PS librarians shared the *positive* perceptions of TS librarians listed in the survey, whereas only 29 percent of TS respondents agreed. Conversely, approximately 52 percent of PS respondents agreed that PS librarians shared the *negative* perceptions, whereas a much higher percentage (68 percent) of TS respondents felt that they were negatively perceived.

This does not mean that these negative beliefs do not reflect what a significant portion of PS librarians think, but rather that TS librarians predicted a much higher level of agreement with the negative perceptions (and lower levels of agreement with positive perceptions) than PS librarians evidenced.

When reviewing the free-text additional comments to this question from TS respondents, despite a low response rate (15 percent), the overwhelming majority of the comments indicated a negative perception of TS librarians as perceived by PS librarians. For example, TS respondents suggested that PS librarians believe that TS librarians are “too bogged down in minut[ia]. Unwilling to make modifications to meet local needs.” TS librarians felt characterized

by PS librarians as “cataloging police, unable to adapt, unable to change or not interested in change, control freaks, unskilled, useless.” Others felt that PS librarians believe that “technical services work is clerical in nature and not professional.” The number of responses from PS respondents in the additional comments section was too small and therefore negligible.

The survey results were then grouped by respondents’ years of service to determine whether this variable affected respondents’ view of shared PS perceptions of TS librarians. Since the majority of TS respondents (approximately 75 percent) had been in the profession for more than ten years, we could reasonably infer that PS perceptions of TS librarians, as perceived by TS respondents, were views from experienced TS respondents. The demographic distribution

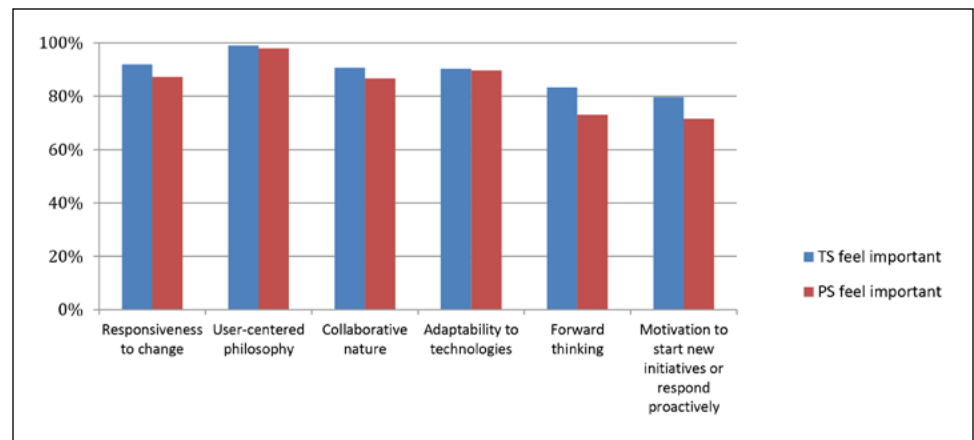


Figure 2. Core Qualities of PS Librarians

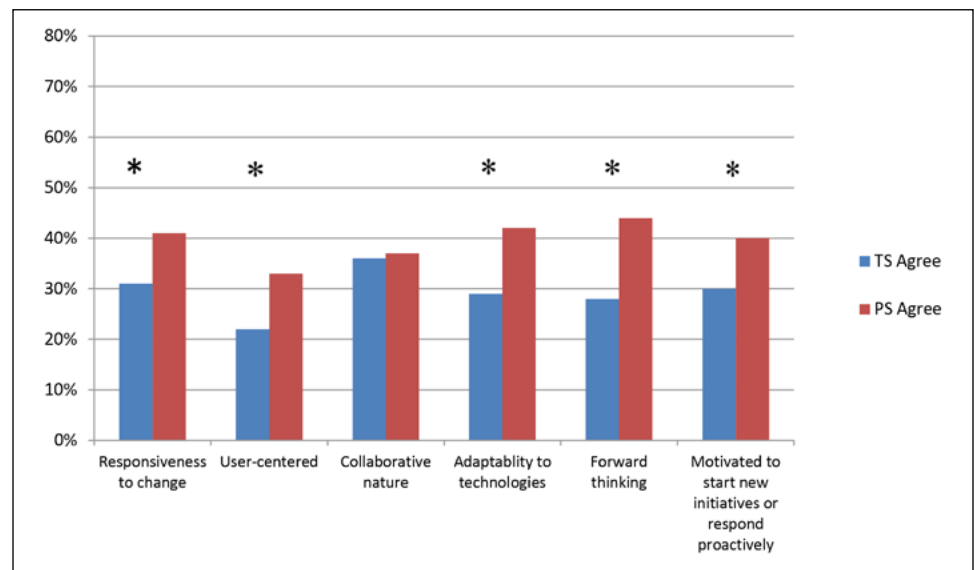
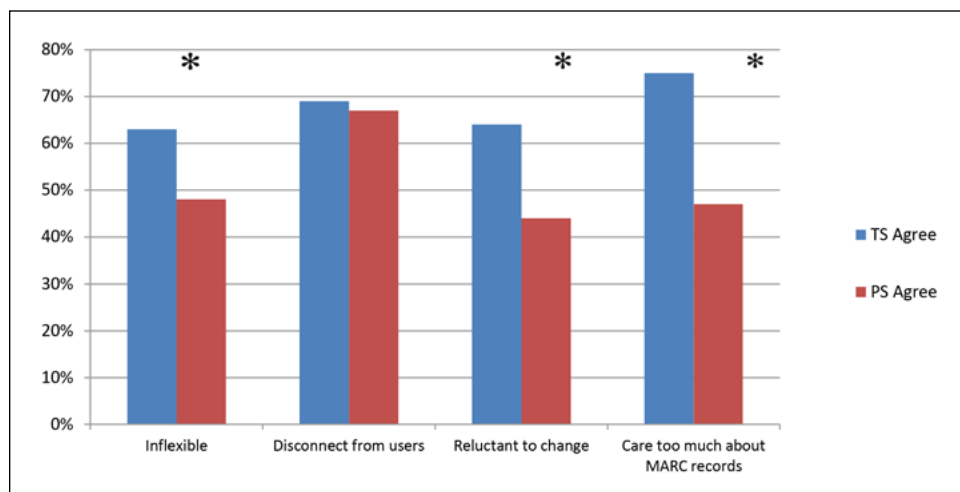


Figure 3. PS Perceptions of TS Librarians—Positive Perceptions (\* :  $P < 0.05$ )



**Figure 4.** PS Perceptions of TS Librarians—Negative Perceptions (\* : $P < 0.05$ )

**Table 4.** Aggregate percentage of respondents' view of shared PS perceptions of TS librarians

|                    | Positive Perceptions | Negative Perceptions |
|--------------------|----------------------|----------------------|
| TS agree (average) | 29.3%                | 67.8%                |
| PS agree (average) | 39.5%                | 51.5%                |

among the PS respondents in this survey, however, was different (58 percent had more than ten years of experience; 42 percent had less). Although the overall number of respondents to this question is not large enough to be representative of the field more broadly, the results may suggest if and how different views exist between early career and more senior PS librarians. As shown in figure 5 (positive perceptions), more experienced PS survey respondents consistently felt that TS librarians were perceived more positively than less experienced PS respondents, except for the perception of “user-centered philosophy.” Similarly, for negative perceptions (see figure 6), to a lesser extent, more experienced PS respondents in this survey consistently felt that TS librarians were perceived less negatively than less experienced PS respondents, except for the perception of “car[ing] too much about MARC records.”

### TS Direct Impact

Drawing from the remark made in the literature that TS librarians or technical services tasks were not seen as “professional,” we sought to learn librarians’ perceptions in this respect. Survey respondents were asked, “Do you agree or disagree with the statement ‘Your technical services department currently provides/supports service that has direct impact on library users.’” Nearly all (97 percent) of both TS and PS survey respondents saw TS as having a direct impact on library users. The reasons to support

their answers demonstrated that both TS and PS librarians strongly value the crucial role of TS in enabling users to find and use library information and resources. As one TS librarian wrote, “[PS Librarians] are the frontline soldiers—[TS Librarians] provide the ammunition and equipment.” A representative comment from a PS librarian shows agreement, “Without [TS] work, we would lose track of everything. The collection is useless if it isn’t searchable!”

### TS-only Questions

Two open-ended questions were addressed only to TS respondents. Recognizing that, according to previous research, some TS librarians might have feelings of low self-esteem, the authors wanted to know what changes TS respondents would like to see happen in their libraries to make TS more integral to PS initiatives. The comments or suggestions can be incorporated into building long-term partnership and collaboration. Of the 157 TS librarians who responded to the question, nearly half mentioned the need to improve communication and collaboration. “More interdepartmental communication, promotion of a sense of shared mission,” wrote one respondent. Another asserted that he or she “would love to see a more collaborative role in the understanding of technical services and the role that public services librarians play in the work we do.” Many TS librarians also expressed desired changes in management and leadership to promote better communication, collaboration, teamwork, and shared goal setting and planning. Cross-training was also mentioned by many librarians. “I would like to see PS librarians cross-trained to some degree in [Technical] Services so that they might learn what we do and why it is important.” In response to this question, many TS librarians (mostly from smaller institutions) noted that they are “already integral” to PS initiatives. For example, one commented that TS services “already is integral to public services initiatives. As colleagues in a small staff, all librarians participate in reference work, occasionally doing classroom instruction, and we all discuss proposed initiatives and plan workflow which includes both areas.”

## Discussion

Based on the study results, the authors confirmed negative PS perceptions of TS librarians as perceived by both PS and TS respondents. This is consistent with observations in the existing professional literature. A more striking finding is that TS respondents expected a higher level of negativity in perceptions of TS librarians than did PS respondents (see table 4). This suggests that the traditional negative image of TS librarians is still widely perceived by both PS and TS librarians, but also that such a negative image is more strongly felt among TS librarians themselves. The finding is also consistent with Leyson and Boydston’s study in that a small percentage of catalogers that they surveyed felt their work was valued outside their department.<sup>34</sup> This coincides with research in psychology, such as the findings of Cadinu that stereotype threat can lead to greater negative thoughts.<sup>35</sup> A plausible explanation is that TS respondents recognized PS librarians’ negative opinions of them and internalized those feelings. Such a perception is supported by the “looking glass” model in the field of psychology in that “self-concept is a product of both one’s awareness of how others evaluate the self and the adoption of those others’ views.”<sup>36</sup> This stereotype threat activation could result in potential greater hostility between the two parties.<sup>37</sup>

Such a gap between self-perception (how TS librarians felt they were perceived) and peer perception (PS views of how TS librarians were perceived) is not uncommon in organizations, and it can easily lead to misconceptions and misjudgment, ultimately affecting individual and organizational performance.<sup>38</sup> As suggested by Brown and Swartz in their study of gap analysis of service quality between two parties, an effective approach is for either or both PS and TS librarians to adjust their expectations and to also improve service behavior. Education, communication, and a participative

approach can help both parties learn from each other and increase the consistency of expectations and perceptions.<sup>39</sup>

Our initial examination of the differences of opinions about TS librarians held by early career and more senior PS librarians showed some interesting differences. Early career librarians (under ten years of service in the profession) in our respondent group held slightly more negative views of TS librarians than did their more experienced PS colleagues. The study also shows, however, a relationship between the variable “years of services” and positive perceptions. The longer a PS librarian had worked, the more the individual felt that TS librarians were perceived positively (see figures 5

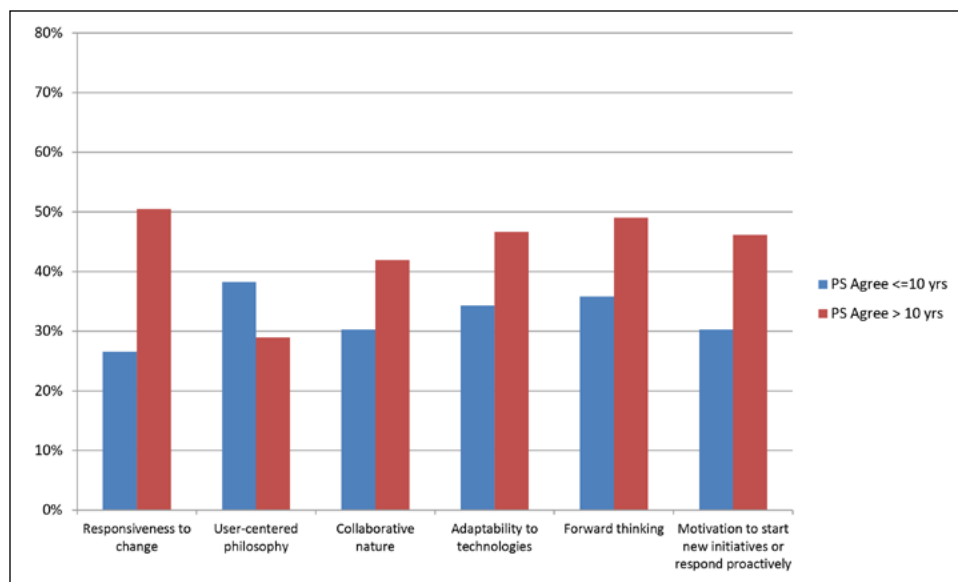


Figure 5. Shared PS perceptions of TS librarians perceived by PS respondents by years of service—positive perceptions

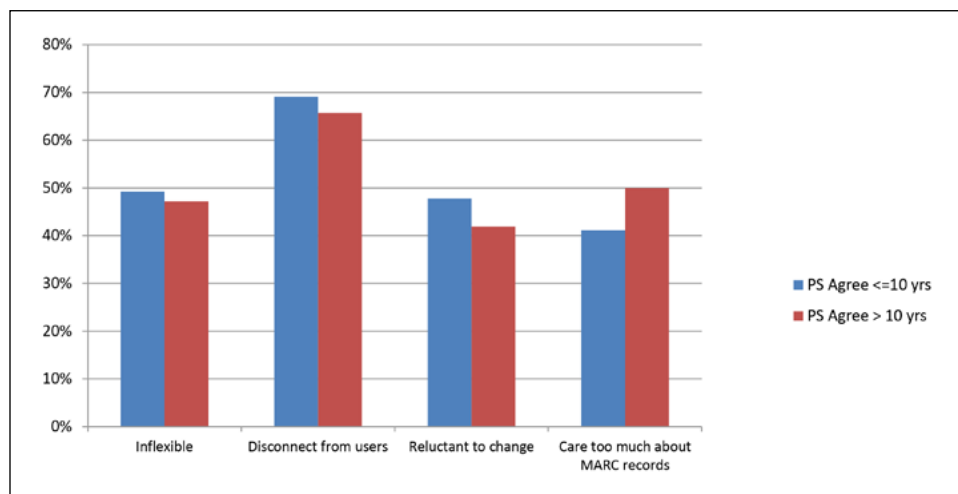


Figure 6. Shared PS perceptions of TS librarians perceived by PS respondents by years of service—negative perceptions

and 6). One plausible explanation for this is that experienced PS librarians, who might have accrued more knowledge in TS operations and have had more opportunities to collaborate with TS librarians, have developed a better understanding and appreciation for TS work and TS librarians. Conversely, we imagine less experienced PS librarians, who have probably had fewer chances to learn about their TS colleagues firsthand, can hold the ingrained stereotypes common in library schools and the profession in general—hence the more negative perception of TS librarians expressed by this group of respondents. Future research on cross-perceptions of PS and TS librarians could investigate this relationship between viewpoints and years of service and seek to further explore its causes.

Research indicates that core competence, either self-perceived or shared, is closely associated with the shaping of a professional identity.<sup>40</sup> For the purpose of the study, we examined cross perceptions of PS and TS librarians associated with core qualities. Based on the results obtained, we found a general agreement among survey respondents on core qualities of PS and TS librarians. The majority of respondents felt that it was most important or very important that PS and TS librarians possess the six qualities presented in the survey (see figures 1 and 2). Survey respondents also felt that “adaptability to technologies” and “responsiveness to change” were two more important qualities for TS librarians. This clearly suggests that both PS and TS respondents have high expectations of TS librarians for being capable of continuously adapting and utilizing new technologies and being responsive to a changing environment. This quality was later further reinforced by PS respondents in their open-text comments. Almost all respondents (99 percent of PS respondents and 98 percent of TS respondents) felt that “user-centered philosophy” is the most important quality for PS librarians. This is not surprising, as PS librarians work directly with library users, whether in teaching or in assisting users with academic research.

There were significant disparities between PS and TS respondents regarding PS core qualities in two cases. The two qualities were “forward thinking” and “motivated to start new initiatives or respond proactively.” A significantly higher percentage of TS respondents felt these two qualities were most important or very important. This suggests that, more so than their PS colleagues, TS respondents expect PS librarians to be visionary, proactive, and self-motivated. The finding coincides with Saunders’ survey findings of core competencies of reference librarians, in which “self-motivated” was not considered by survey respondents (reference librarians and hiring managers) as one of the most important core qualities for reference librarians.<sup>41</sup>

The free-text response of additional core qualities of PS and TS librarians reveals both shared and distinct views of PS and TS respondents. The findings that TS respondents

need to be “detail-oriented” as identified by TS respondents and “technologically fluent,” as highlighted by PS respondents, clearly indicates the different emphases but nonetheless equally valid perspectives from both parties. For additional qualities of PS librarians, TS respondents uniquely felt that there is a need for PS librarians to understand and appreciate the functions, value, and limitations of TS. This implies that TS librarians feel that there was a need for, and a lack of, PS understanding and appreciation of TS librarians, an important motivational factor in the workplace. PS respondents, in contrast, saw the need for PS librarians to reach out beyond their communities and to be library advocates. The differences between PS and TS respondents’ perceptions of core qualities provide some insight into the different views held by each group, which can be used to initiate open conversations.

It is heartening, though not surprising, to learn that survey respondents overwhelmingly (97 percent) agreed that TS functions have a direct impact on overall library operations. The reasons provided by survey respondents to support the belief were also well articulated, pinpointing the purpose of TS functions. This suggests that, despite the perceived low esteem of TS librarians, both PS and TS respondents recognized and agreed upon the important role that TS play within the larger context. Perhaps the perceived negative image of TS librarians was not directly associated with TS general operations or functions within an institution, but more associated with persistent stereotypes of the personalities of TS librarians themselves.

In our examination of the open-text responses to the TS only question about what changes could be implemented to make TS more integral to PS initiatives, “more communication and collaboration between PS and TS librarians” was a frequent response. This suggests that TS respondents recognized insufficient communication and collaboration between the two parties, which likely contributed to the divide and to the devaluation of TS librarians. PS respondents provided similar comments in their free-text responses soliciting additional comments. More communication and collaboration are needed to alleviate such a divide. The plea for more communication and collaboration to enhance better understanding has also been frequently addressed in the literature as a way to narrow the divide and ease the discord. It is only through a better understanding of and respect for each other’s work and perspectives that realistic and fair expectations of two parties can be established and articulated, resulting in a more harmonious working environment.

Additionally, TS respondents voiced their desire for changes in management and leadership to promote better communication, joint goal setting, and staffing of decision making. This response points to the key factor that influences the formation of institutional culture. Organizational culture and institutional leadership can indirectly facilitate

the valuing or devaluing of librarians on either side. It can generate profound long-term influences, positive or negative, within an institution. Nothing is more important than for the leadership to form a positive and healthy team-oriented culture. The ultimate goal is to create a mutually respectful and trusting environment that is conducive to open communications for a sustainable partnership.

From the study results, the authors learned indirectly about TS librarians' perceptions of PS librarians. The current study did not investigate explicitly shared TS perceptions of PS librarians. A future study could focus on this area. When analyzing the study results, the authors limited responses to those from academic librarians. The number of responses from non-academic librarians was too small to analyze. A separate study could be performed specifically targeting librarians working in public and special libraries to learn the shared perceptions of TS librarians and PS librarians in a different setting. Some anecdotal comments from the current survey results indicate that smaller libraries tend to be more integrated and that there is not as great a divide between PS and TS librarians. A future similar study could be conducted, focusing on size of institutions (i.e. staff size, collection size, location/centralization of TS departments, etc.), type (four-year research institution, four-year undergraduate institution, community college) and organizational structure (divisionalized or departmentalized, horizontal or hierarchical structure) to investigate the differences of practices and their association with librarians' perceptions, and whether anything can be learned to help academic institutions alleviate the divide between PS and TS librarians. Lastly, with new areas of specialization introduced in recent years at academic institutions, a future study could be conducted to investigate perceptions of librarians with combined responsibilities of PS and TS functions such as data management, emerging technologies, or repository librarians who often work closely with faculty and staff outside the libraries on special projects.

## Conclusion

The study first examined core qualities that PS and TS librarians should possess as perceived by PS and TS respondents as a way to identify expected core qualities of PS and TS librarians. The purpose was to examine TS and PS librarians' perceptions in the context of core qualities. Survey respondents shared their views on librarians' core qualities. They also expressed different, but equally convincing and valid emphases on additional needed qualities for PS and TS librarians from their own perspectives. These findings help us to develop a better understanding and appreciation of librarians' perceptions from either side. As one respondent observed, "Like any disparate groups that ultimately have

the same goals in mind, PS and TS librarians need to work together to better understand the other's point of view."

The finding that TS respondents felt TS librarians were perceived more negatively than their PS peers actually felt seems baffling and deserves further attention. This view is reflected in both (low) positive perceptions and (high) negative perceptions. Rather than investigating which perspective is more accurate, perhaps a more productive way of learning from the finding is to determine what can be done to diminish the negative perceptions and ensure more consistent experiences and expectations. Obviously if librarians, consciously or unconsciously, activate those negative perceptions or stereotypes, it is not likely for them to learn to collaborate effectively.

Many survey respondents noted, and the authors agree, that the key solution is to enhance institutional communication and understanding and to build a trusting team culture. Studies have shown that regular, honest and open communication is essential "to move the conversation past cooperating on simple task assignments to understanding the other's perspective and building trust."<sup>42</sup> A basic understanding of each other's concerns and future plans and goals, as Moody asserts, will help create a supportive environment conducive to solving problems and implementing new initiatives together. "Only those who take the time to understand one another's viewpoints will be able to successfully interact and work in this type of team environment."<sup>43</sup> More importantly, management and leadership play a critical role in cultivating a trusting team environment. As evidenced in Ruppel and Harrington's study, "management sets the tone for the open communications that influence trust."<sup>44</sup> It is when trust among colleagues is developed, sustainable partnerships can then be established for the advancement of the institution.

In their final comments of the survey, some respondents pointed to possible directions for the future:

I do wish there were more opportunities for collaborating across these functional areas. When we get too siloed we each develop stereotypes and misperceptions of each other, which gets in our respective ways at the end of the day. But when we work together we each have important expertise to bring, and I think along the way we learn about each other that we each have important skills and qualities that together allows us to keep our institutions thriving.

Both sides need to learn to focus on the needs of the user, and the best way to accomplish that goal within the parameters of the budget, the available software and hardware, best practices, and established standards. Conversation and planning involv-



ing both technical services and public services personnel needs to be established practice, with total disregard as to “who wins” a discussion. The only possible winner should be the user.

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## Appendix. Survey Questions—Cross Perceptions of Public and Technical Services Librarians

### Background information

For the purpose of this survey, the role of the public services librarian provides reference and instruction support, circulation/access services, reserves, interlibrary loan, scholarly communication, and digital commons/knowledge expertise.

The role of the technical services librarian provides support for electronic resources, serials, cataloging, acquisitions, collection development, and systems.

The creators of this survey recognize that your library may be organized a little different, however, please select a role with which you identify the most.

(Survey respondents will be redirected to different sets of questions depending on the answer to question #1)

1. Please select the type of work you do.
  - a. Public services
  - b. Technical services

### Demographic Questions

2. How long have you been in the library and information science profession?
  - a. 0-1 year
  - b. 1-5 years
  - c. 6-10 years
  - d. more than 10 years
3. Please select your institution type.
  - a. four-year college/university (primarily undergraduate programs)
  - b. four-year research university (with doctorate programs)
  - c. Community college
  - d. Other (e.g. public library, special library) ( Please specify \_\_\_\_\_ )
4. Please select the size of your library collection including both electronic and physical formats.
  - a. Less than 100,000 titles
  - b. 100,000–500,000 titles
  - c. 500,000–1 million titles
  - d. 1 million–3 million titles
  - e. More than 3 million titles
5. Please select the size of your student body (if applicable).
  - a. Less than 2,500
  - b. 2,500–5,000
  - c. 5,000–10,000
  - d. 10,000–20,000
  - e. More than 20,000

### Questions for Technical Services Librarians

1. What are the core qualities of technical services librarians in support of the development of library and user needs? (rank from most to least)
  - a. Responsiveness to change
  - b. User-centered service philosophy
  - c. Collaborative nature
  - d. Adaptability to emerging technologies
  - e. Forward thinking
  - f. Motivation to start new initiatives or respond proactively
  - g. Other (Please describe \_\_\_\_\_ )

2. What are the core qualities of public services librarians in support of user needs? (Likert chart— rank from most important to least important)
  - a. Responsiveness to change
  - b. User-centered service philosophy
  - c. Collaborative nature
  - d. Adaptability to emerging technologies
  - e. Forward thinking
  - f. Motivation to start new initiatives or respond proactively
  - g. Other (Please describe \_\_\_\_\_ )
3. What do you think is the shared public services librarians' perception of technical services librarians? (Mostly agree to least agree)
  - a. Responsiveness to change
  - b. User-centered service mentality
  - c. Collaborative
  - d. Adaptability to emerging technologies
  - e. Forward thinking
  - f. Motivation to start new initiatives or respond proactively
  - g. Inflexible
  - h. Disconnect from users
  - i. Reluctant to change
  - j. Care too much about MARC records
  - k. Other (Please specify \_\_\_\_\_ )
4. What current initiatives (projects) does your technical services department have in support of the institution mission and goals? (open ended)
5. Do you agree or disagree with the statement, "Your technical services department currently provides support/service that has direct impact on library users.?"
  - a. Agree. Why \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - b. Disagree. Why \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
6. What changes would you like to see happen to the technical services position in a role integral to public services initiatives? (open ended)
7. In what ways have you sought out opportunities to collaborate with public services colleagues? Have they been successful? Any advice would you like to offer? (i.e. lessons learned) (open ended)
8. How do you see public services supporting the mission and goals of your institution? (open ended)

### Questions for Public Services Librarians

1. What are the core qualities of public services librarians in support of the development of library and user needs? (Likert chart rank from most important to least important)
  - a. Responsiveness to change
  - b. User-centered service philosophy
  - c. Collaborative nature
  - d. Adaptability to emerging technologies
  - e. Forward thinking
  - f. Motivation to start new initiatives or respond proactively
  - g. Other (Please describe \_\_\_\_\_ )
2. What are the core qualities of technical services librarians in support of the development of library and user needs? (Likert chart—rank from most important to least important)
  - a. Responsiveness to change
  - b. User-centered service philosophy
  - c. Collaborative nature
  - d. Adaptability to emerging technologies
  - e. Forward thinking
  - f. Motivation to start new initiatives or respond proactively
  - g. Other (Please describe \_\_\_\_\_ )
3. What do you think is the shared public services librarians' perception of technical services librarians? (Mostly agree to least agree)
  - a. Responsiveness to change
  - b. User-centered service mentality
  - c. Collaborative
  - d. Adaptability to emerging technologies
  - e. Forward thinking
  - f. Motivation to take initiatives and actions
  - g. Inflexible
  - h. Disconnect from users
  - i. Reluctant to change
  - j. Care too much about MARC records
  - k. Other (Please specify \_\_\_\_\_ )
4. Do you agree or disagree the statement, "Your technical services department currently provides support/service that has direct impact on library users."?
  - a. Agree. Why \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - b. Disagree. Why \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
5. What role would you envision technical services play in public services initiatives?
  - a. Project management
  - b. Implementation
  - c. Conversation on planning
  - d. Usability
  - e. Technical support
  - f. Other (Please specify \_\_\_\_\_ )
6. In what ways have you sought out opportunities to collaborate with technical services? Have they been successful? Any advice you would like to offer? (i.e. lesson learned) (open ended)
7. How do you see technical services supporting the mission and goals of your institution? (open ended)

# What Does Giving Primacy to a Certain Entity Cause in a Conceptual Model for Cataloging?

## Expression-Entity Dominant Model Revisited

Shoichi Taniguchi

*Which entity is given primacy in a conceptual model for cataloging is an important issue in metadata interoperability. This study investigates the implications and consequences of giving primacy to different entities among models and the merit of the expression-entity dominant model. FRBR and four other models derived from FRBR that give primacy to different entities are examined. Several modeling issues, such as optionality or necessity of establishing entity instances, cardinality between entities, and treatment of titles and statements of responsibility that appear in a resource, are examined for each model and the results are compared.*

The International Federation of Library Associations and Institutions (IFLA) Study Group on the Functional Requirements for Bibliographic Records developed a conceptual model for the bibliographic universe to be dealt with in cataloging.<sup>1</sup> This model—referred to as “FRBR model” here—was constructed with the entity-relationship modeling technique. Various other models for the entire bibliographic universe, or for a limited scope such as for musical resources, have also been proposed. FRBR and other models consist of multiple entities to represent a bibliographic resource in terms of entity-relationship modeling, or multiple classes in terms of the Resource Description Framework (RDF), a standard model for data interchange on the web. FRBR defines ten entities that include a group of four bibliographic entities, work, expression, manifestation, and item, to represent a bibliographic resource. These four entities all seem to be necessary to describe a resource from a theoretical viewpoint, but actually the work entity and/or the expression are not mandatory (i.e., can be omitted) in some cases when the implementation of the model is considered, whereas the manifestation entity is always required. The item entity is also omitted when item-specific information is not needed. This is a logical consequence inferred from the model.

However, few models declare, or even address, which entity (or class) is to be given primacy among bibliographic ones, while an individual model implicitly (and thus substantially) gives primacy to a certain entity. If dominant entities are

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different among models consisting of the same set of entities, the optionality or necessity of establishing an entity instance, assignment of some attributes to an entity, etc., will be different among those models, and finally, different metadata for the same resource will be created in accordance with the models. Therefore, whichever entity is given primacy within a model is an important issue for metadata interoperability.

Taniguchi recognized this point and introduced a viewpoint regarding which entity is given primacy among bibliographic entities in a model.<sup>2</sup> He outlined a model giving primacy to expression-level entity, i.e., an expression-dominant model, by indicating differences from the FRBR model, which deals with the manifestation as being dominant. The expression entity is defined in FRBR as “the intellectual or artistic realization of a work in the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms,” while the manifestation is defined as “the physical embodiment of an expression of a work.”<sup>3</sup>

The expression-dominant model intends: (1) to shift to a more content-oriented model from one based on a resource’s physical features (i.e., manifestation-dominant model), and (2) to organize bibliographic resources primarily at the expression level, rather than at the work level. Both the expression and work entities bear the content aspect of a resource, but the expression is more stably grasped and identified than the work. The expression has “the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc.,” which can be objectively observed, and usually has a clue such as a title, statement of responsibility, etc. that identifies it or notifies a change to it.<sup>4</sup>

Research on the expression-dominant model is limited to Taniguchi’s studies, and related research and projects have appeared thereafter, which will be described later.<sup>5</sup> In this paper, FRBR and four other models derived from FRBR that give primacy to different entities in the models are examined, such as the expression-dominant model, work-centric model, etc. For each model, several modeling issues, such as optionality or necessity of establishing entity instances, cardinality between entities, and treatment of titles and statements of responsibility that appear in a bibliographic resource, are examined and the results are compared between the models. The resultant differences among the models led to (1) the implications and consequences of giving primacy to different entities and (2) the merit of the expression-dominant model.

## Research and Projects on the Expression-Dominant Model

The issue of which entity should be given primacy among bibliographic entities in a model has not previously been

examined except in studies by Taniguchi. No studies have attempted to examine the expression-dominant model (or its equivalent) as another choice of conceptual metadata model for the bibliographic universe. However, if the scope of exploration is extended beyond the conceptual models, some related research and projects on the expression-dominant model can be found.

FaBiO, the FRBR-aligned Bibliographic Ontology, imports the FRBR bibliographic entities as main “classes” in RDF vocabulary, and adds “properties” between them (i.e., relationships in the entity-relationship modeling), such as “hasManifestation” and “isManifestationOf” between work and manifestation, “hasPortrayal” and “isPortrayalOf” between work and item, etc., which are not defined in FRBR.<sup>6</sup> While FaBiO uses these FRBR classes, it places emphasis on the expression class by associating with the expression all the content description “properties” (i.e., attributes in the entity-relationship modeling) such as title of journal article, publication year, etc. FaBiO assigns only properties related to physical carrier and format to the manifestation class. It is a kind of expression-dominant model, although it does not address that modeling issue.

Another example is the Dublin Core Application Profile for Scholarly Works.<sup>7</sup> This application profile is based on FRBR; it defines the entities scholarlyWork (renamed from “work” in FRBR), expression, manifestation, and copy (renamed from “item”). However, it clearly shifts the focus to the expression entity. Title, description, identifier, date available, etc. are all associated with the expression, while only format, date modified, and publisher are associated with the manifestation. Currently, further studies are underway to represent complex real-world situations related to scholarly publications under the Common European Research Information Format (CERIF) development.<sup>8</sup>

Additionally, two studies conducted by Pisanski and Žumer revealed that users hold different views on the bibliographic universe, but generally have FRBR-like views.<sup>9</sup> Their studies also revealed that users generally seek bibliographic resources at the expression (not work) level or at the manifestation level, depending on their needs at the time, which coincides partly with the benefit of the expression-dominant model.

Google Scholar can be considered from a similar viewpoint. Search results in Google Scholar provide the title of a paper or report as well as a number indicating how many “versions” of the paper or report are available on the web. This number is linked to a list of the versions available for a paper or report. Google Scholar seems to try to collocate papers and reports at the expression-level while ignoring differences in file locations and formats, but it does not create detailed metadata for such resources. Web-scale discovery services implemented in libraries conduct a similar collocation to combine both print and digital editions of a resource.

Coyle argues that the expression-dominant model is an appropriate approach to organize resources in federated search systems that combine physical and digital versions of the same content resources.<sup>10</sup>

## Models Giving Primacy to Different Entities

The FRBR model consists of the four entities to represent bibliographic resources: work, expression, manifestation, and item. The entity “item,” “a single exemplar of a manifestation,” is not considered in the current discussion.<sup>11</sup> Instances of the entity “item” are required for every resource to record location, condition, and/or other administrative data. However, the entity has no relation to the issue of which entity is given primacy in the model, except in cases where resources are unique, such as rare books and incunabula.

The following models are derived from FRBR by changing the entity to be given primacy:

- Model 1: Expression-dominant model, which was originally proposed by Taniguchi while referring to the FRBR’s four bibliographic entities model.
- Model 2: Manifestation-dominant model, which is FRBR itself.
- Model 3: Work-centric model, which gives primacy to the work entity within the FRBR model’s structure.
- Model 4: Model consisting of the two entities—the work entity and the combined expression-and-manifestation entity, where the latter entity is given primacy. It is a model blended from Models 1 and 2.
- Model 5: Model consisting of the two entities—the combined work-and-expression entity and the manifestation entity, where the former is dominant. It is blended from Models 1 and 3.

Models 3 to 5 were devised for this study while referring to the FRBR model. Model 3 was derived from FRBR by simply changing the dominant entity, whereas Models 4 and 5 were composed through the combination of multiple entities with given primacy. Models 1 to 5 will be examined in terms of several modeling issues to identify differences from each other. Those modeling issues are chosen as checkpoints that would reveal differences among the models.

Various other models can be found which reference FRBR or have similar multi-entity structures, such as BIBFRAME and the “indec” model. Although there seems to be overlap between the entities adopted by those models and the FRBR entities, slight (but significant in some cases) differences in entities’ definitions seem to exist even if the same entity name is used. The BIBFRAME model, which is proposed in the Library of Congress’ Bibliographic Framework Initiative, adopts the RDF class “work,” whereas its

definition is different from FRBR’s work, which will be discussed later.<sup>12</sup> Another example is the entity “expression” defined in the “indec” metadata model, which is proposed primarily for e-commerce of content (intellectual property) in a network environment.<sup>13</sup> It is therefore complicated to analyze those models themselves in terms of which entity is dominant and to compare the resultant differences among the models. Instead, it is better to derive all possible models from FRBR as a base model and thus analyze those derived models from the same set of checkpoints. The resultant differences among the models lead to the implications and consequences of giving primacy to different entities. The draft FRBR-Library Reference Model (LRM), a consolidation of the FRBR, FRAD, and FRSAD conceptual models, adopts the four bibliographic entities—work, expression, manifestation, and item, whose basic structure is kept unchanged from FRBR.<sup>14</sup> The examination conducted in this study as it is will be applied to FRBR-LRM.

Incidentally, it might be theoretically possible to give primacy to all entities constituting a model, meaning that it is possible to deal with all entities equally. However, an individual model implicitly (and thus substantially) gives primacy to a certain entity. FRBR seems to not give primacy to any entities. The FRBR model as it is, however, substantially gives primacy to the manifestation entity, which will be examined later. The model is neither expression-dominant nor work-centric.

### Model 1: Expression-Dominant Model

The purpose of giving primacy to the expression entity is to differentiate the content of a bibliographic resource from its physical carrier or format and to organize such resources at the expression level. The expression-dominant model proposed earlier is an example of this. Figure 1 shows the model at the instance level: one work instance, two expressions, and three manifestations, in addition to two instances of person, family, or corporate body (hereafter, PFC), and relationships between the instances. The word “instance” is used throughout this paper to distinguish an instance of an entity in a resource model from an entity type or class itself. Some principal attributes are also shown for the bibliographic entities.

a-1) Definitions of bibliographic entities, and the unit of establishing entity instances: The definitions of the entities are the same as those in FRBR. In comparison, there can be more than one criterion for the unit of establishing an expression instance within the expression entity (namely more than one criterion for determining the boundaries between one expression instance and another). The most granular one should be adopted while ignoring trivial variations. The latest amended version of FRBR states that “Minor changes, such as corrections of spelling and punctuation, etc., may be considered as variations within the



same expression.”<sup>15</sup> Accordingly, an expression instance should be established, for example, at the level of the Japanese translation of Shakespeare’s Hamlet by a person X, or that by a person X in year YYYY.

a-2) Optionality or necessity of creating bibliographic entity instances: Expression instance(s) are created for every resource being described; expression(s) are added to the model that represents a particular individual resource. This is a logical consequence deduced from the premise that the expression entity is chosen to be given primacy.<sup>16</sup> It can be represented by the minimum cardinality of the relationships between expression and other bibliographic entities, i.e. work and manifestation. If creating an expression instance for a resource is mandatory in the resource model creation, the minimum cardinality is 1 (not zero) on the expression side of the relationships between expression and other entities.

From the above, the manifestation is a kind of “weak” entity in this case. A “weak” entity is one that cannot be uniquely identified by its attributes alone and thus its existence is dependent on another entity, that is, the expression, which can exist without a work instance. Manifestation instances are depicted with double-lined rectangles in figure 1, which indicate that the entity is “weak.”

Regarding creating an instance of the entity below the expression, i.e., a manifestation instance, there could be two possible interpretations. One is that a manifestation instance is required to represent a resource’s physical aspects. The other is that the manifestation instance can be omitted in cases where no physical information on a resource is provided. This implies that only expression instance(s) are created for a resource. On the contrary, from a theoretical viewpoint, it is not necessary to create work instance(s) since the work entity is not dominant here and expression instance(s) can exist in themselves. In a practical situation, however, it is permitted to adopt a policy to create work instance(s) for every resource, if necessary. Additionally, developing a work instance is usually necessary to draw “subject” relationships to other entities such as concept, object, etc. defined in FRBR when it is suitable to represent the subject dealt with in a resource. If a work instance is not developed, associating an expression instance with such entities for subject

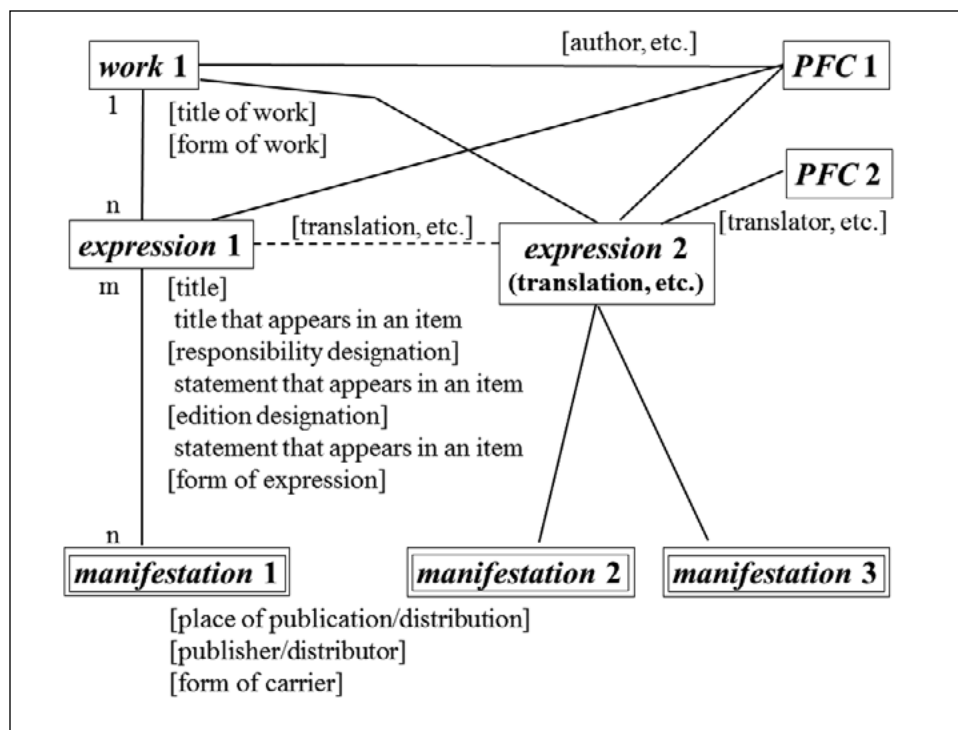


Figure 1. Model 1: Expression-Dominant Model

representation, instead, could be adopted as an expediency. Drawing “subject” relationships will not be considered further in this paper.

a-3) Cardinalities between bibliographic entities: According to FRBR, the maximum cardinality of the relationship between work and expression is one-to-many; each work has one or more expressions that realize it and each expression realizes just one work. Contrary to this, that relationship’s cardinality could be changed to many-to-many, which means that one or more work instances can be developed for a single expression instance in a resource model when necessary. It is valid if we adopt an interpretation that creating work instances depends on cataloging codes and various cultures or national groups—FRBR itself points out this issue—and consequently different works could be recognized for a single expression depending on such codes or others.<sup>17</sup> The cardinality of the relationship between expression and manifestation, in contrast, is many-to-many in this model, which is the same as FRBR.

b) Relationships to PFCs: PFCs have relationships with bibliographic entities to represent “responsibility” relationships, such as “is created by,” “is realized by,” etc. A creator, for example, an author of a textual work or a composer of a musical work, is linked to the work and expression instances that are created and realized by the creator. A reviser, translator, etc. who revises or translates an expression, or a performer of a musical work, is associated only with

expression instances. Figure 1 shows that the entity instance PFC 1 is linked to work 1 and expressions 1 and 2, while PFC 2 is linked only to the expression 2. If developing work instance(s) is optional and thus can be omitted, relationships between PFC and the expression are required to be represented in the resource model.

c) Treatment of titles and statements of responsibility that appear in a resource: Titles and statements of responsibility that appear in a resource should be associated with the expression entity in the expression-dominant model. This was noted earlier.<sup>18</sup> It implies that such titles and statements of responsibility can be handled as the attribute values of the title and responsibility designation of an expression instance without any problem. Such titles and others in a resource are reasonably abstracted to those at the expression level. They are used as external clues to the identity of expressions; the same title and statement of responsibility indicate the sameness of texts, images, or sounds, even with trivial variations, such as corrections of spelling and punctuation in texts, etc. Conversely, resources comprising the same expression rarely have different titles and statements of responsibility, except in cases of re-publication among different publishers, for example. Likewise, edition statements found in a resource are attributed to the expression when those statements represent the state of text, image, etc., such as “revised edition” and “Japanese translated edition.” If statements are related to differences in form and format, they are attributed to the manifestation. The expression entity therefore has these attributes plus those defined in FRBR, such as form of expression, date of expression, language of expression, etc.

The manifestation entity provides the attributes about a resource’s physical carrier and format, and its publication, production, and distribution. Titles and others that are attributed to the expression are not usually associated with the manifestation. A manifestation instance in principle does not have a title, statement of responsibility, etc. in a resource model.

d-1) Treatment of aggregate resources with collective titles: An earlier study of modeling of component parts in the expression-dominant model addressed two types of component, “document part” and “content part,” which are physically an independent component and a dependent component, respectively.<sup>19</sup> The present study introduces a different viewpoint: whether an aggregate resource has its own collective title. A component part here is a “content part,” which is not physically independent of its host.

When an aggregate host has a collective title and individual components within the host have their own titles, (1) an expression instance (and also a work, if appropriate) can be developed in a resource model for an individual component, and (2) the title of a component is associated with the expression instance in the model. Of course, an expression instance (and also a work) for the host resource is developed separately

in a resource model and should represent whole/part relationships to the instances for the components. Additionally, a manifestation instance for the host resource is developed in a resource model to represent the host’s physical characteristics. Manifestation instances for individual components are not developed since components here lack physical characteristics except the location of a component within the host. Developing work instances for components and their host in a resource model depends on the policy described earlier.

d-2) Treatment of aggregate resources lacking collective titles: When a host resource lacks a collective title addressing the entire resource, expression instances (and also works, if appropriate) for individual components with their titles are developed and linked to the same manifestation instance for the host resource. Thereby, one manifestation instance can accommodate more than one expression in this case, representing many-to-one cardinality of the “is embodied in” relationship between expression and manifestation. Titles and statements of responsibility that appear in such a host, which are the combination of individual titles and statements of responsibility of the components, are associated with the manifestation—this is an exceptional case in the expression-dominant model.

An expression (and also work) instance for such a host resource lacking its own title is not usually created in this model. In a practical situation, it would be possible to conveniently create an expression (and also work) instance for such a resource with a devised title.

e) Treatment of abridgement, revision, translation, etc.: Abridgement, revision, translation, etc. result in different expression instances from original expressions. Those expressions with such relationships can be linked; the expressions 1 and 2 in figure 1 are linked with a dotted line, representing such a relationship. They are also linked to the same work instance from which abridgement, etc. originate if the work is developed. Collocation of expression instances at the work level, as a result, is attained.

f) Treatment of resources with equivalent content but different physical characteristics: Different manifestation instances are created for resources with equivalent content but different physical characteristics, such as various carriers or formats. In the model, such manifestations are linked to the same expression corresponding to that content. Collocation of manifestation instances at the expression level for such resources is properly attained.

g) Other issues: Developing work instances remains an issue in this model, while those instances are needed to properly represent the “responsibility” relationship to PFCs and the “subject” relationship to other entities. This issue cannot be solved by a theoretical discussion.

An appendix is provided to illustrate an example that is consistent with the expression-dominant model. For this illustration, the following expedients are adopted: (1)

using existing MARC21 bibliographic records; (2) transferring the data elements of the MARC records to the attributes of the bibliographic entities; (3) supplying data values to nearly mandatory attributes if no data value is found in the MARC records—they are preceded by “+”; and (4) indicating relationships between bibliographic entities and PFCs under the former entities. MARC bibliographic records with LC control numbers 97001449, 80017667 and 88036703, representing a family of books, Margaret Maxwell’s *Handbook for AACR2* and name authority records corresponding to the two persons (LC name authority control numbers 80017667 and 95028779), are used here. The resulting set of instances is one work, three expressions, and three manifestations; each expression has one manifestation in this case. If there is a digital version of any of the books, only a new manifestation is added and linked to the proper expression. The two PFC instances are briefly illustrated.

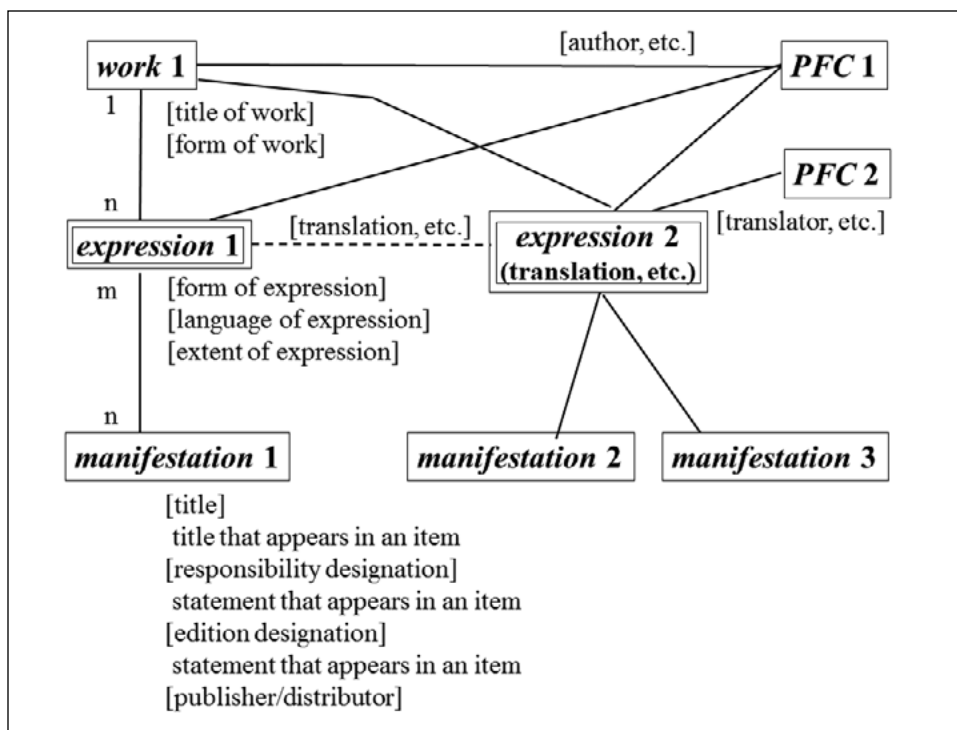


Figure 2. Model 2: Manifestation-Dominant Model

### Model 2: Manifestation-Dominant Model

a) Model 2 is the FRBR model itself. Figure 2 shows the model at the instance level with some major attributes. Developing a manifestation instance is mandatory for every resource, since the manifestation entity is given primacy. FRBR intends that creation of a work instance is mandatory, but it does not provide any rationale. The expression may be a “weak” entity, depending on the work, and instance creation for the expression is mandatory or optional, depending on the policy on work instance creation and on relationships between them.

b) A creator (author, composer, etc.) is associated in this model with the work and expression instances created and realized by the creator. A PFC that revises, translates, etc. an expression, or performs a musical work, is associated only with the expressions that the PFC realized. These are based on the premise that work and expression instances are properly developed in the model, but this is not assured as described above.

c) Titles and statements of responsibility appearing in or on a resource are associated with the manifestation entity, as FRBR describes. The model does not associate statement of

responsibility with the expression. Although FRBR defines the attribute “title of the expression,” its position and treatment are vague; FRBR-LRM does not adopt such an attribute anymore. In figure 2, the expression lacks an attribute for title.

d-1) When an aggregate host resource has a collective title, (1) work (and expression) instances are developed in the resource model for individual components within the host; (2) the title of a component is associated with the work (not the expression) instance for the component; (3) a work instance (and an expression) for the host is developed; and (4) whole/part relationships between the component works and the host work (and between the component expressions and the host expression) are developed.

It is readily accepted that, even in the manifestation-dominant model, the title of a component, which appears along with the collective title of the host resource, is associated with the work instance for the component. Because no manifestation instance is usually developed in a resource model for an individual component, we regard titles that appear in a resource but represent components within the resource as titles for the component works without any hesitation.

d-2) When an aggregate host lacks a collective title, work (and expression) instances for individual components with their titles are developed in the resource model, and these instances are linked to the same manifestation

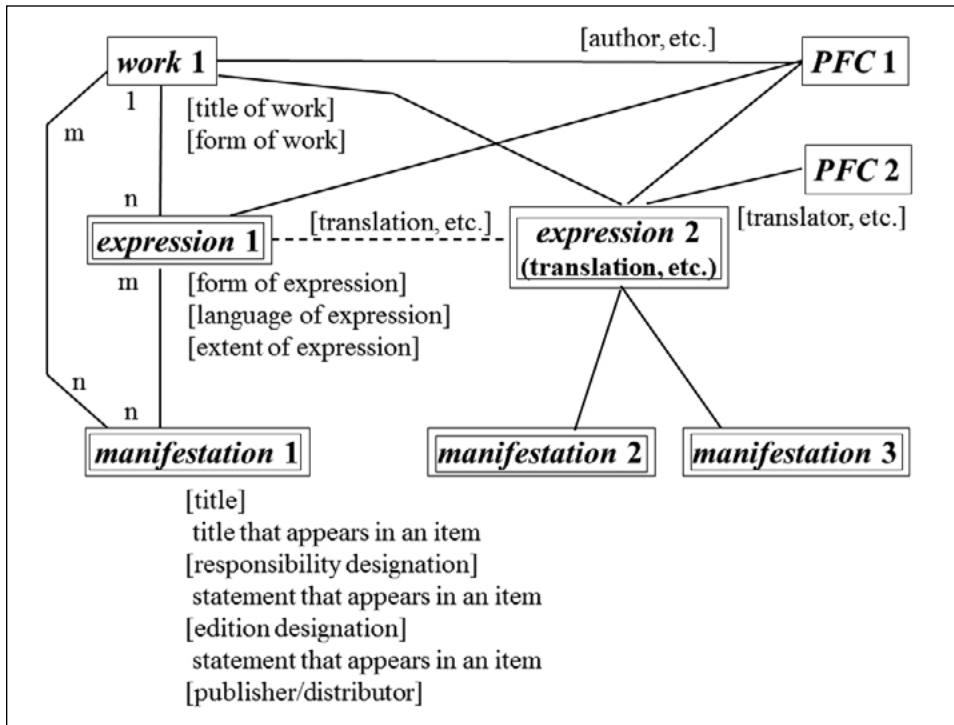


Figure 3. Model 3: Work-Centric Model

instance for the host. The title of the manifestation for a host in such a case is the combination of individual titles of the components. It is unclear whether developing a work instance (and an expression) corresponds to the host.

e) Revision, translation, etc. create different expression instances from those upon which the revision, etc. is based—this is the same as the treatment in Model 1. Those expressions are associated with the same work from which revision, translation, etc. originate, if the work instance is developed in the model. Figure 2 depicts such an expression-to-expression relationship with a dotted line.

f) Resources with equivalent content but different physical characteristics require the development of different manifestation instances for individual resources in resource models. These manifestations are linked to the same expression corresponding to that content, if the expression is developed in the model. However, expression instance creation is unclear in this model as previously noted. If those manifestations are linked to the same work embracing that content, instead of an expression, they are intermingled with other manifestations like revision, translation, etc. under the same work. Collocation of manifestation instances at the expression level is not attained.

g) This model focuses on the manifestation, which includes both the resource's content and the physical characteristics. However, those two aspects (or characteristics) are not separable at the manifestation level; rather,

the resource's physical aspect is emphasized at that level. In contrast, treatment of the work and expression is uncertain. Whether work and/or expression instances are developed in a model for every resource, or for what cases those instances are developed, is unclear. In particular, treatment of the expression entity in this model is ambiguous while in the cases of the above b) and d) to f), expression instances take important roles.

### Model 3: Work-Centric Model

a-1) In this model, the work entity is dominant among the entities while the definitions of the entities are the same as those in FRBR. Figure 3 shows this model at the instance level.

The model adopted by the Indiana University Variations

project is similar to this model. The model in Variations2 focuses on recorded classical music and consists of the entities “work,” “instantiation,” “container,” and “media object,” which basically correspond to work, expression, manifestation, and item, respectively, in FRBR.<sup>20</sup> The Variations model, however, is work-centric, and hence “the Variations model does not re-use Instantiations on multiple Containers, whereas, according to FRBR, the same performance issued multiple times would be modeled as one Expression appearing on multiple Manifestations.”<sup>21</sup> This means that the entity “instantiation” (i.e., being equivalent to the expression) is “weak” and dependent on the work. Variations3, the latest project, adopts a modified version of FRBR but is still work-centric.<sup>22</sup>

a-2) Only work instances are mandatory, whereas expressions and manifestations are optional and dependent on their corresponding works; that is, the expression and manifestation are “weak” entities. A manifestation instance is usually developed in a resource model to represent the physical aspect of a resource. Creating work instances for collected works including compilations, assembled collections, etc. in the resource model is an important issue involved in this model; how do we deal with such resources and develop work instances in a stable manner?

a-3) The relationship between work and expression and between expression and manifestation are the same as those in Models 1 and 2. The relationship between work and manifestation is newly introduced, of which cardinality

is many-to-many. This relationship is needed when an expression is omitted but the physical aspect of a resource is recorded with a manifestation. In figure 3, the relationship between work 1 and manifestation 1 is depicted, while relationships from work 1 to manifestations 2 and 3 can be also depicted.

b) The relationships between work and PFC and between expression and PFC are equivalent to those in Models 1 and 2. However, creating in a resource model an expression instance is optional and thus drawing the relationship between expression and PFC depends on the existence of expression instances.

c) Titles and statements of responsibility that appear in or on a resource are associated with the manifestation entity, in the same manner as that in Model 2. In comparison, it is generally difficult to abstract directly a title that appears in a resource as such to a title of the work since a work covers more than one language/script edition and abridged/revised/translated edition.

d) For aggregate resources with collective titles, the patterns described in Model 2 are valid for this model, although expression instance creation in a resource model is unclear here. Assignment of attributes in this model is also the same as that in Model 2.

e) The treatment of abridgement, revision, etc. in Models 1 and 2 is also applied in this model, while developing expression instances in a resource model is not assured.

f) The treatment of resources with equivalent content but different physical characteristics in this work-centric model is the same as those in Models 1 and 2, while developing expression instances is not clear in this model. Manifestations with different physical characteristics are linked to the same expression or work corresponding to that content; of course, the relationship with the expression is dependent on the existence of the expression instance. Collocation of manifestation instances at the expression level is attained only when necessary expressions and proper expression-to-manifestation relationships are developed.

g) Developing expression instances is an unresolved issue in this model. Both the expression and manifestation are “weak” entities and dependent on the work. A manifestation instance is needed to record a resource’s physical

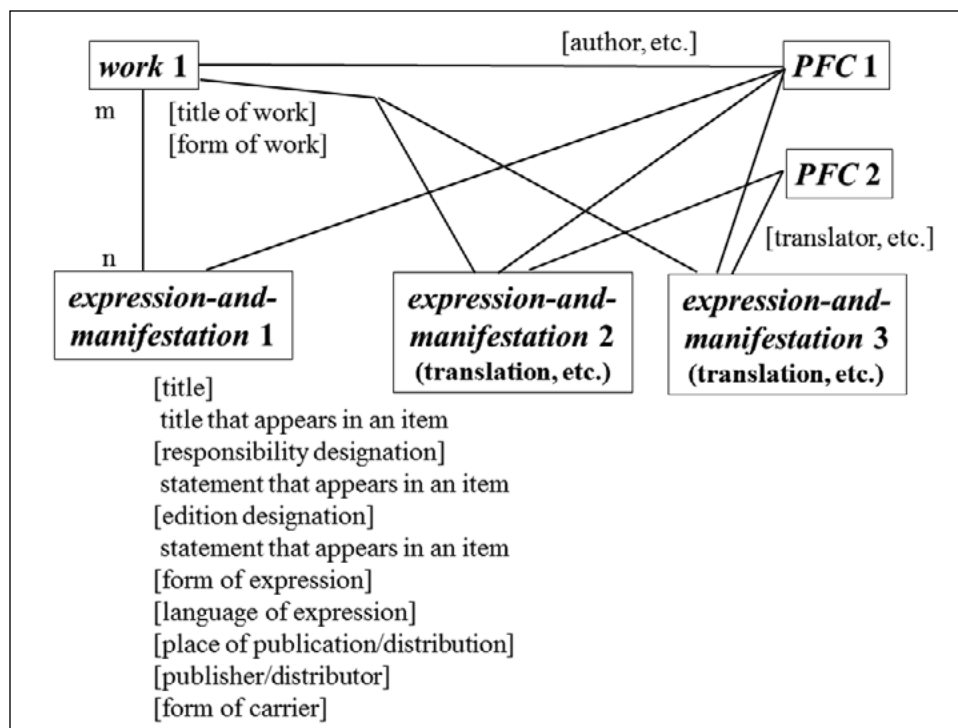


Figure 4. Model giving primacy to expression-and-manifestation

aspect. However, the treatment of the expression is not stable. It is also questionable whether all resources, such as compilations and assembled collections, can be properly managed at the work level.

#### Model 4: Model Giving Primacy to Expression-and-Manifestation

a) Model 4 is made up of two entities: the work and the combined entity of expression and manifestation in FRBR. The expression-and-manifestation (hereafter E-M) entity is given primacy in this model. Figure 4 depicts this model at the instance level. If the dominant entity is changed from the E-M to the work, the resultant model will be similar to Model 3 with minor differences. Hence, this section discusses the model in which the E-M entity is dominant.

An E-M entity instance is established on a unit of smaller original entity; that is, the unit of manifestation in usual cases, but that of expression in some cases. This model is similar to Model 2, being manifestation-dominant, in this respect. Additionally, whether a work instance is required is not clear, the same as in Model 2. An E-M instance is required for every resource. The cardinality of the relationship between work and E-M is either one-to-many or many-to-many, depending on the policy or interpretation of works, as described in Model 1.

This model seems to be similar to that implemented in

conventional cataloging practice; a uniform title authority record corresponds to a work instance and a bibliographic record corresponds to an E-M instance. FRBR, which is Model 2 in this paper, reflects conventional cataloging practice, but Model 4 would be more similar to it because an E-M instance is close to what a conventional bibliographic record represents.

b) The relationship between work and PFC is equivalent to that in Models 1 to 3. However, expression (e.g., text, sound, etc.) is embedded in the combined E-M entity, and thus the relationship between E-M and PFC is also developed in a resource model for representing the “responsibility” relationship. In Figure 4, the instance PFC 1, which is a creator, is associated with the E-M instances 1 to 3. PFC 2, which is a translator, etc., is linked to E-Ms 2 and 3.

c) Titles and statements of responsibility appearing in or on a resource are associated with the E-M entity. The E-M, being the resultant entity from the entities integration, has both attributes related to the expression—such as form and language of expression—and those related to the manifestation—such as place of publication/distribution, date of publication/distribution, form of carrier, etc.

d) An E-M instance (and a work) is developed in a resource model for an individual component and its host resource, when the aggregate host and its individual components have their own titles. The component’s title is associated with the E-M for the component, of which the unit is in accordance with the unit of expression, which is smaller than that of manifestation in such a case. Whole/part relationships between the E-M instances (and between the work instances) can be developed in the model. When an aggregate host lacks a collective title addressing the entire resource, the same treatment is applied as that for a host having its collective title.

e) For cases of abridgement, revision, etc., different E-M instances from those upon which the abridgement, etc. was based are created in this model. Those instances are associated with the same work from which the abridgement, etc. originates.

f) Equivalent content with different physical characteristics causes different E-M instances for individual resources in the model. These instances are linked to the same work corresponding to that content. However, they are intermingled with other E-Ms like abridgement, revision, etc. under the same work. These two groups cannot be differentiated from each other based on their relationship to the work.

g) Collocating of instances at the expression level cannot be attained as described above. The model shows partially the characteristics of being manifestation-dominant. Collocation at the work level, in contrast, is attained if necessary work instances and their relationships to corresponding E-Ms are created in the model. “Responsibility” relationships between bibliographic entities (e.g., E-M and work)

and PFC may be complicated; it is not clear which E-M, work, or both is needed to represent such a relationship in a given case.

### Model 5: Model Giving Primacy to Work-and-Expression

a) Model 5 consists of two entities: a combined entity of work and expression and the manifestation, where the former is given primacy (see figure 5). A work-and-expression (hereafter W-E) instance is usually established for a smaller unit, namely, that of the expression, not the work, and creating that instance is mandatory. A manifestation is also required for every resource, while the manifestation is a “weak” entity dependent on W-E. The cardinality of the relationship between W-E and manifestation is many-to-many.

If we were to give primacy to the manifestation among these two entities, the resultant model would be substantially equivalent to Model 2, i.e., the manifestation-dominant model. This section therefore deals with the model giving primacy to the W-E entity.

Meanwhile, the distinction between the above two entities in this model is similar to that between “Work” and “Instance” in the BIBFRAME model. BIBFRAME’s “Work” and “Instance,” which are defined as RDF classes, correspond to the combined W-E and the manifestation, respectively.<sup>23</sup> However, BIBFRAME seems to adopt a policy that does not give primacy to either class (i.e., entity), since it is intended to be used to accept a wide variety of metadata, including metadata based on any model, i.e., a “Work”-dominant model and an “Instance”-dominant one.

b) Both the relationship representing “creation” and that representing “realization,” like revision and translation, are drawn between W-E and PFC. These two relationships are not differentiated with the associated instances, without relationship designators. Figure 5 depicts these relationships between W-E 1 and PFCs 1 and 2.

c) It is not clear whether titles and statements of responsibility that appear in or on a resource are associated with the W-E or the manifestation; both would be possible. If the first choice is adopted, the resultant model will be similar to Model 1. In contrast, if the second choice is adopted, the resultant model will be similar to Models 2 and 4. The W-E entity puts together attributes associated with the work and the expression in FRBR as a result of the entities integration.

d) When an aggregate host has a collective title, (1) a W-E instance is developed in a resource model for an individual component within the host; (2) the title of a component is associated with that instance for the component; and (3) a W-E instance for the host is developed separately and has whole/part relationships to the W-Es for the components. In comparison, when a host lacks a collective title for the entire resource, there are two scenarios. One is that



W-Es for individual components with their own titles are developed in a resource model, and these instances are linked to the same manifestation for the host resource. No W-E for the host is of course created. The other is that just one W-E, in addition to one manifestation, is developed in a resource model for the host, with its title being recorded is the combination of individual titles of the components. No instance for a component is created in this scenario.

e) For the cases of abridgement, revision, etc., different W-Es from the instances based on for abridgement, etc. are created in this model. Hence, collocation at the work level, which aggregates all expressions under a certain work such as original expression, derivative ones, etc., is not attained in this model. Introducing another upper-level entity like “super-work” is needed to attain that collocation, but this results in a similar model to Model 1, i.e., the expression-dominant model.

f) Resources with equivalent content but different physical characteristics result in different manifestations for individual resources. These instances are linked to the same W-E corresponding to that content.

g) There remain some unclear or unresolved issues such as: c) treatment of titles and statements of responsibility that appear in a resource and d) treatment of aggregate resources, in particular, that lack have collective titles.

### Discussion

The results of examining Models 1 to 5 are summarized below.

a-2) Optionality or necessity of creating bibliographic entity instances: Creating in a resource model an entity instance at the level that is given primacy is mandatory as a logical consequence of giving primacy to a certain entity. An expression instance is required in the expression-dominant model, while a manifestation is required when the manifestation entity is dominant. Other entities below the dominant one—if we understand multi-entity models in a hierarchical manner—are in principle “weak,” the existence of which is dependent on another entity. Meanwhile, regardless of which

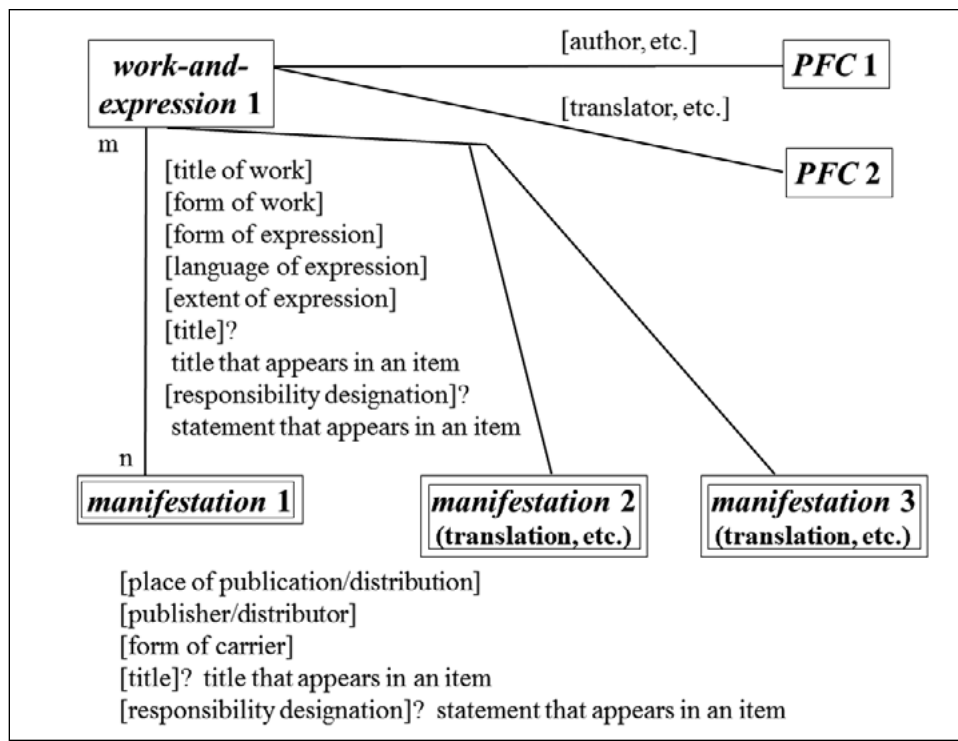


Figure 5. Model 5: Model giving primacy to work-and-expression

entity is dominant, the manifestation entity (or its equivalent in derivative models) is required to describe a bibliographic resource’s physical characteristics. Creating a manifestation instance (or its equivalent) in a resource model therefore is mandatory except in cases where a resource’s physical characteristics do not need to be recorded.

a-3) Cardinalities between bibliographic entities: Changing a dominant entity in a model causes no change in the cardinalities of relationships between bibliographic entities. The cardinalities of those relationships are many-to-many, except that between work and expression, which is one-to-many in FRBR but still debatable. These are also valid even in the derivative models, i.e., Models 4 and 5.

b) Relationships to PFCs: PFCs, which are responsible for a resource’s intellectual content, are associated with the work and the expression (or their equivalents). When there are both work and expression entities, creators and other secondary contributors for the content are differentiated with the linked entities. In the expression-dominant model, these two are properly differentiated. If there is only either work or expression in a model, creators and other contributors for the content are not differentiated with the linked entities; we need another mechanism to differentiate them, such as relationship designators adopted in RDA (Resource Description and Access).<sup>24</sup> Changing a dominant entity in a model influences the extent of the requirement of an entity instance and thus places a constraint on the relationships

between PFCs and bibliographic entities.

c) Treatment of titles and statements of responsibility that appear in or on a resource: Titles and other information that appear in a resource are in principle associated with the dominant entity in a model. Exceptions are the models that give primacy to the work entity or its equivalent, i.e., Models 3 and 5. In these models, there is a gap between the treatment of such titles and the titles for components within a resource, which is described in d-1) and d-2) below.

d-1) Treatment of aggregate resources with collective titles: Expression and/or work instances (or their equivalents) are developed in a model for individual components within an aggregate host. They, or one of them, usually correspond to the dominant entity in a model. Concurrently, an instance for the host is developed in a model at the dominant entity level and the levels below it. Whole/part relationships between the instances for components and that for the host are developed at the same entity level, such as expression-to-expression and work-to-work relationships.

An exception is Model 2, i.e., FRBR, in which those instances can be developed in the model for components and their host, but they are not both instances at the dominant entity level. This indicates that proper treatment of aggregate resources having collective titles is not assured in Model 2.

d-2) Treatment of aggregate resources lacking collective titles: The same treatment of components as that described in d-1) is applied in every model. In contrast, a manifestation (or its equivalent) is developed in a model for a host, regardless of whether the manifestation entity is dominant. Additionally, “embodiment” relationships are developed in a model between the instances for components, which are expressions and/or works (or their equivalents), and the instance for the host, which is a manifestation (or its equivalent).

e) Treatment of abridgement, revision, translation, etc.: Such resources create in a model different expressions (or their equivalents) from the expression upon which the abridgement, etc. were based. This is independent from the issue as to which entity is dominant. However, if the expression (or its equivalent) is not dominant in a model, it is not assured that proper instances are fully developed for such resources.

f) Treatment of resources with equivalent content but different physical characteristics: Different manifestations (or their equivalents) are created in a model for such individual resources. This is independent from the question as to which entity is dominant. Those manifestations are linked to the same expression or work (or their equivalent) corresponding to that content. As a result, collocation of manifestation instances at the expression level for such resources is properly attained. However, if those manifestations are linked to the same work (not an expression), they are intermingled with other manifestations like revision, translation,

etc. under the same work. These two groups cannot be differentiated from each other based on their relationships to the work.

It is worth noting how the user tasks that FRBR defines are related to the discussion in this paper. FRBR defines the four user tasks: find, identify, select, and obtain, and each task is further divided into “find work,” “find expression,” etc. User tasks related to the dominant entity in a model have a key position in the sequence of user actions performed by users. Users begin their “find” tasks with the dominant entity in most cases, and that entity is necessarily “identified” or “selected” in the action sequence. In the expression-dominant model (i.e., Model 1), a series of tasks thought to be the mainstream begins with the task “find expression” and then “identify expression” or “select expression.” After that, one or more manifestation instances that are linked to each of those expression instances are “identified” or “selected” by the user as appropriate. Subsequent tasks (e.g., “identify or select manifestation,” and “obtain item”) are then performed in turn. The task “find manifestation” is subordinate to the mainstream. The reason is that sufficient data (i.e., attributes) to accomplish the tasks (including the “find” task) are assigned to the expression entity in this model, whereas the manifestation entity does not have such data. The task “find work” is also a possible action that users take first, but the completion of that task is dependent on the comprehensive development of work instances.

In contrast, in the FRBR model (i.e., Model 2), the task “find manifestation” would be carried out first; the manifestation entity has a solid basis for its accomplishment. The tasks “find work” and “find expression” would be less frequently performed, since (1) it is not clear whether work and expression instances exist in all resources and (2) attributes associated with the entities and used as clues to find them are very restricted; this is particularly true of the task “find expression.” The details have been discussed in prior studies by Taniguchi. Similar discussions apply to Models 3 to 5.

## Conclusion

Five models including FRBR were examined in terms of several modeling issues, such as optionality or necessity of establishing entity instances, cardinalities between entities, and treatment of titles and statements of responsibility that appear in a resource. Those models consist of FRBR entities or their derivatives and give primacy to different entities among the models. The following implications and consequences of giving primacy to different entities were confirmed.

The direct consequence of giving primacy to a certain entity in a model is (1) an instance of the entity that is given primacy is created for every resource and (2) titles and

statements of responsibility that appear in a resource are associated with the dominant entity, with some exceptions. In the expression-dominant model, expression instance(s) are created for every resource, and titles and other information that appear in or on a resource are associated with the expression entity. These have already been confirmed in prior studies.

These two issues have an impact on (1) drawing relationships between PFCs responsible for a resource's intellectual content and bibliographic entities, namely, work and/or expression (or their equivalents); (2) treatment of aggregate resources and possible resultant collective titles; (3) treatment of abridgement, revision, translation, etc.; and (4) treatment of resources with equivalent content but different physical characteristics.

The expression-dominant model makes it possible to effectively address these issues. Creators and other secondary contributors of the content are differentiated by "responsibility" relationships with the linked entities, that is, either the work or the expression. Component parts within an aggregate resource are represented by expressions and works. Their host resource is represented by a work, an expression, and a manifestation when the host has its collective title, or with only a manifestation when the host lacks a collective title. Abridgement, etc. and resources with equivalent content with different physical characteristics are properly represented by the expression and manifestation entities. Collocation of instances at both the work level and the expression level are fully attained.

These are the characteristics and merits of the expression-dominant model, leading to consistency with a content-oriented model, neither a physical features-oriented nor work (i.e., more abstract construct)-oriented model. The other models, including FRBR, were confirmed as unsuitable for content-oriented in this study. A tendency to separate content from physical features will increase, and thus the same expression will increasingly appear in various formats and carriers. Additionally, most users will move toward a more content-oriented model; users often search for a specific expression (e.g., text in a certain language) and select the manifestation (e.g., a printed book, e-book, or audio file) linked to the expression in accordance with their choice. To handle this situation, studies should begin with a theoretical examination of possible models. The study conducted in this paper reexamined the expression-dominant model as one possibility. Instead, it might be possible to deal with some issues of content-oriented metadata creation at the level of metadata application profiles, or cataloging guidelines and instructions that are subsequent to the modeling and form the cataloging practice; however, this does not lead to a fundamental solution.

It is true that, even if a certain model is selected, its implementation varies depending on application profiles,

cataloging guidelines and instructions. For example, if the FRBR model is adopted, multiple application profiles and cataloging guidelines and instructions like RDA can be developed. Even for RDA, some implementation scenarios (i.e., metadata schema) are proposed. This implies that a model in itself does not prescribe the metadata structure and cataloging practice that accord with the model. In some cases, hence, the same metadata records could result from following different models. However, models prescribe the whole framework of and essential points on metadata. Examination at the level of application profiles and others does not provide a fundamental solution.

This study is the first step toward content-oriented metadata creation. For the modeling, further examination of the models in terms of specific resource types, that is, by limiting resource types, is needed in the next step of this study. Another examination of the models by converting the same set of actual extant data to those proper to individual models would be worthwhile to confirm differences among the models. Of course, an examination of metadata schema and cataloging guidelines and instructions that are consistent with the adopted model is also needed to reach the stage of practical application of content-oriented metadata creation.

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## Appendix. An Example of a Set of Instances in Line with the Expression-Dominant Model

[ work instance 1 ]  
+title of the work: Handbook for AACR2  
+date of the work: 1980-  
082 00 la 025.3/2 l2 21  
630 00 la Anglo-American cataloguing rules lx Handbooks, manuals, etc.  
650 \_0 la Descriptive cataloging lx Rules lx Handbooks, manuals, etc.  
is created by: 100 1\_ la Maxwell, Margaret F., ld 1927-  
is realized through: <expression instance 1>  
is realized through: <expression instance 2>  
is realized through: <expression instance 3>

[ expression instance 1 ]  
245 10 la Handbook for AACR2 : lb explaining and illustrating Anglo-American cataloguing rules, second edition / lc by Margaret F. Maxwell.  
008 ...s1980 ...eng  
504 \_\_ la Includes bibliographical references and index.

is realized by: 100 1\_ la Maxwell, Margaret F., ld 1927-  
is embodied in: <manifestation instance 1>

[ manifestation instance 1 ]  
260 \_\_ la Chicago : lb American Library Association, lc 1980.  
300 \_\_ la xi, 463 p. ; lc 24 cm.  
020 \_\_ la 0838903010 (pbk.) : lc \$8.00 (est.)

[ expression instance 2 ]  
245 10 la Handbook for AACR2, 1988 revision : lb explaining and illustrating the Anglo-American cataloguing rules / lc by Margaret Maxwell ; with a new chapter by Judith A. Carter.  
008 ...s1989 ...eng  
504 \_\_ la Includes bibliographical references and index.  
500 \_\_ la Rev. ed. of: Handbook for AACR2.  
is realized by: 100 1\_ la Maxwell, Margaret F., ld 1927-  
is realized by: 700 1\_ la Carter, Judith A.  
is embodied in: <manifestation instance 2>

[ manifestation instance 2 ]

260 \_\_ la Chicago : lb American Library Association, lc 1989.  
 300 \_\_ la ix, 436 p. : lb ill. ; lc 26 cm.  
 020 \_\_ la 0838905056 (alk. paper)

[ expression instance 3 ]

245 10 la Maxwell's handbook for AACR2R : lb explaining  
 and illustrating the Anglo-American cataloguing rules and  
 the 1993 amendments / lc Robert L. Maxwell with Margaret  
 F. Maxwell.

246 30 la Handbook for AACR2R

008 ...s1997 ...eng

504 \_\_ la Includes bibliographical references and index.

500 \_\_ la Rev. ed. of: Handbook for AACR2, 1988 revision /  
 by Margaret Maxwell.

is realized by: 100 1\_ la Maxwell, Robert L., ld 1957-

is realized by: 700 1\_ la Maxwell, Margaret F., ld 1927-

is embodied in: <manifestation instance 3>

[ manifestation instance 3 ]

260 \_\_ la Chicago, IL : lb American Library Association, lc  
 1997.

300 \_\_ la xii, 522 p. : lb ill. ; lc 26 cm.

020 \_\_ la 0838907040 (alk. paper)

[ PFC instance 1 ]

100 1\_ la Maxwell, Margaret F., ld 1927-

046 \_\_ lf 19270909

372 \_\_ la Library science l2 naf

375 \_\_ la female

377 \_\_ la eng

400 1\_ la Maxwell, Margaret Finlayson, ld 1927-

400 1\_ la Maxwell, Margaret, ld 1927-

670 \_\_ la Her Shaping a library, 1973.

[ PFC instance 2 ]

100 1\_ la Maxwell, Robert L., ld 1957-

046 \_\_ lf 19571214

372 \_\_ la Library science la Cataloging la Printing--History  
 l2 lersh

375 \_\_ la male

377 \_\_ la eng

378 \_\_ lq Robert LeGrand

400 1\_ la Maxwell, Bob, ld 1957-

# Notes on Operations

## Full Stream Ahead

### Designing a Collection Development Workflow for Streaming Video Content

Mary Wahl

*Academic libraries face many challenges in collecting and maintaining streaming videos, particularly as demand for this unique format continues to increase. At the Oviatt Library at California State University, Northridge, it was determined that streaming video activity needed to be examined and that there was a strong need to develop a workflow for incoming video requests. A Video Streaming Decision Tree Committee composed of librarians and staff from various units within the library including collection development, acquisitions, cataloging, and music and media. Its charge was to create a decision tree workflow for incoming streaming video requests. The committee designed and implemented a detailed decision tree that accounts for many of the complexities of streaming video. This paper discusses various factors involved with collection development for streaming video and provides a detailed description of the committee's workflow for the format.*

Streaming video is increasingly playing a large role in higher education, bringing numerous benefits to users. Students may access content both on and off campus, providing them flexibility in their learning. Multiple users may simultaneously access streaming video content 24/7, easing the demand for high-use titles. The format also allows faculty to flip the classroom and take courses fully online, supporting a growing number of academic institutions with distance learning programs.<sup>1</sup> Perhaps most notably, streaming video is becoming an expected part of academic libraries' collections as users have become accustomed to video content that is easily accessible through platforms such as Netflix, Hulu, and Amazon Video.

As the demand for streaming video increases, many academic libraries are adding these resources to their collections. In doing so, they discover that this format is time and labor intensive. Deciphering licensing terms can be a challenge. Verifying whether accessibility features will be supplied by a vendor or on-campus disability services requires coordinated efforts. Locating copyright holders to obtain permissions is often time consuming. Additionally, some video content requires libraries to locally host the content, leaving libraries that lack the technical infrastructure and expertise to find other options. Many of these challenges require title-by-title attention. Streaming video comes with a variety of factors for libraries to tackle before the content is available to patrons.

The Oviatt Library at California State University, Northridge (CSUN) found that streaming video provided too many unique challenges to follow existing collection development workflows used for other types of material. It was determined that current streaming video activity needed to be examined, and a workflow for incoming video requests was necessary. A Video Streaming Decision Tree Committee composed of librarians and staff from various units within the library, including collection development, acquisitions, cataloging, and music and media, was formed. Its charge was to create a decision tree workflow for incoming streaming video requests. The committee designed and implemented a detailed decision

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tree that addresses the complexities of streaming video. This paper discusses various factors involved with collection development for streaming video and provides a detailed description of the committee's workflow for the format.

## Background

The Oviatt Library is CSUN's main library, serving over 40,000 students and approximately 4,000 faculty and staff through educational, cultural, and information services and resources. The music and media collection is one of the library's chief collections and includes a growing amount of streaming video content. The library has collected streaming video since approximately 2010, and owns and licenses a number of large, well-known streaming video packages to support the student and faculty curriculum, study, and research. Packages to which the library subscribes include the BBC Shakespeare Plays from Ambrose Video, the Media Education Foundation collection from Kanopy, and the full catalog of Docuseek2. Packages that the library has purchased include Alexander Street's Counseling and Therapy in Video, Ethnographic Video Online, Environmental Studies in Video, and LGBT Studies in Video.

In addition to streaming video packages, the library has purchased and licensed over 400 individual titles in recent years due to an increase of faculty requests for streaming versions of specific content. Several factors have contributed to this influx. First, CSUN has a growing commitment to the development and improvement of online and hybrid courses. In the fall 2016 semester, 142 courses were offered fully online, and another 117 with a hybrid (combined online and in-person) offering. The university also has a college of extended learning that offers about a dozen master's degrees and certificates fully online. Many faculty members across the disciplines have moved their existing courses online (both fully and in part), and in doing so, wish to use streaming versions of the same video content they have used in their traditional in-person teaching. Additionally, CSUN employs the web-based learning management system Moodle for implementing an online component to courses. Individual Moodle websites are created automatically for all course sections each semester, regardless of whether courses are classified as online, in-person, or a combination of both. Moodle provides faculty with a platform for organizing and sharing electronic material with their students, and librarians provide assistance with embedding library materials such as streaming video into Moodle courses. Finally, anecdotal evidence has shown that a growing number of faculty members wish to assign viewing of video content outside of class, thus allowing time in the classroom to be spent on discussion of the content. Streaming video supports this flipped classroom pedagogy.

Since approximately 2010, streaming video requests from campus faculty had been collected in varying ways. Some were received via email either by music and media staff, subject librarians, or acquisitions staff. Other requests were received in person and by phone at the library's music and media service desk. A video request form was also available on the library's website. A single or preferred method for requesting video content had not been established, nor was there a consistent message for library service points to provide. Once a video request was received, library staff lacked a defined set of actions to follow, which caused staff to perform a great deal of duplicative information gathering each time they were tasked with investigating a video request. No library unit or staff members were established as key stakeholders or resident experts, and no structure was in place to facilitate sharing of knowledge by those affected by the format. As a result, irregularities in handling streaming video requests disrupted the library's efficiency in acquisitions, collection development, and public services.

## Literature Review

Regardless of format, video has been shown to play a large role in education both in and out of the classroom. In higher education, its use by students has been reported as high as 79 percent for reasons ranging from better understanding of a topic to class presentations.<sup>2</sup> The use of video in teaching has been described as "now commonplace," and streaming video in particular as "permeating the classroom."<sup>3</sup> Coupled with the proliferation of distance education in recent years and the convenience of 24/7 availability that it offers, it would be difficult to argue that streaming video is not quickly becoming a vital part of education. Many libraries have begun exploring, if not already collecting, streaming video content to meet this growing need, and in fact, 84 percent of academic libraries responding to a 2015 survey indicated that they provide access to streaming video content in some form.<sup>4</sup>

The challenges of working with streaming video are documented in the literature, and have been for over a decade. In 2006, Eng and Hernandez described the challenges associated with the technological aspects of streaming, such as maintaining a server and deciding which video player to support.<sup>5</sup> Technical issues are abundant in recent literature as well, most notably the decision of who will host and stream the content. While many distributors offer a streaming platform to deliver content, many others do not. Should a library wish to store and stream video content themselves (known as self-hosting), it must have the knowledge and ability to encode video files, storage space for the files, and the capacity to limit usage to a specified set of users. Self-hosting "requires a higher degree of technical



skill and infrastructure than working through database or third-party models,” though several academic streaming video providers now offer fee-based hosting services to libraries.<sup>6</sup>

Deciphering and managing licensing terms is often cited as a key challenge. Farrelly describes four main licensing models into which streaming video generally falls: (1) limited term licenses that expire after a specified period, requiring libraries to reassess titles and pay additional fees to renew; (2) perpetual licenses that do not require re-licensing but force libraries to consider the life of the codec of the video file if it (or the technology that plays it) becomes obsolete; (3) subscription licenses that provide libraries access to a collection of videos, typically lowering per-title costs but often carrying the constraints of a limited term license; and (4) pay-per-view licensing which requires viewers to pay for instantaneous access but for a short period of time.<sup>7</sup> Handman describes similar licensing models while also highlighting that the “transition from ownership of collections... to licensed resources will entail major rethinking of libraries.”<sup>8</sup> Both authors note that libraries are often limited to the vendor or distributor options, creating a mix of licensing terms to keep abreast of once the content is acquired. Indeed, as Schroeder and Williamsen noted, the “video marketplace plays an important part in streaming video collection development.”<sup>9</sup>

Various discoverability factors also present challenges. Since streaming video content is licensed from a number of distributors and copyright holders, and is delivered from a multitude of platforms each with varying license terms and access availability, one can imagine the challenge of providing consistent title-level discoverability. Many distributors offer to provide MARC records for libraries, however, many others do not, and the level of quality varies greatly among vendor-provided MARC records. Libraries find themselves deciding between performing quality control of records, or perhaps not uploading records and finding other ways to provide title-level browsing and searching.<sup>10</sup> Hutchison Surdi and Farrelly’s 2015 survey *Academic Library Streaming Video Revisited* revealed that only 38 percent of respondents from academic libraries designate their OPAC as the primary access point for streaming video, and 37 percent designate their discovery tool (e.g. Summon, EBSCO Discovery, Primo) as the primary access point. Other responses fell into a mix of access points such as the distributor/publishers’ portals, the library’s e-reserves interfaces, and LibGuides or other subject guides.<sup>11</sup>

Two monographs stand out as significant resources for becoming familiar with collection development and acquisitions of video content. In *Guide to Video Acquisitions in Libraries: Issues and Best Practices*, Laskowski provides overviews of video acquisitions (physical and streaming formats) and the changing marketplace, and identifies key

issues such as pricing schemes, licensing and copyright, and finding vendors and suppliers.<sup>12</sup> Duncan and Day Peterson’s more in-depth *Creating a Streaming Video Collection for your Library* focuses on the streaming format in particular while reviewing not just acquisitions but also the longer term administration and maintenance. They describe factors such as selection best practices and licensing concerns, plus factors affecting other library units, such as metadata, media servers, and captioning.<sup>13</sup> Both publications provide useful introductions to working with streaming video. However, the question remains: How does one address these challenges in practice? How might these issues and best practices be prioritized? How do they play out as a series of processes and tasks?

Though the challenges of working with streaming video appear to be well known to library staff, the topic of workflow is sparsely represented in the literature. Some authors discuss streamlining the ordering portion of a workflow, while others allude to workflows having been revamped or newly developed without going into detail.<sup>14</sup> Cross, Fischer, and Rothermel provide a high-level description of their process of receiving faculty requests for streaming videos, researching the content, contacting rights holders, obtaining purchase agreements, and preparing digital files. The time-consuming nature of these processes is expressed, including the library’s need for faculty to allow for adequate time to acquire and set up the content.<sup>15</sup> Koennecke, Marcin, and Pavlick provide one of the more detailed descriptions available in the literature, outlining a series of steps such as researching existing streaming rights, forwarding to subject librarians to determine license terms and costs, negotiating licenses, cataloging, and preparing digital files for self-hosting.<sup>16</sup> They also point out the “drawn-out” and “very time-consuming” nature of working with streaming video due to the title-by-title analysis typically required.<sup>17</sup> Kristoff, Rice, and Ronga provide another detailed workflow with similar steps while highlighting the Fair Use and TEACH Act analyses performed and their online system (developed in-house) for receiving requests.<sup>18</sup>

The lack of specifics in the professional literature may be due to a dispersed way of managing streaming media as there is “no clear pattern of key responsibility” for streaming video acquisition and management in academic libraries.<sup>19</sup> In the *Academic Library Streaming Video Revisited* survey, only 14 percent of respondents place primary responsibility on a media librarian. Another 14 percent place responsibility on an acquisitions librarian, 21 percent on an electronic resources librarian, and 15 percent on a collection development librarian.<sup>20</sup> Over 10 percent of respondents selected “Other” with comments revealing a wide array of alternatives such as systems librarian, reserves services, subject liaison librarian, and committees.<sup>21</sup> Similarly, Schroeder and Williamsen highlight the collaborative efforts needed of a

number of library units ranging from subject librarians to information technology personnel, noting that “streaming video does not fit squarely into any one of these department’s traditional library assignments.”<sup>22</sup>

## Project Development

The Oviatt Library’s development of the workflow began in fall 2014 with the formation of a Video Streaming Decision Tree Committee. The committee sought representation from all areas involved with the format, thus membership consisted of staff from collection development, acquisitions, cataloging, and music and media. Two committee members were also part of the library’s copyright team, bringing additional insight regarding licensing.

The committee met twice per month in two-hour increments throughout the fall 2014 semester. Early meetings included brainstorming sessions in which members contributed examples of how their roles were affected by streaming video. Dozens of factors were identified, such as type of course (online versus in-person), accessibility features, pros and cons of various licensing options, and time of year a request is made. It quickly became apparent that the factors fell within six general topic areas:

- purpose
- genre/content
- medium and format options
- licensing terms
- delivery mode options
- costs and funding

These topics became the basis for the decision tree. Later meetings focused on turning the factors into questions to be incorporated into the decision tree and the order in which the factors should be addressed. A draft of the decision tree was formed in December 2014 and submitted to library executive management. A final version was implemented in spring 2015 and revised once more with minor edits in fall 2016.

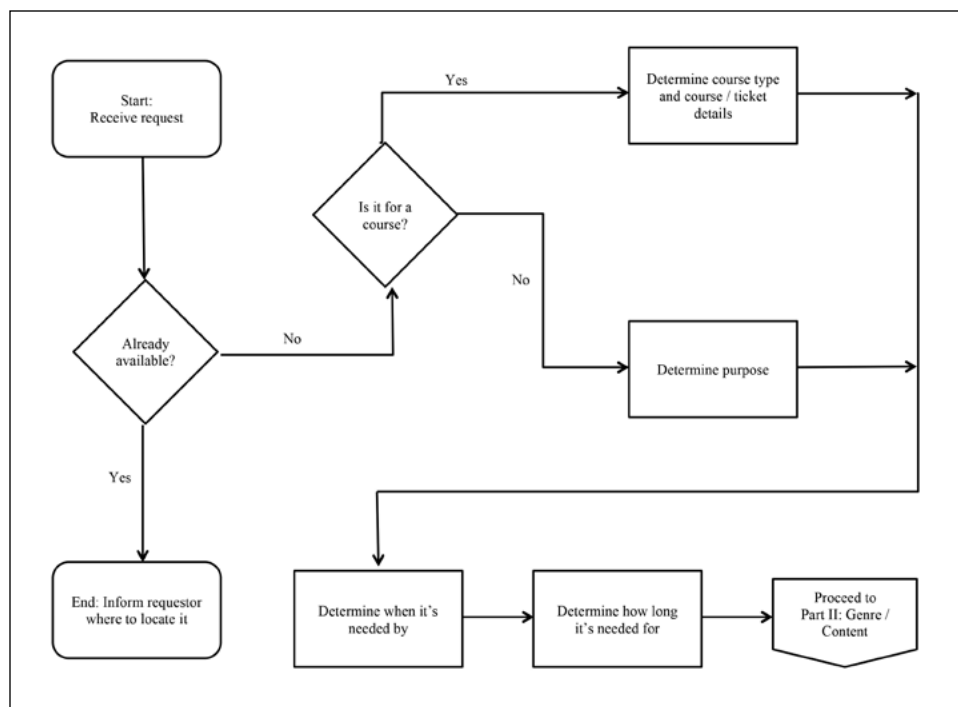


Figure 1. Workflow Decision Tree, Part I: Purpose

## Workflow Decision Tree

Part I of the Workflow Decision Tree, titled “Purpose,” focuses on the requestor’s intended use of the requested video (see figure 1). Information gathered from this section is essential because some uses may be fulfilled only in specific ways. For instance, if a video request is from a faculty member wishing to use the content in an online course and the content is solely available in DVD format, the request may only be fulfilled if encoding is allowed. Additionally, details regarding when the content is intended to be used (i.e. current semester, subsequent academic years) and if the content is for research or leisure purposes is significant, as this will assist acquisitions staff in their prioritization of purchases. Part I of the Workflow Decision Tree provides the overall goals that a particular video request is aiming to meet.

Part II, Genre/Content, focuses on the types of genre and content of the requested video (see figure 2). This information is important because specific genre types may have particular nuances. For instance, feature films in a streaming format can be challenging to acquire. Many distributors of feature films and documentaries do not allow for encoding. Content available via personal streaming services (i.e., Netflix) is not necessarily available in the educational streaming marketplace. Distribution rights shift frequently, making copyright holders more challenging to locate. Additionally, knowing whether a request is a film or a television program

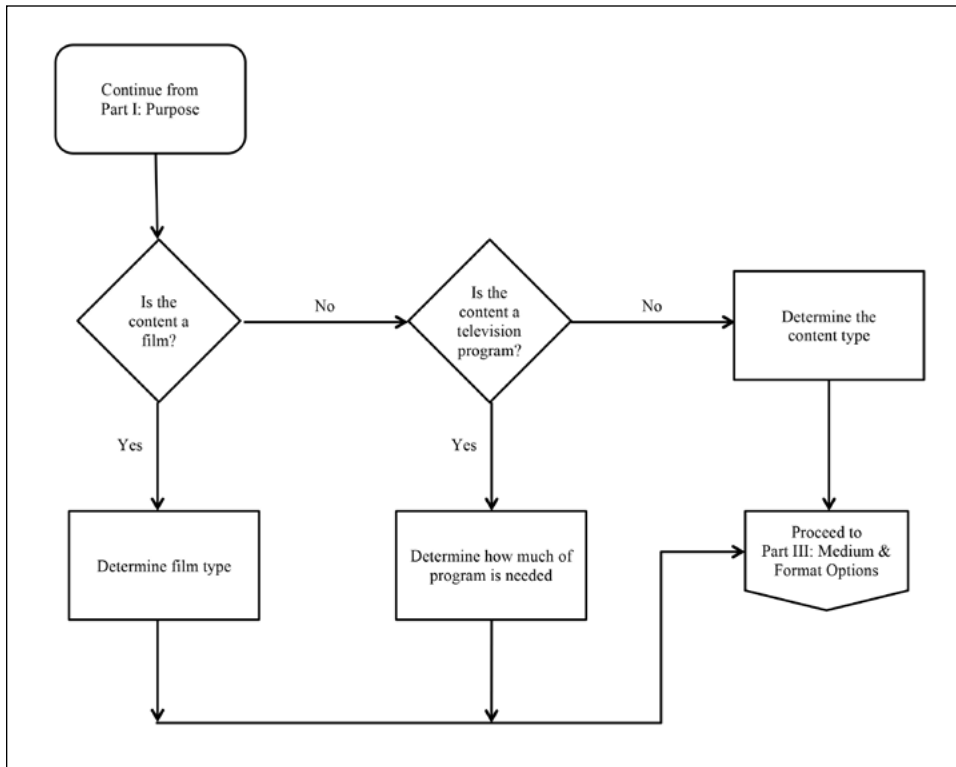


Figure 2. Workflow Decision Tree, Part II: Genre/Content

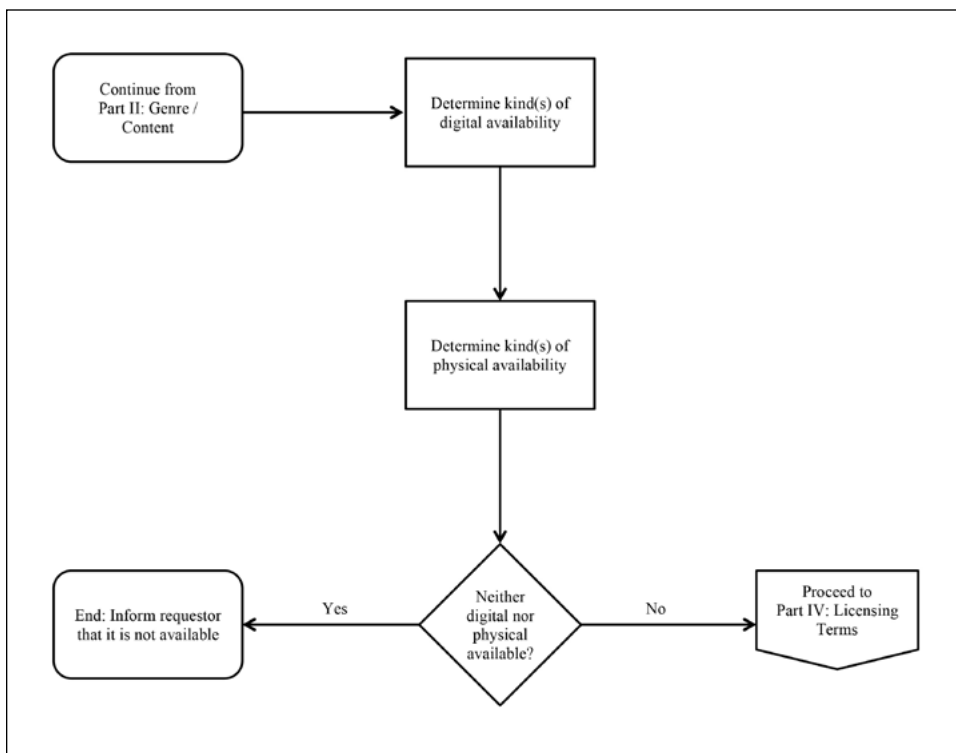


Figure 3. Workflow Decision Tree, Part III: Medium and Format Options

is important to cataloging and acquisitions staff who need to know the context of whether a video purchase is part of a larger body of work.

Part III of the Workflow Decision Tree, Medium and Format Options, focuses on the various ways a requested video is currently available, beginning with whether it is available digitally or physically (see figure 3). Details regarding digital availability is essential as some video content may only be offered as a discreet computer file (therefore requiring the library to self-host the content), while other content may already be streaming elsewhere (requiring the library to pay for access). Sometimes content may be found already on the surface web (i.e. YouTube) from a trusted source and require no further action other than sharing the online location with the initial requestor. Similarly, details regarding physical availability are also important to gather. This information is useful for reasons such as informing a faculty member of options for using a Blu-ray disc in a campus classroom without a player and prompting library staff to determine whether a DVD or Blu-ray is the preferred purchase if both are available. This section of the Workflow Decision Tree marks the beginning of the more in-depth research often required to perform streaming media collection development. Additionally, it should be noted that some video content may not be available at all (i.e. it has not been released on the consumer market yet). The Workflow Decision Tree includes space for this possible outcome.

Part IV, Licensing Terms, focuses on the various terms of use involved with acquiring a requested video (see figure 4).

The goal of this section is to gather details regarding variables such as perpetual versus limited term licenses, limits on simultaneous users, and transmission restrictions. This section also involves factors such as the inclusion of Public Performance Rights (PPR) and whether accessibility features are included. Accessibility in particular is a significant factor to investigate prior to acquiring a video for several reasons including: (1) some content providers include not only captions, but added features such as rolling and keyword-searchable transcripts; (2) if a transcript exists, it might be shared or repurposed into a caption file (i.e. .srt, .vtt); and (3) the library will likely not acquire a video if the accompanying license restricts the otherwise “normal” right to caption it. CSUN has a large deaf and hard of hearing population, making this a topic of significant importance (though it should be noted that captioning provides benefits to many kinds of users besides the deaf and hard of hearing such as increased comprehension and engagement). Additionally, the library’s cataloging unit needs to know the status of existing captioning, subtitles, and transcripts, because they add notes to bibliographic records. Similar to Part III, this section of the Workflow Decision Tree requires in-depth research into the requested video content by library staff.

Part V, Delivery Mode and Options, focuses on the mode of delivery and the corresponding options available for the video (see figure 5). For instance, if hosting is available, it is important to know what kinds of features are included, such as robust analytics and the ability to create clips and playlists. If hosting is not available, it is important to know whether encoding is allowed to self-host the content (or use a third party to host the content). This section of the Workflow Decision Tree assists in determining the cost effectiveness of purchasing the video as well as choosing between various formats or streaming platforms when more than one option presents itself.

The last section of the Workflow Decision Tree, Part VI, Costs and Funding, focuses on the costs involved with purchasing the video and available funding (see figure 6). Information regarding various fees associated with the purchase, such as one-time fees, ongoing fees, and costs for DVD purchases that are required to obtain streaming

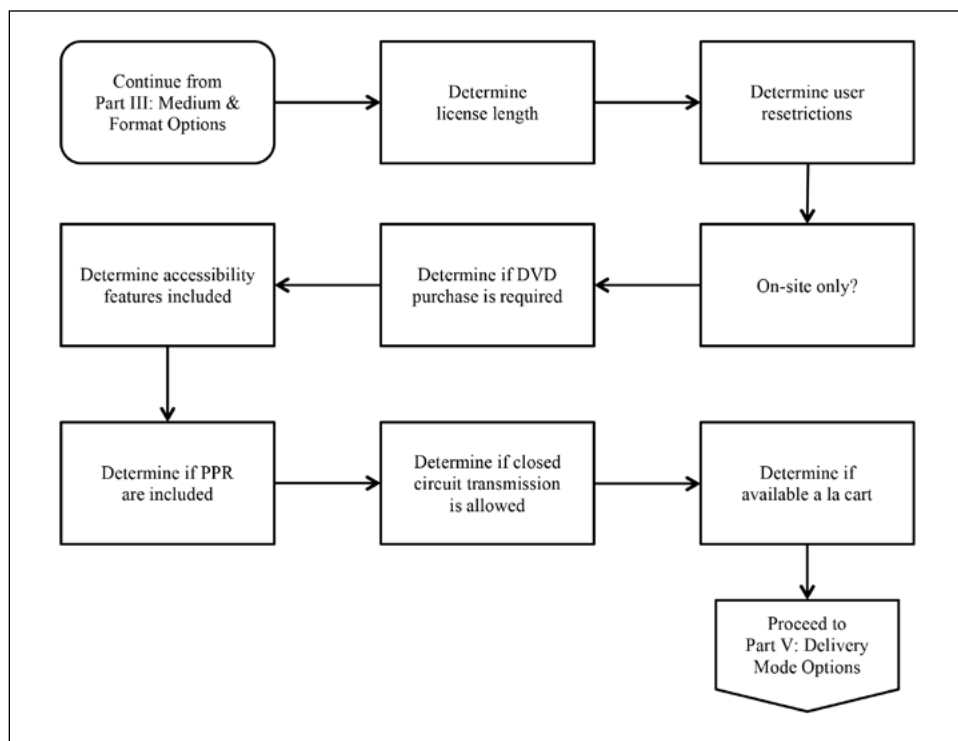


Figure 4. Workflow Decision Tree, Part IV: Licensing Terms

licenses. This section also makes note of the time of the year the request has been submitted. The Oviatt Library does not make purchases year-round (for instance during the fiscal year closeout period), and some funding sources are not available all twelve months of the year. It is important to note, however, that even though the library may not be able to purchase a video at the time of the request, navigating through the Workflow Decision Tree is still a valuable process because the information gathered may be saved for future review when the library resumes video purchasing.

The committee also created a decision tree diagram to illustrate how the overall workflow involves other units in the library (see figure 7).

## Worksheet

A great deal of data and decisions are involved with navigating through the Workflow Decision Tree and a corresponding worksheet was created by the committee to record and organize these (see figures 8 and 9). In practice, a staff member proceeds through the worksheet when a video request is submitted, which accounts for the factors within the workflow decision tree. If a purchase will be made, the worksheet is forwarded to acquisitions staff and then filed for record keeping once the content is received. If a purchase will not be made, the worksheet is immediately filed for record keeping.

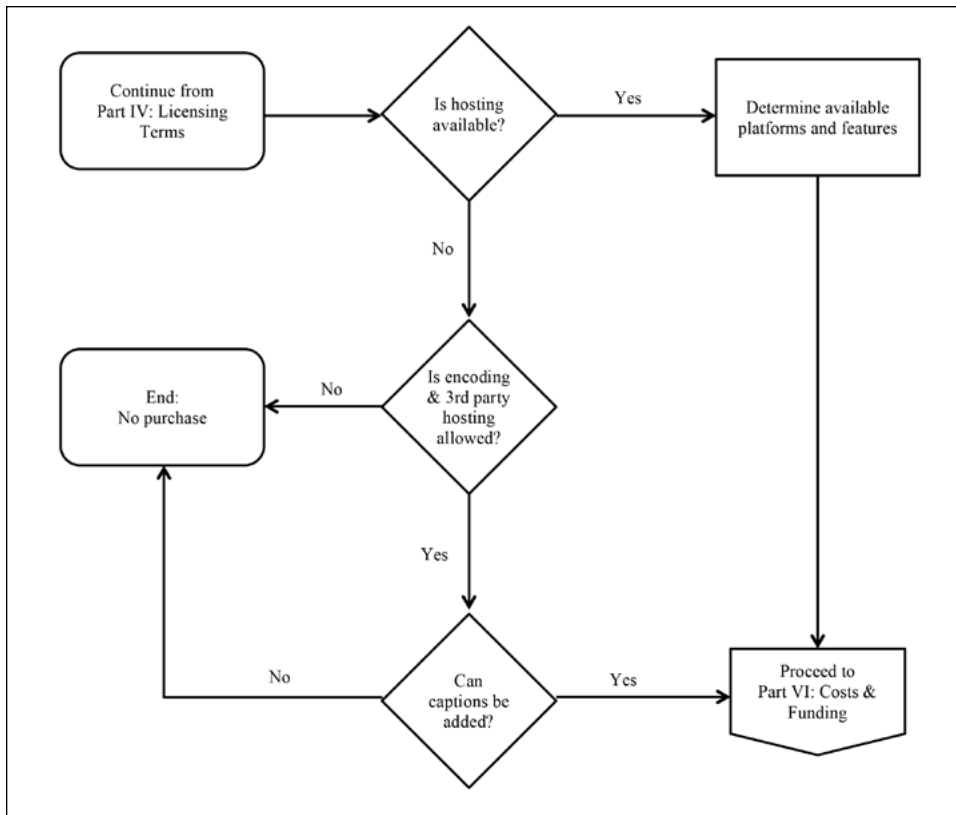


Figure 5. Workflow Decision Tree, Part V: Delivery Mode and Options

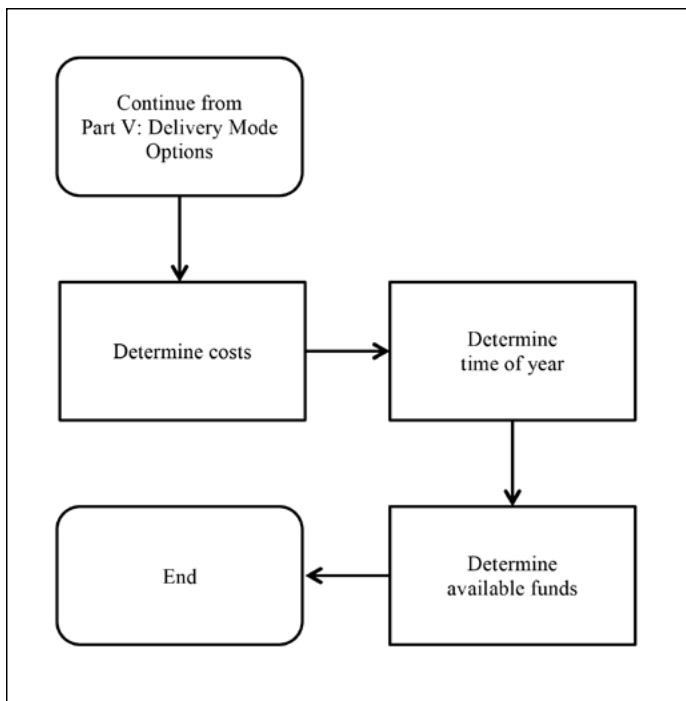


Figure 6. Workflow Decision Tree, Part VI: Costs and Funding

### Online Request Form

Once the workflow and worksheet were finalized, the committee turned its attention to the online request form on the library’s Drupal website. The form was outdated and did not capture adequate data when a request was made, as evidenced by the amount of email correspondence between library staff and faculty required to gather information. Additionally, it had never been established as the single method for requesting video content, causing inconsistent recordkeeping and often resulting in a great deal of email threads sitting in various staff members’ inboxes. The committee decided that the library’s online request form for video material needed to be updated and that the form would serve as the single method for requesting video content. The updated form (see figure 10) consists of three sections: Requestor Information,

Video Information, and Use of Video Information. Video Information and Use of Video Information relate directly to two sections of the new workflow: Purpose and Genre/Content.

Two statements were added to the form regarding factors that can affect streaming video purchases. The first statement sets a timeframe for incoming requests and makes clear that purchases depend on available funds and licensing terms:

Video requests should be made AT LEAST one semester in advance. Please note that video purchases (both physical and streaming) depend on availability of funds as well as licensing terms put forth by the content providers. Submitting a Video Purchase Recommendation Form to the Library does not guarantee that a purchase will be made.

The second reiterates that purchases depend on several factors and is formatted in the online form as a statement to which the requestor must agree to make the submission:

I understand that video purchases (both physical and streaming) depend on availability of funds as

well as licensing terms put forth by the content providers. Submitting a Video Purchase recommendation Form to the Library does NOT guarantee that a purchase will be made.

The form was updated in spring 2015. Data that has been submitted via the form may be downloaded from Drupal in a comma separated value format. Four library staff members receive email alerts when a submission has been made. One member researches the request and (if purchasing) forwards the request to the acquisitions unit; the others receive the alerts for general awareness and act as backup in case the primary member is unavailable to perform the research.

Once the online form was complete, library staff members were directed to guide anyone wishing to make a video purchase request to submit their request to it. Librarian liaisons were asked to announce the form to their respective colleges and departments. Committee members provided presentations regarding the workflow and online form at several staff meetings and one-on-one tutorials on filling out the form to librarians and staff on request.

## Discussion

Prior to the new workflow, the library's streaming video collection development practices reflected the results of the aforementioned *Academic Library Streaming Video Revisited* study in which no clear pattern of responsibility for streaming video was established. Since the implementation of the new workflow, streaming video collection development is coordinated primarily by a librarian performing the research (with identified backup researchers among library staff) and coordinating with acquisitions, cataloging, and music and media staff for the remainder of the workflow. During 2016, the Oviatt Library received 191 video requests. Each was submitted to the online form and reviewed using the new decision tree and corresponding worksheet. No resistance to using the online form has been observed by the committee, however, some librarian liaisons choose to fill out the form on behalf of faculty members and

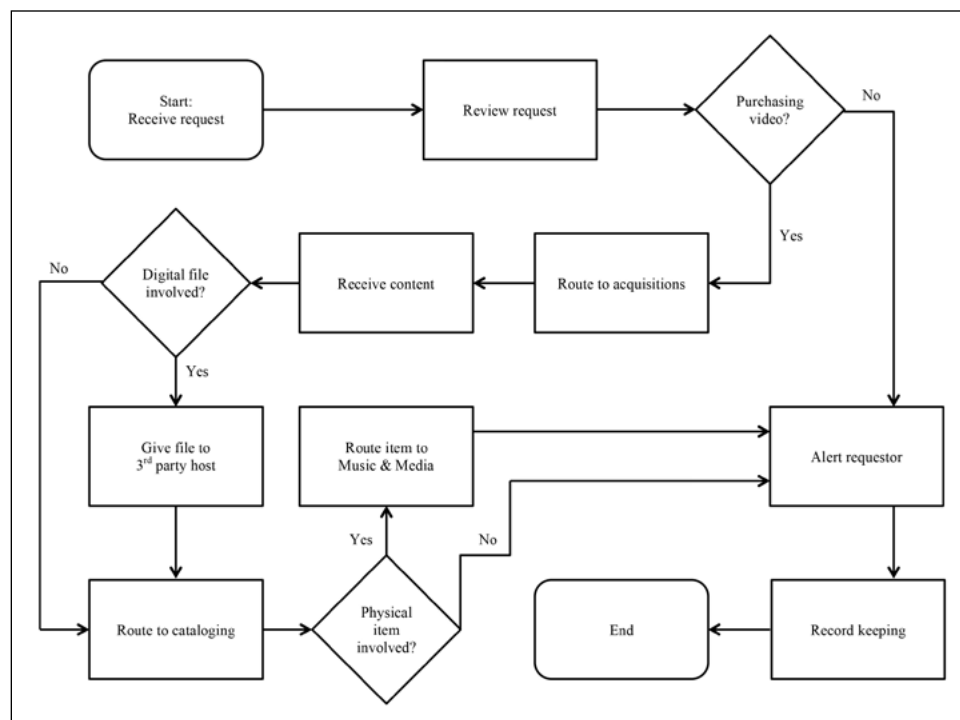


Figure 7. Overall Workflow for Video Requests

designate themselves as the contact. In these cases, the staff members processing the video request communicate with the librarian and not the faculty member.

The library now has clear, concise documentation of a streaming video workflow. Prior to the new workflow, library staff involved with the format were often determining a course of action each time a title was requested, and few lessons learned were being captured and absorbed. The new documentation has removed speculation from the process, which ultimately helps with providing more transparent service to those submitting requests. The documentation has also proven to be informative for library units and staff who do not regularly deal with streaming video. The committee is considering a similar brainstorming and workflow analysis activity for other electronic formats to provide additional clarity across more of the collection. Additionally, the library finally has data that captures much needed details and in a consistently structured format. Video collection development can now be summarized in a number of ways. For instance, a breakdown of video requests by college for 2016 shows that eight of the nine CSUN colleges have been served by the new workflow process. A breakdown by department shows that the art, media, and humanities disciplines submit about two-thirds of all requests. Summaries based on data elements such as content type, date requested, and type of course (i.e., online, in-person) are also possible.

|   |  |
|---|--|
| <b>FOR ACQUISITIONS:</b>                  |  |
| Title and Year:                           | _____  |
| Producer/Director:                        | _____  |
| Requested by/Dept:                        | _____ Date of request: _____   |
| Do we already own a copy (if yes, bib #)? | _____  |
| Vendor:                                   | _____  |
| Format (if streaming, duration):          | _____  |
| Notes:                                    | _____  |
|   |  |
| <b>I. Purpose</b>                         |  |
| Type of course or activity:               |  |
| Course:                                   | <input type="checkbox"/> In person <input type="checkbox"/> Hybrid <input type="checkbox"/> Online                           |
| Non-Course:                               | <input type="checkbox"/> Research <input type="checkbox"/> Leisure <input type="checkbox"/> Other: _____                     |
| Date needed by:                           | _____ How long is it needed: _____   |
|   |  |
| <b>II. Genre/Content</b>                  |  |
| Type of content:                          |  |
| Film:                                     | <input type="checkbox"/> Feature <input type="checkbox"/> Documentary <input type="checkbox"/> Educational                   |
| TV:                                       | <input type="checkbox"/> Series <input type="checkbox"/> Season(s) <input type="checkbox"/> Episode(s)                       |
| Other (explain):                          | _____  |
|   |  |
| <b>III. Medium &amp; Format Options</b>   |  |
| Digital availability:                     | <input type="checkbox"/> Streaming <input type="checkbox"/> Digital file <input type="checkbox"/> Digital site license (DSL) |
| Physical availability:                    | <input type="checkbox"/> DVD <input type="checkbox"/> Blu-ray <input type="checkbox"/> VHS                                   |
| None                                      | <input type="checkbox"/>   |
|   |  |
| <b>IV. Licensing Terms</b>                |  |
| Digital media:                            |  |
| License length:                           | <input type="checkbox"/> Perpetual <input type="checkbox"/> Limited Term: _____  |
| User restrictions:                        | <input type="checkbox"/> N/A <input type="checkbox"/> Yes: _____   |
| Physical purchase required:               | <input type="checkbox"/> Yes <input type="checkbox"/> No   |

Figure 8. Decision Tree Worksheet, Page 1

A disadvantage of the new workflow is that a significant portion of it is paper based. Until a request has been forwarded to the acquisitions unit, the worksheet serves as the singular tool for analog note taking during the research phase. Furthermore, the worksheet as object serves as a physical indication that the request is still outstanding, until acquisitions has received the item and the worksheet is filed for recordkeeping. The challenge with this is that the worksheet can exist in only one place, requiring staff to determine where the worksheet might be located if seeking a detailed status update. A centralized, digital location such as a database would be ideal, allowing multiple, simultaneous users the ability to check on a request's status. Furthermore, a database that includes customer relations features (i.e. a CRM database) to document filmmaker and vendor interactions while researching a particular title would be beneficial, since research for streaming video can be extremely time consuming and span months, if not years. At this time, an Excel document on a shared server that includes each of the data input fields from the online request form, plus three additional fields ("researching," "ordered," and "complete"), is accessible to staff. Details regarding the research phase (including any kind of time frame for when a request might be forwarded to acquisitions) can only be found on the worksheet, which is a limitation.

|  |  |
|--|--|
| <b>Digital and/or physical media:</b>  |  |
| Accessibility features included:   | <input type="checkbox"/> Captions <input type="checkbox"/> Subtitles <input type="checkbox"/> Transcript <input type="checkbox"/> None |
| PPR available:   | <input type="checkbox"/> Yes <input type="checkbox"/> No   |
| Closed circuit transmission allowed:   | <input type="checkbox"/> Yes <input type="checkbox"/> No   |
| Single title purchase available:   | <input type="checkbox"/> Yes <input type="checkbox"/> No: _____  |
|  |  |
| <b>V. Delivery Mode &amp; Options</b>  |  |
| Hosting available?   |  |
| <input type="checkbox"/> Yes   | Vendor(s): _____   |
|  |  |
| <input type="checkbox"/> No (DSL only)   | Third party storage/hosting ok? <input type="checkbox"/> Yes <input type="checkbox"/> No   |
| Accessibility features included (or easy to add): <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
|  |  |
| <b>VI. Funding</b>   |  |
| Costs:   | _____  |
|  |  |
| Time of year:  | <input type="checkbox"/> June <input type="checkbox"/> July-Oct <input type="checkbox"/> Nov-May                                       |
|  |  |
| Notes (vendor correspondence, outcome, etc.):  |  |
| _____  |  |

Figure 9. Decision Tree Worksheet, Page 2

While the volume of email correspondence is still significant, it has decreased due to more data being captured at the time of request. Library staff shares about a dozen standard email messages that may be edited and reused for communicating common steps in the workflow with campus faculty. For instance, staff has messages for conveying when a streaming video purchase will be made and when a request will require a substantial amount of time to investigate. Though email correspondence remains an active part of working with the format, having these standard email messages has allowed staff to provide a simpler, consistent message to the campus community.

A number of library units have found that the new workflow has greatly benefitted their work and the library and campus. For instance, public services staff and librarian liaisons are pleased that they may simply guide faculty to an online form for video requests. Collection development and acquisitions staff who work with streaming video benefit from having more information at the beginning of a request, thus saving time in email correspondence. In regards to the Video Streaming Decision Tree Committee members, one of the greatest benefits was merely going through the process of brainstorming the new workflow. Awareness of various challenges was gained, which led to exceptional group work and problem solving activity. The committee



California State University Northridge | Oviatt Library

Video Purchase Recommendation Form

Video requests should be made AT LEAST one semester in advance.

Please note that video purchases (both physical and streaming) depend on availability of funds as well as licensing terms put forth by the content providers. Submitting a Video Purchase Recommendation Form to the Library does NOT guarantee that a purchase will be made.

**Requestor Information**

Name \*

CSUN email address \*

CSUN affiliation \*

**Video Information**

Desired date/semester of use \*  (i.e. Fall 2015, or September 2015)

How long is it needed for? \*  (i.e. entire semester, or 2015/16 academic year)

Title \*

Year of Release \*

Director/Producer \*

The content type is \*

Additional information (how did you hear about it, country of origin, IMDb page, etc.)

**Use of Video Information**

I am requesting this video to use for the following purpose \*

What video format are you requesting? \*

Is this video intended to be placed on Course Reserve? \*

Yes - Physical videos may be viewed by students in the library for your course. Faculty check-out is limited.

No - Physical videos may be viewed by students in the library and checked out by faculty.

I understand that video purchases (both physical and streaming) depend on availability of funds as well as licensing terms put forth by the content providers. Submitting a Video Purchase recommendation Form to the Library does NOT guarantee that a purchase will be made. \*

I agree

Have questions? Contact Mary Walli, Digital Services Librarian at mary.walli@csun.edu

Figure 10. Online Video Request Form

members greatly increased their expertise on the subject and now serve as the library's resident experts. This has led to several outreach opportunities to the campus community, including a library-sponsored symposium in 2015 called *Streamapalooza! Insights into Copyright and Media for 21st Century Educators* in which prominent visiting panelists shared the various challenges facing libraries and educators in using and acquiring streaming media collections. Several of the committee members have also become involved in a university-wide working group to clarify captioning services provided on campus, plus professional development programs that assist faculty in moving existing in-person courses online.

## Conclusion

This paper has shown one way that collecting streaming video may be managed. Lessons learned for future workflow design projects include acknowledging the fact that there are likely no one-size-fits-all solutions when it comes to library collection development and acquisitions. The Video Streaming Decision Tree Committee found that it was easy to get caught in a quest to account for every possible type of request and outcome, but ultimately found that keeping

a balance toward the more general requests was most effective. Despite this, the workflow turns out to be successful even when dealing with anomalous video requests; more detail regarding the request is collected as part of the process and library staff members are able to have more informed discussions than when before the workflow was designed. A collection development policy specific to video may eventually be needed to guide decision making for the streaming video titles that will inevitably fall outside the scope of the workflow. This would help library staff dealing with video to determine whether or not a video is an appropriate addition to the existing collection, regardless of simply whether it has been requested and there are available funds.

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# Book Reviews

Elyssa M. Gould

***New Directions for Special Collections: An Anthology of Practice.*** Edited by Lynne M. Thomas and Beth M. Whittaker. Santa Barbara, CA: Libraries Unlimited, 2017. \$85.00 softcover (ISBN 978-1-4408-4290-0).

In this follow-up to *Special Collections 2.0: New Technologies for Rare Books, Manuscripts, and Archival Collections*, Thomas and Whittaker present a collection of twenty-one essays from an array of authors on the future of special collections work, with an emphasis on the changing nature of the field. In the introduction, the editors describe their mission of creating a compendium of resources that can apply to the work of both librarians and archivists: “We regret the disconnect between our organizations and our cultures, and hoped to help bridge this by intentionally seeking both perspectives in this book” (ix). This text offers practical advice on various aspects of special collections—from acquisition and appraisal, to reference and instruction, to donor relations, to open access and copyright—and can serve as a handy go-to guide for anyone working in a special collections repository.

In the first chapter, Griffin responds to Traister’s 1986 article “The Rare Book Librarian’s Day” with a run-down of her own daily work as an academic special collections librarian plus the work of six interviewees from different types of institutions, describing the challenges that so many librarians and archivists face: keeping up with incoming correspondence through a variety of channels, filling in for absent staff members, responding to facilities-related crises, attending meetings, and managing student workers, all while providing robust public services. She explains that while Traister wrote his paper from the perspective of a librarian working in a well-funded Ivy League institution, many librarians deal with the difficulty of maintaining daily operations on a limited budget. Traister describes his work as “talking to people,” and Griffin likens hers to “making sure the wheels don’t fall off” (3). Griffin concludes with a discussion of the breadth of special collections librarianship, and reassures the underfunded librarian or archivist that so many of us are in the same boat.

In “Teaching with Special Collections: Alliances between Cultural Heritage Professionals,” Maryanski describes the benefits of collaboration between librarians and museum educators, using the New York Historical Society as a case study. According to Maryanski, librarians can learn new skills from the museum education field regarding scaling and organizing their work, particularly pertaining to class visits. Maryanski explains that librarians can borrow

museum educators’ methods of knowledge management by freely sharing information amongst all staff. Another useful tactic is creating class outlines or templates that can be easily adapted for a range of different classes, saving time and frustration when preparing a lesson. The key takeaways from this chapter are that communication is essential between librarians and museum educators at all levels and that ultimately we are working toward the same goal of benefiting the students. The majority of the benefits described in this chapter were one-directional, flowing from the museum educator to the librarian, and this reviewer would have liked to have learned more about what librarians have to offer their museum colleagues.

“Documenting Ferguson: Collecting Current Events in Archives” is one of the book’s most topical and culturally relevant chapters. It is written by four staff members from Washington University in St. Louis, Missouri who helped create a system for preserving local and national material documenting the police killing of Michael Brown in Ferguson, Missouri, and the community’s response. The authors explain that the news of Brown’s death was shared via social media before it was on cable news outlets, and that protests and meetings were also organized on social media. Their project, Documenting Ferguson, addressed the unique issue of preserving the documentation of events as they unfold, rather than long after the fact. Documenting Ferguson involved an online platform using Omeka and Archive-It that enabled community members to contribute materials to the project and included a LibGuide that could assist with high school lesson planning. Their experience could behoove those doing real-time collecting of other current events.

Williams offers concrete advice on donor relations in “Success with Donors: Practical Approaches That Work for All.” She opens by emphasizing the importance of listening to donors, and tells the story of a donor who would not allow access to a space in her home. After initial frustration, Williams realized that the donor was embarrassed by the messy appearance of the space, and they were ultimately able to make an arrangement after getting to know each other better. By practicing active listening and forging personal connections, librarians and archivists can improve their relationships with donors and streamline the donation process.

Finally, Briston’s chapter “Open Access and Copyright in Archives and Special Collections” is helpful for the librarian or archivist seeking straightforward information on rights issues. Open access and copyright are relevant for

every special collections repository, and Briston offers valuable information. She uses clear language to define open access and copyright, and delves into questions related to the Library and Archives exception in the US Copyright Act, fair use, orphan works, and works in the public domain. Her section on tools and workflows is particularly useful, as it describes openly available documentation of digitization projects and best practices regarding rights issues. Many special collections librarians or archivists could use these tools in their own repositories.

While this anthology presents the voices of many different people in the library and archives fields at various stages in their careers, the majority of the authors are from colleges and universities. This reviewer would have liked more diversity amongst the types of institutions represented, such as community archives or other less traditional spaces. This book has much to offer, but will ultimately be most useful to those in academic environments.—*Jessica Holden (jessica.holden@umb.edu), University of Massachusetts Boston, Boston, Massachusetts*

***The Subject Liaison's Survival Guide to Technical Services.*** By Krista Schmidt and Tim Carstens. Chicago: ALA Editions, an imprint of the American Library Association, 2017. 95 p. \$40.00 softcover (ISBN: 978-0-8389-1502-8); \$32.00 e-book (PDF: 978-0-8389-1532-5; ePub: 978-0-8389-1532-2; Kindle: 978-0-8389-1534-9).

What happens when an experienced subject liaison is teamed with a veteran technical services librarian? You get a slim but informative volume that details the fine points of technical services in a way that anyone can understand.

*The Subject Liaison's Survival Guide to Technical Services* is divided into chapters corresponding to different aspects of library technical services: "Collection Development," "Budgets and Budgeting," "Submitting Orders" (from the subject liaison's perspective), "Acquisitions Ordering" (what the technical services department does with those submitted orders), "Receiving and Processing," "Cataloging," and "Collections Maintenance." While the guide could be read in a single sitting, the way it is arranged also makes it useful as a reference tool. A subject liaison can consult each of the chapters as needed. Each chapter contains a section titled "Questions You Should Be Asking," which serves as a concise summary of the most important things subject liaisons will need to know during the course of their daily duties.

This book is the first of its kind to delve into the specifics of how technical services works from a subject liaison's perspective and how and where those two fields can overlap and intersect. The American Library Association's Reference and User Services Association (RUSA) has a webpage devoted to "Guidelines for Liaison Work in Managing Collections and Services."<sup>1</sup> A 2005 paper by Macaluso and Whitney Petruzzelli provides a toolkit for the library liaison.<sup>2</sup>

Both of these resources, however, are far broader in scope than *The Subject Liaison's Guide*, focusing more on patron interactions than relations with other library departments.

Chapter 2, "Budgets and Budgeting," is a great example of this guide's utility. The authors state, "We realize it's tempting to ignore budget issues and just focus on spending what you are allocated. However, liaisons are well served to learn as much as possible about how budgets are determined and structured because understanding the overall budget situation allows you, as a liaison, to operate strategically" (13). Perhaps because they recognize that this may be a tempting chapter to skip in favor of those more directly relevant to the daily workings of the job, this chapter contains several breakout sections detailing the most important highlights of the text, including a budgeting 101 primer, moving money from one fund type to another, and how to be a team player when there are budget cuts. A subject liaison could focus solely on the breakout text and gain a good, workable overview of how budgets work and how they can facilitate and work within the budget process. This artful blending of detailed main text with breakout boxes and chapter summaries makes this an easy book to navigate.

While there is a lot of information here, Schmidt and Carstens are mindful of not getting bogged down in details. The reader does not need to worry about being overloaded with minutiae that may not actually be useful in practice. For example, Chapter 6 "Cataloging" does not go into the finer points of ISBD punctuation, MARC fields, and non-filing indicators. Though these are important aspects of cataloging, they are less important to the work of the subject liaison and too much information of this type would clutter an otherwise clean and concise text. Instead, the authors focus on the differences between copy and original cataloging and what consequences each method has when it comes to processing and arrival-to-shelf time. The authors give a quick overview of basic cataloging terminology so that the subject liaison can speak and understand "cataloger-ese" when questions arise. And they focus on how the catalog can be enhanced, customized, and corrected when there are errors—all things a subject liaison will need to know to provide the best service to their patrons.

*The Subject Liaison's Survival Guide to Technical Services* does an excellent job of explaining the various aspects of technical services that a subject liaison with no technical services experience may not intuitively grasp. It works both as a guide to read during the first days on the job and also as a reference work to consult for a refresher course on a specific area as needed. The book is thorough and detailed while also being clear and concise, mindful of giving the reader a good understanding of the inner workings of technical services without overloading them with too many particulars. This book could be a useful tool for anyone who works with specific subject or special collections in

any library setting.—*Shanna Hollich (shollich@gmail.com), Adams County Library System, Gettysburg, Pennsylvania*

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**Cataloging Legal Literature, 4th Edition.** Melody Busse Lembke and Melissa Beck. Getzville, NY: William S. Hein & Co., Inc., 2016. 409 p. \$95.00 softcover (ISBN: 9780837740126). *Editor’s note: this title is also available as an electronic version via HeinOnline.*

In the twenty years since the last edition of *Cataloging Legal Literature* was published, the cataloging has changed dramatically. Resource Description and Access (RDA) is the new cataloging standard, and it is impossible to overlook just how much the Internet has radically changed the world of legal literature. New to the publication of this edition is co-author Beck, who freely admits in the preface that her contributions are more about what she has learned and is learning rather than what she knows. This statement illustrates the fundamental tenant of the manual, that cataloging legal publications is an ever-changing and developing concept. The authors present information and sometimes unanswered questions to “help a cataloger analyze materials and think like a law cataloger” (xxi).

In the introduction, the authors stress that this book is not meant as a self-help guide for a beginning cataloger, but as a companion work to pre-existing cataloging handbooks. This means that at least a basic understanding of legal materials is necessary before reading. Legal publications are unique entities and follow different standards than those a non-legal cataloger would ordinarily encounter. The authors stress that this is not a how-to-manual. Instead, they suggest factors that need consideration before making a decision that is right for your library and your collection: “We cannot always say that there is only one correct way to handle these materials!” (132).

As in previous editions, the book is divided into two parts. The first half is primarily dedicated to types of legal publications and how they are unique. Each chapter concludes with additional resources that the reader can consult for more information. At the conclusion of part one, readers will find appendices that include a list of recommended tools, resources, illustrations, and tables.

The bulk of most law library collections is continuing resources, which are covered in Chapter 3. These publications run the gamut from loose-leaf titles to law journals to titles that are revised annually. Surprisingly, the phrase “continuing resources” was first defined in Anglo-American Cataloguing Rules, 2<sup>nd</sup> ed. (AACR2R), but was not carried over into RDA. Within this chapter, the authors rely heavily on examples to show RDA’s impact on legal cataloging. Particularly helpful is a section that lists parts of a MARC record that may need to be added or updated when cataloging serials for different scenarios.

The most notable difference between this edition and the previous version is the increased attention on electronic resources. Previously, there was little focus on electronic, unsurprisingly since twenty years ago legal literature was almost entirely print based. Illustrating this point is a quote from the third edition, “To be comprehensive would be impossible, as legal publications are always appearing in wondrous new forms, such as electronic journals and CD-ROM products.”<sup>1</sup> Electronic legal resources have certainly evolved since very few current publications include CD-ROMs. The fourth edition devotes all of Chapter 4 to electronic resources.

While the majority of Chapter 4 focuses on cataloging of electronic resources, there is a section on collection development and a discussion of whether these electronic resources should be cataloged. The authors offer arguments that need consideration during this process. Various electronic formats are covered with sample MARC records for each. Of particular note is that the authors also discuss how to handle the corresponding print resource.

No contemporary cataloging manual would be complete without mentioning the Functional Requirements for Bibliographic Records (FRBR). Chapter 6 details how the majority of legal literature falls outside the established RDA and the FRBR models. In fact, the authors state that “legal literature unfortunately consists of many types of publications that are still being defined in the FRBR model” (126). This chapter tries to illustrate which legal publications are true new editions according to RDA and FRBR with extensive MARC examples.

The second part includes an A-Z glossary of terms, including genre/form terms, complete with explanatory MARC records. Comprising just over half of the book, the glossary articulates legal terms in relation to cataloging rules and practices. These are terms that are commonplace to those in the legal field but not necessarily applicable to a non-legal cataloger. The authors stress what a cataloger needs to know about a term and which RDA rules apply. The table of contents lists the page number for each entry in the glossary.

This book is being published both as a softcover publication and electronically. The authors have stated that there

are plans for at least quarterly updates of the online version, while the print version will be irregularly updated. However, much of the book is written in such a way that the reader would probably prefer the online version as a reference tool. Similar to earlier editions, the authors have provided a plethora of examples that are commonly accompanied by the corresponding Library of Congress (LC) policy statement, AACR2R, or RDA rule. There is one very marked difference in this edition. Each rule is presented as a hyperlink that, if the reader is using the electronic version, links directly to the corresponding rule. While this presentation is less helpful in the print edition, the rule can easily be found for reference. Even in the print edition, the layout and addition of colored text does make for easier reference.

Complete with little bits of humor, such as “How will you maintain your sanity?” (52), this manual is, in this reviewer’s opinion, an essential reference tool for law catalogers. It should not be mistaken for the entire toolbox. As a reference manual, it should be a part of most law library collections but it is less essential for libraries with small law collections. It serves as an introduction to basic legal terminology for a beginning law cataloger. However, the manual is still an asset to more experienced legal catalogers as they navigate the changing world of legal publications.—*Heather Mitchell* ([heather.mitchell@rutgers.edu](mailto:heather.mitchell@rutgers.edu)), *Rutgers Law Library, Camden, New Jersey*

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***Map Librarianship: a Guide to Geoliteracy, Map and GIS Resources and Services.*** By Susan Elizabeth Ward Aber and Jeremy Ward Aber. Chandos Information Professional Series. Amsterdam: Chandos Publishing, 2017. 278 p. \$81.95 softcover (ISBN: 978-0-0810-0021-2).

Some readers may opt to bypass the preface, which provides some interesting background as to the reason these authors decided to create *Map Librarianship*. The authors state that the goal for their book is to “enhance geoliteracy as well as reference instruction skills by providing details on finding, downloading, delivering, and assessing maps, remotely sensed imagery, and other geospatial resources and services, primarily from trusted government sources” (xiv). They focus on map librarianship and geoliteracy to fill the need for a single resource that helps map librarians promote the importance of libraries in the Geospatial Revolution. The authors comment that libraries and library schools are not recognizing their valuable role within this revolution and are missing out on service opportunities.

The opening chapter iterates some of the themes presented in the preface: the daily reliance on maps, both physically and digitally, the importance of maps, and how libraries need to be in the forefront of the Geospatial Revolution. The authors provide a brief history of geography and cartography, explaining the historical significance of map making throughout the years to demonstrate their evolution into NeoGeography and NeoCartography that we see today.

NeoGeography is described as “the divisions between traditional geographic roles of subject, producer, communicator, and consumer blurring together” due to changes in technology and society, allowing the consumer to perform the traditional geographic roles without formal training (8). NeoCartography is the visual presentation of these works on open-source and GIS/cartography visual platforms, such as Google Maps and Earth. The authors discuss the challenges and positive outcomes of consumer involvement in the Geospatial Revolution, some being the potential for biased data as well as the ability to perform crisis mapping. This is when traditional map librarianship also evolved.

The authors trace the history of map librarianship to explain its evolution into NeoMap Librarianship. NeoMap Librarianship is a “geo-literate librarian who [combines] knowledge of basic map and spatial-data concepts with a solid background in instruction services, reference services, collection development, classification schemes, and cataloging systems” (11). The new NeoMap Librarian will be vital in helping patrons navigate the Geospatial Revolution.

Throughout the rest of the book, the authors define the skill sets of the NeoMap Librarian, merging traditional librarian skills with geoliteracy knowledge. Geoliteracy is defined as the level of geo-education that the National Geographic Society believes that everyone in the 21<sup>st</sup> century needs to possess to behave responsibly and live well in our interconnected world (17). The authors describe various types of maps that exist, what they are commonly used for, and the basic concepts of map creation so that librarians and library users can “better interpret and use them as well as find maps that serve their specific needs” (69). They examine different digital mapping and geospatial software, citing pros and cons of some of the more popular ones. They comment that librarians need to be knowledgeable of these technologies so that they can develop instructional programs for patrons, as well as understand why and how these new technologies can help us “study the world and plan for future development” (94). With these new technologies come new training needs for librarians to learn how to properly use them.

The authors discuss how there is very little formal training in library schools to develop the necessary geoliteracy skills that the specialized equipment and technology require. By reviewing actual job postings, they seek to demonstrate that the skills being required are not what is being

taught in library schools. Reference librarians need to be aware of the different type of geospatial resources and the legal restrictions, such as copyright, on their content. Focusing on the major providers, the authors explore each and describe what other countries, agencies and organizations have to offer in this area in order to provide a starting point for librarians.

Furthering reference-specific duties, the authors explain what a typical reference interview involving maps might be and the importance of having the map collection visible, offering suggestions for signage and storage to help the patron find the information after being helped. They also discuss the importance of helping patrons properly cite these sources as well as developing a good collection development plan to meet the geospatial needs of patrons.

Finally, the authors provide a brief history of cataloging and classifying maps to explain the current state of cataloging these resources. They discuss the importance of having maps within the online catalog because patrons are bypassing the library's website for search engines when searching for resources. They stress the importance of making geospatial resources more visible to patrons, especially when libraries face budget and space constraints, and also advocate

for libraries to participate in promoting and educating the public on geospatial resources.

Throughout the entire book, the authors present the challenges of map librarianship and how and why libraries are falling behind in the Geospatial Revolution. They succeed in achieving their goal by giving an introduction into geospatial resources and concepts, and by providing bibliographic resources after each chapter and additional information in appendices. The illustrations provide great visualizations and clarifications. However, these figures frequently appear on a different page than the topic discussed, making it difficult to associate the illustration with the previously discussed description.

Although covering a similar topic as other books about map librarianship, this volume's focus on building geoliteracy skills for libraries to remain valuable makes it unique. *Map Librarianship* is recommended for anyone interested in becoming a NeoMap Librarian as well as institutions that house a map collection and wish to be a part of the Geospatial Revolution.—*Cynthia A. Romanowski (cromanowski@govst.edu), Governors State University, University Park, Illinois*





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