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Core LEADERSHIP INFRASTRUCTURE FUTURES

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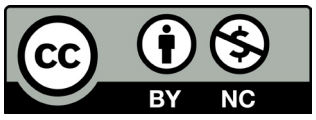

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Cover image: Beautiful landscape wheat field in bright Summer sunlight evening. veneratio/Adobe Stock.

A Conversation with the Authors of *Open Access Literature in Libraries: Principles and Practices*

Rachel E. Scott, Karen Brunsting, and Caitlin Harrington

In lieu of a traditional editorial or book review, in this issue I offer a conversation with Karen Brunsting and Caitlin Harrington, my co-authors for the recently published monograph *Open Access Literature in Libraries: Principles and Practices* (ALA Editions Core, 2022; 978-0-8389-3954-3). Over the past year, Michael Fernandez and I have documented some of the work we have undertaken to make *Library Resources & Technical Services* open access. These efforts have, of course, been informed by our grappling with the complex topic over a much longer period of time. For several years, I have been pondering what librarians, and especially those of us at smaller or less robustly funded institutions, can reasonably do to assist in making scholarly literature freely available to all to read. Like many of you, I share my questions, concerns, and ideas with professional colleagues and friends. Sometimes these discussions lead to research projects. What follows is an example of an ongoing conversation among technical services colleagues leading to research projects, changes in our practices, and, finally, a practical guide to getting started with open access in your library.

Before we get started, some context might be in order. Caitlin and I worked together at the University of Memphis, and when we arrived, the library by policy did not catalog open access journals. As the integrated library systems and electronic resources librarians, we had to make sense of why this policy was in place before we could advocate for integrating open access content into library collections and making it discoverable alongside subscribed content. We began to study librarians' attitudes, practices, and policies with respect to open access and learned that although most librarians expressed positive attitudes about open access, few had created policies related to open access.[1] We continued to explore this tension in a NASIG presentation, and uncovered more of librarians' concerns about open access content and their reluctance to write policies to address it.[2] When Karen joined our library as the acquisitions and collection development librarian, the three of us submitted a chapter proposal for the planned volume *Open Access Collection Management through the Technical Services Lens*. Instead of accepting or rejecting the chapter proposal, the editors invited us to write a book. After the surprise wore off, and with helpful feedback and encouragement from the editor and Chair of the Core Publications Coordinating Committee, Susan Thomas, we wrote the book that we are pleased to share with you all.

Rachel E. Scott (rescot2@ilstu.edu) is Associate Dean for Information Assets at Milner Libraries, Illinois State University, and Editor of *Library Resources & Technical Services*. **Karen Brunsting** (k.brunsting@memphis.edu) is Acquisitions and Collection Development Librarian at the University Libraries, University of Memphis. **Caitlin Harrington** (chrrngt4@memphis.edu) is Head of Information Access Services and the Electronic Resources Librarian at the University Libraries, University of Memphis.

Rachel E. Scott: *Thanks for joining me to discuss the book, Caitlin and Karen! Why approach open access through "Principles and Practices"?*

Karen Brunsting: Our intention in approaching open access through principles and practices was to give more library workers a chance to participate in bringing open access to their libraries. Practices represent the workflows and daily work—all of the things that are needed to allow open access into your collection. Principles work at a higher level and have to be decided on by administrators, or committees for the whole institution.

Caitlin Harrington: Like Karen said, practices are a part of your daily work, and your principles are the kind of thing that can be reflected in your strategic plan at your library that can provide more of an expansive view of the future rather than explicit rules and boundaries that are not going to work as well for something that is changing as quickly as open access.

RS: *That's fair—both principles and practices are important, despite being differently accessible depending on one's role in the library. There is a huge amount of literature on open access. How is this book different?*

CH: I think this book is different because we tried to write it in such a way that there were entry points to participate in the support of open access for all types of library workers, regardless of the size or budget of their institution. A lot of talk around open access at this time assumes funding that is not available to many institutions. And as librarians who have worked in those types of environments, we wanted to find ways to promote open access—even if your budget has no room to spare.

KB: I agree with what Caitlin said, but I also want to go back to what she said about the principles and practices being helpful because open access is changing so rapidly. The rapid changes in open access also impacted how we wrote the book and why it's different, because we're trying to provide simpler, faster ways for library workers to establish some type of open access in their libraries. Even if they haven't gone through the whole procedure of incorporating open access into a strategic plan, or haven't been in the position to meet with all of the stakeholders and come to some sort of consensus, there still might be a way for them to bring open access into their collections, even in a small way.

RS: *Did researching and writing the book change the way you think about any aspect of open access?*

KB: Researching the book changed the way I think about open access in almost every way, because I learned so much researching each chapter we wrote—it was a big learning experience for me.

CH: I think that one of the things I got out of researching this book was ideas for how all roles within the library can support open access. My perspective is rooted in technical services, but in researching the book I learned about ways that non-technical services librarians can also participate in this work.

RS: *I'll follow up to ask how researching and writing has impacted your daily work in a technical services department. Have you found that this research changed or informed how you go about journal renewals, for example?*

KB: Yes, it's made me ask more questions, such as why we are paying for subscriptions to open access journals, what these payments are actually for, whether open access journals and monographs have a place in academic libraries. I also have a greater interest in read and publish or transformative agreements—that's on my list of things to investigate for my library this year. The book definitely made me more aware of the possibilities out there.

CH: I think that in my role as department head what I learned by researching this book were the ways the folks I'm working with are already supporting open access that I wasn't aware of. I wasn't aware of the great tools available through interlibrary loan, for example. I knew about indexes for open access content from my perspective as an e-resources librarian. I knew about knowledge bases and collections like the Directory of Open Access Journals and things like that. But I didn't know about interlibrary loan tools and I learned a lot by talking to the interlibrary loan librarian I supervise.

RS: *Who did you write this book for and how can it help them?*

CH: I think we wrote the book for an overwhelmed librarian or library worker that has a curiosity about open access but is unsure where to start and feels like there's too high of a barrier for entry. Also, the book was written in such a way that individual chapters or portions of chapters can be read as standalone material. You don't have to read the entire book. If you don't have the time or that degree of interest in the subject, you can really zero in on the parts that you feel will be most beneficial to you and leave the rest if it's not going to be helpful.

KB: I think about the book as sort of an introduction to open access, because it covers a wide, broad view, so many different aspects of open access. But it doesn't contain everything about those aspects. It's very much the basics of what you need to know, and then you can take each chapter or each section, and do a much deeper dive on that aspect of open access. I've actually used it to prepare an introduction to open access lecture for the League of Awesome Librarians. The book helped me out with that, because there's so much information out there and it is hard to distill it down in a way that people can approach it and not be overwhelmed.

RS: *What were some of the challenges of a book-length project?*

CH: I think organization was a challenge. When we were writing the book, we had a strong idea of what we hoped to achieve, but figuring out the most logical way to present that information was a challenge. This was the first full length

book that I've ever been responsible for and contributed to all portions of the book. It's just a lot longer than an article. I remember us spending a lot of time trying to figure out where things made the most sense and how to include everything we wanted to in an appropriate way.

KB: Having the outline was a huge help, but then we also had to be willing to change the outline when we realized we were maybe forgetting something or changing directions, and then we also had to be willing to cut out paragraphs or pages of what we wrote because they took the book into a direction we didn't want, or it was not critical to what we were trying to do.

CH: This was a writing project that changed the most while I was working on it. Articles that I've worked on haven't changed as much as this did from inception to completion. This was truly in flux—the outline was changing as we wrote and we had to be flexible with letting it be a living and breathing thing until we were finished. And then, even after we had finished writing all of the content, it still needed some finesse to make it the best it could be.

KB: Doing it the way we did it, chapter by chapter was difficult, I can't really think of another way, but we would work on a chapter and come to some sort of completion on that chapter, and then have to start all over again with the next one. There were times when it was like "I can't believe we're still doing this" and "whoa, this is still going on!"

RS: *It was indeed a long project and I remember some concern about how many things would change between the date of completion and the date of availability. Because the open access landscape shifts so quickly, a book length project is somewhat risky, and we acknowledge that some parts of the book will age better than others.*

We'll close by noting that there is sometimes a bit of public shaming involved when literature about open access is published behind a paywall and perhaps that is only fair. We are attempting to practice what we preach by depositing the publisher's version of the complete book in the Illinois State University Institutional Repository for those who cannot afford to purchase it. We hope that those who can purchase it will buy a copy from ALA. We have also opted to donate any proceeds from the book to the open access publishing campaign of Core journals, which includes *Library Resources & Technical Services*.

In this issue of *Library Resources & Technical Services* you'll find:

- Sean P. Kennedy and Melanie J. McGurr discuss changes to management practices in technical services departments during the global COVID-19 pandemic. They surveyed technical services managers in academic library settings to establish the prevalence of changes related to communication, resource provision and support, job characteristics, and job stressors. The findings suggest that managers made substantive changes to communications practices and practices related to work-life balance. Managers report keen interest in supporting the mental health of their employees.
- Migrating systems can wreak havoc on long-established processes and workflows. William H. Midgley and Kavita Mundle describe how differences in ledger structures between Voyager and Alma posed considerable concern about the impending implementation of Alma and share the solution they devised by utilizing Alma's "Reporting Codes" feature. This case study demonstrates the value of thinking creatively when working with ledgers, reporting codes, and invoice automation processes from collection development or acquisitions perspectives.
- In "Collaborative Learning on Linked Data through a Virtual Study Group," Xiping Liu, Sharon Reidt, Jodene Pappas, Jill J. Crane, and Ada Laura Ramirez share their experience forming and sustaining a virtual group dedicated to learning about and applying linked data. The authors discuss their activities, the challenges encountered, their collaborative work on a PCC Wikipdata project, and their plans for the future. They discuss the opportunities for and implications of technical services librarians working in distributed and online settings to learn together.
- Books reviewed include *Metadata for Digital Collections* by Steven Jack Miller, *Transforming Technical Services through Training and Development* edited by Marlee Givens and Sofia Slutskaya, *Project Management in Technical Services: Practical Tips and Case Studies* edited by Elizabeth German and John Ballestro, and *The Ultimate Privacy Field Guide: A Workbook of Best Practices* edited by Erin Berman and Bonnie Tijerina.

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Management Practice Changes in Academic Library Technical Services Departments during the COVID-19 Pandemic

Sean P. Kennedy and Melanie J. McGurr

The COVID-19 pandemic brought about many unexpected changes for academic libraries. Technical services departments were especially disrupted due to the nature of their responsibilities and library operations. In response to these pandemic-induced changes, technical services managers were tasked with maintaining a high level of operations while also navigating sudden workforce changes including evolving job demands and employees working off-site. This study documents and analyzes the responses of technical services managers during the pandemic. Documenting these practice changes will help inform current managers looking to compare themselves to peers and future managers who may experience a similar event that causes a sudden shift in operations. Overall, managers reported a high incidence of change to their typical management practices. Managers made the biggest changes in communications and practices related to work-life balance. A significant theme emerged from the analysis that shows technical services managers adding several new practices to support and care for the mental health of employees.

The sudden onset of the COVID-19 pandemic brought disruption to all areas of life in 2020. Every industry across the globe was forced to rethink how and where they conduct business. The world of academia, and its academic libraries, were no exception to this monumental shift. Many academic library technical services departments suddenly found themselves being forced to work off-site while tasked with many responsibilities that typically require on-site activity including working with physical materials, managing mail rooms, and other services to keep the backend of their library running smoothly. In addition to these new proximity-related challenges, several additional challenges arose due to the massive pivot to online learning including pressure for rapid acquisition of e-resources to support course needs, an influx of technology and/or e-resource help requests, and an avalanche of temporary free e-resources from vendors. These changes brought about significant challenges for technical services employees and managers.

An important takeaway from the COVID-19 period, and the changes forced upon technical services departments, is understanding how managers altered their management approach, style, and practices to support employees dealing with new job demands, a changing work environment, and their own personal health and

Sean P. Kennedy (skenne20@kent.edu) is Collection Strategies Librarian and Assistant Professor at Kent State University. **Melanie J. McGurr** (mmcgurr1@uakron.edu) is Associate Dean of Technical Services and Associate Professor of Bibliography at the University of Akron.

other related issues due to the pandemic. This information may prove critical should technical services departments once again find themselves forced into remote work due to a future pandemic or local event that disrupts normal operations (e.g., fire, flood). These management changes should also be considered at the present time as libraries seek to find a new normal for their operations, learn from both the positives and negatives that came out of COVID-19 induced work challenges, and develop new standards for employees in workplaces changed by the pandemic.

Literature Review

A crisis like the COVID-19 pandemic, as the adage goes, is both a challenge and an opportunity. A department can take this time to re-think workflows and may discover that the pre-pandemic way of doing certain tasks may no longer be necessary, even after the return to on-site work.[1] As Newman points out, "crisis can highlight the leadership weaknesses and inability to embrace the opportunity for growth and development" or it can show that good leaders can also learn and grow to face new challenges.[2] The pandemic is not over, but the impact on public, academic, and special libraries is already appearing in articles and columns. Library research on low morale and burnout was increasing before the pandemic. These problems are certainly exacerbated by COVID-19 and library shutdowns.[3] Researchers have approached the pandemic and its impact on libraries from different angles. Some studies and articles concentrate on what libraries can do for the community.[4] A few articles concentrate on technical services in general and technical services management issues in particular.[5]

This study focuses on COVID-19 induced changes in the management practices of academic library technical services managers within four areas of the manager's scope of influence: practices related to communication, practices related to providing resources and support to employees, practices related to the characteristics of the job, and practices related to work stressors.

- Communication practices are the actions a manager takes related to sharing information with employees (e.g., providing feedback, practicing transparency, and holding meaningful meetings).
- Providing resources and support to employees are the actions a manager takes to ensure employees have additional resources to be successful in their role (e.g., skill acquisition training, mentoring, and time-management assistance).
- Characteristics of the job practices are the manager's actions related to adding, removing, or modifying aspects of an employee's work experience based on their hired position (e.g., autonomy level, work-life balance policies, and clearly documenting job role responsibilities).
- Practices related to work stressors are the actions a manager takes to reduce any negative aspects of the job, both physical and mental, that impact employees (e.g., providing flexible deadlines, workload management, and work environment issues such as non-ergonomic furniture).

There are several other factors (e.g., home life) that impact employees and their interactions with managers. This study does not analyze these other factors because they fall outside of the manager's direct scope of influence. However, this analysis of management practices ties back to these critical areas for employees through considering how managers impact constructs such as work-life balance.

Communication

Communication between managers and employees is undeniably critical. The pandemic added several additional topics to communicate about (e.g., fluid work arrangements, needed supports, and personal health issues) and modes for those communications to take place (e.g., online chat, video conferences, and increased informal interactions). Newman notes that communication during the COVID-19 pandemic was a priority for library leadership and clear communications can help to build trust, increase a sense of community, and reduce anxiety.[6] Salvesen and Berg's research on the early pandemic experiences of academic librarians in New Jersey found communication to be a frequently mentioned issue overall and lack of communication to be a point of frustration librarians had with library administration.[7]

Many leaders found that their communication was most helpful when it was flexible and personalized. Stein et al. share how communication within technical services at the University of Louisiana at Lafayette was strengthened through utilizing differing formats (e.g., email, video, and online chat) and considering individual preferences such as accommodating staff members who preferred smaller groups, or even one-on-one meetings, as opposed to large online group meetings.[8] Managers should also consider creating opportunities for employees to communicate and express themselves across different dimensions (e.g., physical, social, and emotional) while leaving space for those that may not want to participate in these other types of sharing opportunities.[9] Creating space for social communication amongst team members during a quarantine can help strengthen relationships and enhance the overall wellness of employees.[10]

Mazur was happy to discover most of their technical services department's duties could translate smoothly into off-site work arrangements but quickly found communication to be an important area of needed focus.[11] Mazur notes that informal communications are an important part of technical services departments and a lack of visual clues (e.g., body

language) can be a communication tool that managers lack in the virtual environment.[12] Rysavy and Michalak led teams that smoothly transitioned to work from home arrangements due to already using popular online tools such as Slack, SharePoint, and Notion.[13] Despite access to these existing tools, they introduced daily usage of FlipGrid (an online tool for leaving short video messages) to help facilitate missing face-to-face interactions and important drop-in style conversations that are a valuable part of daily communications.[14]

Providing Resources

The typical routine and normal flow of office life can make it hard for employees to find time to engage in training and other continuing education activities. Budgets can often serve as an additional barrier managers must overcome when providing resources that aid in employee success. Some managers used the COVID-19 work from home period as a chance for employees to invest time in professional development including continuing education that would allow staff to prepare for projects that would start after the return to campus.[15] Corbett's library went through an integrated library system (ILS) migration right before the start of the pandemic which meant their training, creation of new workflows, and documentation had to be completed remotely.[16] These examples illustrate the opportunities for professional growth during a work from home situation and the value returned to managers who provide resources for such employee opportunities.

In addition to professional development, managers can provide resources to assist employees in many other ways. Something as simple as maintaining accurate procedures documentation can be very important for employees. The ability to be successful while working remotely in technical services is strengthened by easily accessible updated documentation about workflows and practices.[17] Managers during the COVID-19 period also looked for ways to help employees handle change. Freudenberger describes how one public library director started a weekly training and discussion series to help employees cope with the almost constant changes they were facing.[18] Although that director began this encouraging weekly meeting, she still felt she could have provided more resources to help employees handle the stress caused by change. Leaders can also be an example and model good behavior by encouraging a positive attitude within their team.[19] A manager's time management skills and healthy relationship with work can encourage employees to engage in similar practices. In this way, and many others, one of the most important resources library managers can provide are themselves.

Characteristics of the Job

Remote work for technical services employees and managers is not a new concept, but the practice was not widespread before the pandemic.[20] Most of the COVID-19 literature about remote work in libraries focuses on descriptions of how specific libraries handled the swift pivot to remote work. Working from home, and being called back on-site, have both caused adjustments in workflows and employee patterns.

Workload, especially when increased due to changes in staffing levels, seems to be a fairly common issue in academic libraries that was exacerbated by the pandemic and work from home arrangements. Workers who remained on-campus, and those that may have rotated on-campus duties, reported additional responsibilities as a challenge.[21] Technical services workers may have been particularly susceptible to this added job stress due to the number of duties that needed to be completed by whoever happened to be on-site (i.e., opening mail, physical processing, etc.). Remote workers also faced challenges related to the changing characteristics of their jobs including isolation from the team, duties being difficult or impossible to complete off-site, and much more. Hudson-Vitale and Miller Waltz report the need for managers "to think creatively to develop a supportive work environment for remote personnel" during this difficult period.[22]

Trust is a theme that comes up numerous times in the COVID-19 library literature.[23] Although trust is an important part of any aspect of the supervisor-employee dyad relationship, trust that an employee can and is doing their job, especially in the remote work setting, is critical. Salvesen and Berg discuss another type of trust in the workplace that impacts employees—the trust that others are following safety guidelines and standards so that they do not bring the virus into the workplace.[24] This is one example of the many ways COVID-19 altered characteristics of the job that led to new work stressors.

Work Stressors

Living through a pandemic, and all of the related work changes it caused, was incredibly stressful for employees. Stress for library workers went beyond the obvious challenges raised by remote work and changing workflows. Individuals grappled with other issues including worries about job insecurity and furloughs, loss of co-workers, fear of illness, and budget cuts. Newman states that employee safety is the first priority for a library leader: "While all stakeholders and commitments are important, the first priority is employee safety. Addressing employees' concerns must be the top priority at every stage of the pandemic as the goal must be to reassure employees and help them feel as safe as possible."[25] Library leaders also had to find a way to balance the needs of patrons with the needs of employees while providing library services during the pandemic.[26] Finding this balance is difficult and can bring stress to employees who may be uncomfortable returning to work and being around coworkers and/or patrons during a pandemic.

An important part of protecting employees includes protecting both their mental and physical health. Hudson-Vitale

and Miller Waltz give wellness and support strategies including meeting free Fridays, limiting meetings to forty-five minutes or less, and taking action when team members express needs that would reduce their stress such as schedule flexibility.[27]

Some departments were better prepared than others to go remote. In Corbett's case, all employees went home with their office computers or laptops, other needed equipment, and office chairs so that they were prepared for success working from home.[28] This was good foresight to get ahead of many common stressors that can arise when quickly turning your home into a new office. An added benefit of modern technical services work is that we rely on software that is easily used remotely or can be downloaded to be used from anywhere. Rysavy and Michalak found the stress and disruption of their departments moving to remote work was lessened due to already using digital tools and systems to accommodate the various schedules of their team members.[29]

A library director from Freudenberger's investigation into library re-openings stressed the importance of a few practices which may help reduce work stressors including checking-in on each other, relaxing deadlines and schedules, and not losing sight of how much work has been accomplished by libraries who have reinvented themselves and their services multiple times through the pandemic.[30]

Methodology

The authors' sought and received institutional review board (IRB) approval prior to recruitment and distribution of surveys. Data for this study were collected alongside data for a larger study on technical services management practices related to burnout.[31] While collected simultaneously with other burnout data, participants were instructed to answer questions for this study only about their typical management practices and how those practices have changed due to the COVID-19 pandemic.

Participants were recruited for this online study through email distributed to eight academic library and technical services email lists (ALA Core, ACRL Tech Srv, ACRL ULS, AUTOCAT, Eril-l, OCLC-CAT, OVGTSL, and Core Metadata) during the summer of 2021. A total of 126 participants provided complete usable data. All participants were made aware of their rights as research participants, provided relevant IRB information, and gave informed consent before the survey began.

Participants

Participants included 126 current academic library managers who supervise employees working in traditional technical services roles. Traditional technical services roles were defined as including, but not limited to, cataloging, acquisitions, collections, electronic resources management, and preservation. This sample of managers skewed towards females, roughly matching the overall profession, with 87.27% reporting female and 12.73% reporting male. The self-reported race of participants in the sample included African American or Black (1.71%), Asian (3.42%), Hispanic or Latino or Spanish origin of any race (0.85%), Native Hawaiian or Other Pacific Islander (0.85%), White (88.9%), and two or more races (4.27%). The average age of participants is 49.41 years old with a range of 24 to 70 years old.

The academic librarian work experience of participants ranged from 3 to 40 years with an average of 18.34 years of experience. Participants total years in their current supervisory role ranged from 1 to 30 years with an average of 8.17 years. The average number of employees supervised is 5.83 employees. The range of employees supervised is from 1 to 38 employees.

Participants work at both public (62.7%) and private (37.3%) higher education institutions. A majority of participants are employed at a four-year institution that offers doctorate degrees (71.43%), followed by four-year institutions that offer graduate degrees (17.46%), four-year undergraduate institutions (7.94%), and two-year institutions (3.17%).

Measures

The survey questions used in this analysis were developed by the authors. The goal of the survey is to understand how the management practices of academic library managers changed due to the COVID-19 pandemic. Participants were instructed to answer all questions about how their typical management practices (i.e., pre-pandemic practices) have changed due to the COVID-19 pandemic. This is an important distinction as data was collected close to one and a half years into the COVID-19 pandemic and after many lockdown mandates were put in place.

The survey focuses on four broad management categories that can be influenced by managers: communication, providing resources and support to employees, characteristics of the job, and work stressors. Participants were asked if they had made changes to their management practices within each of the four management categories. Participants indicating they had made a change due to the COVID-19 pandemic in a given category were prompted to provide information about those changes. These open-ended answers were reviewed, standardized, and coded as distinct management practices.

Results

A total of 95 participants (75.4%) reported making at least one management practice change in at least one of the four management practices categories.

A total of 11 participants (8.73%) reported making at least one management practice change in all four management practices categories.

Results reported about specific management practice changes in the following categories are expressed as a count of total incidences of the practice change across all participants. An individual participant can be represented more than once in a category if they reported more than one specific practice change within that category.

Communication Practices

A total of 83 participants (65.87%) reported making at least one management practice change related to communication. The three most common changes in management practices related to communication were starting to use video conferencing (38), increased written and email communication (20), and increased frequency of meetings (18). The full list of management practice changes related to communication can be found in table 1.

Providing Resources and Support Practices

A total of 49 participants (38.89%) reported making at least one management practice change related to providing resources and support. The three most common changes in management practices related to providing resources and support were increased promotion of online training/webinars and encouraging employees to take advantage of these resources during work time (24), promoted and provided work time for use of resources available through the organization (e.g., stress management) (11), and reducing or fully eliminating paid professional development due to budget cuts (7). The full list of management practice changes related to providing resources and support can be found in table 2.

Characteristics of the Job Practices

A total of 37 participants (29.37%) reported making at least one management practice change related to characteristics of the job. The three most common changes in management practices related to characteristics of the job were allowing remote work arrangements (25), expanding and/or changing job duties to better suit work from home arrangements (5), and providing flexible scheduling (3). The full list of management practice changes related to characteristics of the job can be found in table 3.

Work Stressors Practices

A total of 37 participants (29.37%) reported making at least one management practice change related to work stressors. The three most common changes in management practices related to work stressors were providing flexibility around

Table 1. Management practice changes related to communication.

Incidences	Management Practice Changes Related to Communication
38	Started using video conferencing
20	Increased written and email communication
18	Increased frequency of meetings
13	Started using online chat
9	Increased informal "check ins" with employees
8	Increased communication (general)
8	Increased social support and non-work chat with employees (e.g., discussing personal issues)
5	Held formalized meetings because typical informal communication wasn't possible with work from home arrangements
4	Manager scheduled time within their day for employees to talk with them about anything (i.e., manager "office hours")
3	Started using text messaging within department
2	Managers made themselves available via their personal cell phone
2	Added a new departmental meeting
2	Held meetings even if there were no agenda items as a means to bring the department closer together during distanced work
1	Increased carefulness around messaging due to the majority of communications now being documented in writing
1	Delivered information across several modalities for clarity purposes
1	Implemented a shared daily log of activities for each employee
1	Adjusted meeting frequency for each employee based on their needs
1	Decreased frequency of meetings
1	Decreased spontaneous meetings

Table 2. Management practice changes related to providing resources and support.

Incidences	Management Practice Changes Related to Providing Resources and Support
24	Increased promotion of online training/webinars and encouraged employees to take advantage of these resources during work time
11	Promoted and provided work time for use of resources available through the organization (e.g., stress management)
7	Reduced or fully eliminated paid professional development due to budget cuts
3	Identified and promoted resources to help cope with pandemic-related stressors
2	Documented work procedures in writing
2	Managers increased the amount of time they were available to employees
2	Increased paid professional development for non-faculty employees through repurposing unspent travel budgets
2	Developed individualized plans for work tasks and duties for employees working from home
1	Increased transparency in decision making process
1	Developed individualized transition plans for return to work based on employee needs
1	Provided needed technology to successfully work from home
1	Decreased workload and productivity expectations
1	Decreased expectations for participation in professional development activities
1	Encouraged employees to take breaks and downtime while working from home
1	Advocated for accessibility needs of employees working from home (e.g., closed captioning during online meetings)
1	Developed new job duties and work procedures to avoid layoffs
1	Utilized group registrations to extend professional development opportunities to non-faculty employees

Table 3. Management practice changes related to characteristics of the job.

Incidences	Management Practice Changes Related to Characteristics of the Job
25	Allowed remote work arrangements
5	Expanded and/or changed job duties to better suit work from home arrangements
3	Provided flexible scheduling
2	Set firm and realistic boundaries for workload and job role expectations
2	Expanded job duties to cover furloughs and/or layoffs
1	Relaxed productivity expectations
1	Increased flexibility within existing pre-pandemic work from home arrangements
1	Expanded an employee's job duties to avoid layoff
1	Required employees to report and log tasks
1	Allowed employees to assist in other library departments that matched their interests
1	Required employees to take on new duties without the typically needed training and an adequate amount of time to ease into those new duties

work expectations and deadlines (17), providing flexible scheduling (12), and conducting well-being checks and meetings (6). The full list of management practice changes related to work stressors can be found in table 4.

Discussion

The primary goal of this study was to measure and understand changes in the management practices of academic library technical services managers due to the COVID-19 pandemic. Overall, managers recognized the unprecedented nature of the pandemic and were willing to make changes to their typical practices as evidenced by the 75.4% of managers in this sample reporting making at least one change in a major management practice category. Although likely a small incidence, managers reporting no management practice changes may work in states that did not have stay at home orders and/or at institutions that continued to operate in their typical manner. Our findings also show that some managers found it necessary to respond to the pandemic with broader changes as 8.73% of managers in this sample reported making changes

Table 4. Management practice changes related to work stressors.

Incidences	Management Practice Changes Related to Work Stressors
17	Provided flexibility around work expectations and deadlines
12	Provided flexible scheduling
6	Conducted well-being checks/meetings
4	Protected employee's time and workload
3	Provided needed technology to successfully work from home
2	Advocated for continued remote-work even post COVID-19 mandates
2	Provided ergonomic office furniture and accessories
1	Increased amount of praise provided for good work
1	Increased meetings for information sharing and transparency purposes
1	Provided accommodations for employees with pandemic-related family loss
1	Decreased expectations for new skill acquisitions
1	Practiced mindfulness with respect to employees' experiences and took extra steps to assure a healthy work environment
1	Encouraged the use of "mental health" days
1	Included employees in the process of creating COVID-19 safety procedures
1	Allowed employees to use paid time off with very short notice
1	Equally distributed lower-level tasks previously completed by student workers
1	Reduced general support and accommodations for dealing with worsening work stressors due to lack of budget and reduced staffing levels

in all four of the management practice categories analyzed. These reported rates of change in management practices demonstrate an overall trend in academic library technical services managers of adaptability and conscientiousness towards the needs of their department and employees. By far the most common area of management change occurred in communication.

Communication was clearly a management practice area that managers relied on to make needed changes. Changes in communication practices were reported by nearly two-thirds of the sample (65.87%). Communication was the only management practice category with over half of participants indicating they made at least one change in their practices. This is an expected finding considering the importance of communication to the supervisor-employee dyad relationship and early publications on the impact of the COVID-19 pandemic highlighted communication problems between employees and library administrators.[32]

The most common change in communication management practices was the introduction of video conferencing. This makes sense as products like Microsoft Teams, Zoom, and Webex have become ubiquitous and were positioned perfectly to meet the communication needs of unexpectedly distanced work teams. Despite being the most common communication practice change, the overall number of managers reporting adoption of video conferencing was just thirty-eight. This study only focuses on new management practices adopted due to the pandemic, but it seems a safe assumption that some of the managers in this study may have already adopted video conferencing prior to the pandemic. Increased written and email communications was the next largest reported change. The pandemic caused a disruption of normal communications such as day-to-day chats, hallway catch-ups, and the quick office drop-by. Managers seemed to rely on the more traditional written and email communication channels for information sharing during the pandemic. This was undoubtedly a necessity for some managers although formal communications in technical services can suffer from a lack of the informal cues and interactions which are important to how most departments communicate.[33] Interestingly, one manager reported increasing the carefulness of their communications as many more interactions were now documented in writing. The third most prevalent communication change was to increase the frequency of meetings. This change could have served many purposes including increasing opportunities for information sharing, checking-in on employee progress, and trying to maintain a sense of team among employees. One participant in the study reported decreasing the frequency of meetings.

An interesting observation from the communication practice changes are the reports of managers sharing their personal cell phone information and starting to use text messaging with employees. It is the authors' experience that these are normal and relatively common practices in academic library technical services departments. These reported changes may underscore the gravity of the communication challenges managers faced during the pandemic. Management concerns related to communications may have

convinced some holdouts to take the step of sharing their personal contact information with employees.

Providing resources and support to employees is a management practice category that had a little more than one-third (38.89%) of managers make at least one change. The most common change in practice, with more than double the incidences of the second most reported change in this category, was increasing the promotion of online training/webinars and encouraging employees to take advantage of these resources during work time. The pandemic period brought about a plethora of online training and webinar opportunities, many of which were offered for free. Our findings suggest managers wanted their employees to take advantage of these professional development opportunities. A definite factor in the increased promotion of these resources to employees is the fact that working remotely may have afforded some extra time to devote to professional development because some of their normal duties could not be completed remotely.[34] The second most common change in this area was increasing promotion of the resources available through the organization (e.g., human resources training opportunities) and providing work time for employees to take advantage of those opportunities. This is another example of managers turning to training and professional development to help employees through this challenging period. Interestingly, the third most common change was to reduce or fully eliminate paid professional development opportunities due to budget cuts. While some managers leaned in for more professional development, others were forced to cut back. This highlights the vast and divergent COVID-19 work experiences that occurred across the profession. It is certainly possible that training provided by the organization and free professional development may have helped lessen the impact of reduced budgets. Future world events and/or organization-wide budget cuts will certainly impact libraries at some point. In the face of these cutbacks, it is important for managers to protect professional development funds when possible as they can play a crucial role during tough times.

Characteristics of the job is a management practice category that roughly 30% of technical services managers made at least one change in. This category was dominated by one common management practice change: allowing remote work arrangements. It is no surprise that remote work arrangements made up 58% of the total responses in this category and were the only management practice change with more than five reported incidences. Safety protocols required many libraries to close their doors, employees to isolate due to illness or exposure to the virus, and many other situations that made it impossible to conduct normal technical services work on-site. It is curious that only five managers reported expanding or changing job duties to better suit work from home arrangements while many more reported providing such working arrangements. This could possibly be due to technical services duties being more easily translatable to remote work than expected and/or a real-world example of the adaptability required of employees who work in modern day academic library technical services departments. It is plausible that technical services workers may have an easier time making the adjustment to remote work when compared to other areas of the library such as public services. Relatedly, and another example of divergent COVID-19 work experiences, the data shows one manager was forced to increase an employee's job duties to avoid a layoff while a different manager reported allowing an employee to assist other library departments that matched their job interests.

Work stressors is a management practice category that roughly 30% of technical services managers made at least one change in. The most common change in management practice related to work stressors is providing flexibility around work expectations and deadlines. In the same vein, the second most reported management practice change for work stressors is providing flexible scheduling. Increasing flexibility around deadlines and providing scheduling autonomy seem to be appropriate changes for addressing work stress. It makes sense that managers turned to these tactics as they are easily implemented, cost-free, and very practical for employees working remotely. Managers seemed to be aware and concerned about added work stress due to the COVID-19 pandemic as the third most common change was conducting well-being checks/meetings. It speaks volumes to the considerable work stress in academic library technical services departments, and the added stress of the pandemic, that a trend emerged where managers made a point to check in with employees on how they were doing with work stress. These meetings provide opportunities for employees to make the manager aware of issues, ask for help, and/or let out some frustration. These meetings can benefit managers too as they can only help employees address work stressors if they know about them. It is noteworthy that there is an overlap in the reporting of management practice changes related to work-life balance issues within the work stressors category and characteristics of the job category. These results suggest that some managers view aspects of employment like scheduling as something related to part of the job while others view it directly as a work stressor.

The COVID-19 management literature features many examples of things managers can do to create better work environments and assist employees with work stress.[35] While these articles provide ample suggestions, it must be acknowledged that not all managers have the needed resources or are in a position to implement best practices, let alone suggestions from the academic library management literature. This is exemplified by one manager in this study

who reported their COVID-19 induced management practice change related to work stressors was to reduce support and accommodations for employees dealing with worsening work stressors because the library simply did not have the staffing levels or budget to do anything about it. It is important to remember that library managers are people too, and they are impacted by increasing work stressors and the same pandemic-related issues that library workers struggled with in their own professional and personal lives. While this study aims to provide managers with practical takeaways to implement either now or in response to future disruptive events, it is important not to lose sight of the stress and obstacles that managers also faced.

A theme emerged from these results that shows managers taking on the role of caring for the mental health of their employees. This theme is not unexpected as mental health appears across several studies in the COVID-19 library literature.[36] Managers mentioned many changes to their typical practices, across every management practice category, that were related to the mental health of their employees. In terms of communication, managers reported new practices that included increasing social support, setting aside time for non-work personal chat, providing office hours to employees who needed to talk, and working to foster a stronger sense of team. In terms of providing resources and support, managers reported specifically seeking and promoting resources to help cope with pandemic-related stress, encouraging employees to take breaks and downtime at home, and developing individualized transition plans for employees returning to work in person. Managers reporting changes to management practices related to characteristics of the job often mentioned practices related to work-life balance and practices that may help with job satisfaction and burnout such as setting a realistic workload, relaxing productivity expectations, and allowing employees to assist other departments that more closely match their personal interests. Managers looking to alleviate work stressors deployed new practices such as well-being checks, encouraging "mental health days," and in some cases provided accommodations for employees dealing with pandemic-related family loss. Whether intentional or incidental, it is clear academic library technical services managers added several new practices focused on the mental health and well-being of employees due to the impact of the COVID-19 pandemic.

Limitations and Future Directions

Participants were clearly instructed to answer survey questions about how their typical management practices have changed due to the COVID-19 pandemic. However, data for this study was collected as part of a larger study on academic library burnout which may have primed participants to focus on and/or more heavily report burnout related management practices. It should also be noted that this focus may be reasonable due to the impact of the pandemic on library workers.

This study did not ask managers if their department's working arrangements, environment, and so on, had been impacted by the COVID-19 pandemic. While it is a relatively safe assumption that the pandemic caused such changes to occur, it is possible that managers reporting no changes in behavior could have been employed at a place that did not have a work from home mandate or otherwise conducted business as normal.

The future research directions on the impact of the COVID-19 pandemic on academic libraries are expansive. Studies looking to analyze the performance and reaction of library managers to the pandemic have a few important questions to address. First, did the pandemic-related changes to typical management practices have an effect on employee performance, address organizational needs, and successfully contribute to the well-being of employees? Second, would it be beneficial for academic libraries to permanently adopt the common changes to operations and the management of employees that were utilized by managers during the pandemic including increased scheduling flexibility, work from home arrangements, and intentionality given to strong communication practices?

Conclusion

The COVID-19 pandemic forced academic library technical services departments to rethink their responsibilities, services, and workflows. These disruptions caused many changes for employees including evolving job duties and working offsite. Technical services managers responded to these changes by modifying their management practices across several areas. Management practice changes were most prominent in communication where managers increased levels of communication and diversified information sharing channels. Managers also adopted several work-life balance practices (e.g., remote work and flexible scheduling) to improve conditions for employees. Technical services managers also adopted many new practices in support of employees' mental health. As academic libraries continue to move towards a full return to pre-pandemic operations, technical services managers will need to balance their old expectations with the working situations and new realities that employees became used to during the pandemic.

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Cracking the Code on Acquisitions Transitions

From Voyager to Alma

William H. Midgley and Kavita Mundle

For decades the University of Illinois at Chicago Library relied on the Voyager integrated library system for acquisitions, cataloging, circulation, and other applications. By 2020, a wide range of stakeholders throughout the Library system had established their processes around its functionality. In the summer of 2020 the Library, along with ninety other members of the Consortium of Academic and Research Libraries in Illinois, went live in the final phase of a consortial migration to the Alma Library Services Platform. The absence of a "reporting funds" level in the ledger hierarchy in Alma threatened a fundamental premise of our long-established acquisitions processes through which Acquisitions staff translated transactions between a librarian-facing ledger and totally different University financial categories. A creative solution using Alma's "Reporting Codes" feature was discovered after interviews with stakeholders, which prevented significant confusion throughout the Library and preserved all our processes. This case study describes the history of our acquisitions practices, the fundamental problem raised by the ledger structure in Alma as compared to Voyager, and the solution designed utilizing Alma's "Reporting Codes" feature.

The University of Illinois at Chicago is a large, urban, public, Carnegie Research 1 university headquartered in the Near West Side of Chicago, with two additional campuses throughout the state and an annual budget of around $3.6 billion. It serves a student body of over thirty-three thousand, roughly two-thirds of whom are undergraduates and the rest graduates/professionals. It offers over three hundred undergraduate, master's, doctoral, and certificate programs across its sixteen colleges, and employs more than 2,900 faculty and 6,000 civil service employees. It is the largest university in the Chicago area and a member of the University of Illinois system, which includes the flagship University of Illinois at Urbana-Champaign and the University of Illinois Springfield. UIC has five libraries: the Richard J. Daley Library, the Library of the Health Sciences, two regional health sciences libraries in Rockford and Peoria, and a law library. The Richard J. Daley Library is the operational center of the University's library system.

The RAM (Resource Acquisition and Management) Department located in the Daley Library provides metadata, acquisitions, e-resources, and collection analysis and management services to all UIC libraries, except the law library. RAM consists of two units: an Acquisitions Unit and a Metadata Unit; the department also includes a collection and analysis librarian who reports to the head of RAM. The Acquisitions Unit acquires all print and electronic resources, streaming media, physical media, special collections items, and other resources, and manages shelf-ready processes and approval plans. E-resources staff within the Acquisitions Unit specialize in acquisition of electronic resources and troubleshooting, licensing, vendor correspondence related to e-resources, and organizing trials and renewals. The Metadata Unit handles MARC and non-MARC cataloging and is heavily

William H. Midgley (midgley@uic.edu) is Resource Acquisition Librarian and Clinical Assistant Professor at the University of Illinois at Chicago and **Kavita Mundle** (kavita@uic.edu) is Head of Resource Acquisition and Management and Associate Professor at the University of Illinois at Chicago. This paper is based on a presentation given at the DC Ex Libris Regional User Group 2021 Annual Meeting, October 1, 2021, online. The authors gratefully acknowledge the assistance of their colleagues Benjamin Aldred, Sandra DeGroote, Paula Dempsey, and Tracy Seneca for their assistance in preparing this manuscript for publication.

involved in collaborations with the Special Collections and Digital Programs departments. RAM includes five faculty—the department head, e-resource librarian, metadata librarian, resource acquisition librarian, and collection analysis and maintenance librarian—as well as twelve staff members, and four to five student employees.

Migration: Voyager to Alma and Primo VE

The University of Illinois at Chicago Library is a member of the Consortium of Academic and Research Libraries in Illinois (CARLI). CARLI is the premier academic library consortium in Illinois, serving 127 libraries, providing a shared union catalog (I-Share) for resource sharing and delivery of materials, facilitating e-resource contract and pricing negotiations, and offering training and professional development opportunities, among other services. It centrally hosted the Voyager integrated library system (ILS) for most member libraries from 2002 to June 2020 and provided VuFind as the discovery interface for users. While VuFind replaced the traditional online catalog that enabled users to browse and search all the resources, it did not provide direct linking to e-content without using a link resolver product.

As Voyager was designed to manage print resources, member libraries had to use other methods or stand-alone products from multiple vendors to provide access to their e-resources. The combination of different products was inefficient and confusing; CARLI needed a more robust ILS that would integrate more library functions into one single system. Ex Libris's Alma and Primo VE offered a complete solution to coalesce print and e-resources management, replacing link resolvers such as SFX. Primo VE provided not only a public-facing discovery interface with real-time discovery of both print and e-resources, but also support for reserve materials and other interlibrary loan services. A significant difference between Voyager and Alma is that the latter allows for automated, direct export of invoices into the campus finance system (Banner), which was not possible with Voyager. Over several years in the late 2010's, CARLI leaders and members decided to switch to Alma and Primo VE collectively. The migration was slated to go live in summer 2020.

After nearly twenty years on Voyager, a wide range of stakeholders throughout the UIC Library had long established their processes around its functionalities and the constraints it imposed. In June 2020, the Library with ninety other members of the CARLI consortium went live on Alma after a years-long migration preparation period. As part of this migration, we began to set up automated export of invoices from Alma to Banner. This article describes how, as we implemented the export process, a seemingly small technical difference between the ledger architectures of Alma and Voyager threatened a total breakdown of complex, critical, and long-established processes. We then describe how we discovered and implemented a creative solution under strict time constraints to prevent major confusion among Acquisitions staff, the collections coordinator, subject liaisons, and the library's Business Office. This solution allowed us to preserve and even improve our processes.

Literature Review

The authors' review of library literature uncovered a significant volume of studies related to the evolution of integrated library systems and the experiences of libraries migrating from one system to another, as well as a few on how migrations affected library acquisitions workflows. This review offers a snapshot of relevant literature grouped into three categories pertaining to the scope of this case study: evolution of integrated library systems, migration experiences of libraries to newer library systems, and acquisitions-related workflow changes that transpired due to ILS migrations. Notably, however, studies describing how libraries have used features and capabilities of next-generation library systems to streamline acquisitions functions are rare.

Evolution of the Integrated Library System

The origin of the ILS dates to the late 1960s/early 1970s. ILSs evolved considerably through the twentieth century from circulating materials, to creating catalog cards, to the traditional integrated library system (ILS), to their latest iteration of what is now called the "library services platform (LSP)," a term coined by Marshall Breeding to define systems which use cloud computing and web 2.0 technologies.[1] Studies in the library literature have addressed reasons for libraries' migrations from "traditional" ILSs to modern and next-generation cloud-based library systems. From the 1990s to early 2000s, ILSs were built as stand-alone systems with separate modules for cataloging, acquisitions, serials, and/or circulation. These systems were designed primarily around print materials and were not reconfigurable for accommodating rapidly growing collections of electronic resources and digital collections.[2] As libraries started to invest heavily in the proliferating electronic and digital content, managing and discovering it using a traditional ILS became increasingly challenging. For example, they were unable to handle subscriptions and licensing information for electronic resources, especially at large scales.[3] To compensate, libraries began using add-on products such as stand-alone electronic resources management systems (ERMs), OpenURL link resolvers, and federated search products to search and discover their electronic and digital resources.[4] The lack of integration between these various products presented challenges to library staff in terms of duplicate data in multiple

systems, and to users who had difficulty accessing electronic resources.[5] To consolidate inefficient workflows, libraries needed a single comprehensive resource management system to accommodate and integrate all workflows that would encompass the work of acquisition, description, and access to both print and electronic resources.[6]

ILS to Library Services Platform (LSP) Migration

The year 2011 marked the beginning of a new era for library automation when Marshall Breeding proposed the concept of a next-generation ILS that embraced a more unified approach and supported the management of all forms of content through cloud computing, known as "Library Services Platform."[7] Advances in information technology compelled libraries to consider remotely hosted library systems that were supported by vendors and used by consortia.[8] Migrating from an ILS that had been in use for decades to an LSP presents enormous challenges in terms of time, money and organizational readiness and it is crucial to understand how libraries have successfully taken this leap. A significant amount of literature documents case studies describing libraries' experiences of the long and complex process of migration from an ILS to a modern LSP, but very few studies have reported migration experiences from an acquisitions point of view.

Many studies describe a step-by-step account of reasons for migration, benefits and challenges encountered during the migration for a library as a single university library or a member of a large consortium.[9] Fu and Carmen offer a case study of Central Washington's University's migration to Alma and Primo which highlights their migration as a time-consuming process.[10] The migration work needed cross-departmental teamwork to successfully complete all migration-related events; their study emphasizes the importance of systems and e-resources librarians in fixing and reporting outstanding issues.

Cote and Ostergaard also explored the skills and competencies of electronic resources librarians from the Treasure State Academic and Information Services (TRAILS) Consortium at the time when the consortium was migrating to a next generation of ILS.[11] They suggested using NASIG's "Core Competencies for Electronic Resources Librarians" as a basis to approach the implementation process. They emphasized electronic resources librarians as critical to this process due to their prior experience in troubleshooting e-resources, critical and analytical skills and their experience in managing communications between vendors. Dula and Ye's case study on Pepperdine University Libraries' migration to OCLC's WorldShare reported that technical services had the most intense changes.[12] The areas of acquisitions and cataloging blended, and the work became streamlined. The cloud-based system increased data sharing ability, offering a more strategic approach to acquisitions. Mary Beth Weber described her library's experience of migration to a new LSP in 2018. She remarked that migrating three million plus records, verifying vendor and patron records, and checking outstanding records were some of the biggest challenges.[13] Nicholson and Tokoro recently described their migration experiences from one LSP (WorldCat Management System) to another LSP (Alma).[14] This is a one-of-a-kind study reported in the literature. The transition to yet another new LSP was complicated by data irregularities developed during the first migration to the second migration. It revealed significant problems with bibliographic and holdings data that needed significant data clean-up efforts post migration.

Next-Generation Library Services Platforms and Acquisition Workflows

Switching library systems presents opportunities to reevaluate workflows so that new processes are more efficient. Branch provided an account of Virginia Commonwealth's Alma migration from the Acquisitions Department's viewpoint.[15] The migration presented the department an opportunity to streamline workflows, clean up bibliographic and acquisitions data, integrate print and electronic resources, create efficiencies in work, and improve communication among colleagues. Every institution approaches the process of migration and challenges differently. Working with cataloging or acquisitions in a cloud-based system requires a new perspective. New LSPs offer the ability to automate ordering processes. The ordering processes are more inventory-driven, as opposed to being clustered around bibliographic records, as in the traditional ILS. Parent and Maclean described how working in Alma was different from working with Voyager and outlined some of the challenges they faced in automating acquisitions activities.[16] Alma's inventory-driven acquisition system "required a conceptual shift when rationalizing and predicting Alma behavior."[17] Ordering of physical items required more time than Voyager, and in the beginning of the implementation, ordering of electronic resources had to be halted due to the complexity of creating import profiles, setting match and merge parameters for loading Embedded Order Data, and using the community zone records for e-resources management and access.

When Old Dominion University Libraries migrated from Innovative Interfaces' Sierra to Alma, the staff experienced challenges pre- and post-implementation.[18] In the pre-implementation phase, the acquisitions coordinator noticed that test order records in Alma were complex, required more specific data than the Sierra records, and had a different terminology. Post-implementation problems noted were related to fiscal close creation and rolling over acquisitions data into a new fiscal year and more. Although training and educating staff to use Alma posed a challenge all through the migration,

the authors noted that "Alma migration for Acquisitions has worked primarily because of the dedication, determination, and diligence of a very talented staff."[19]

Spring, Drake, and Romaine reported on their experiences of being early adopters of Alma for the Orbis Cascade Alliance consortium of thirty-seven academic and public libraries.[20] They noted the challenges in understanding the expanse of data clean-up activities, migrating acquisitions order data, and missing data elements in order records, but also commented that these changes presented collaboration opportunities including sharing import profiles, normalization rules, approval plans, vendor information, and record loading processes with other consortia members. Stewart and Morrison also reported on the Orbis Cascade Alliance consortium's migration and what it was like to migrate as a member of a consortium and how it impacted acquisition workflows.[21] Some of the challenges reported by the authors arose from terminological differences between Millennium and Alma. In Millennium, an order is always referenced as a Purchase Order, while in Alma, an order is referenced as a Purchase Order Line which represents a single distinct item. One or many Purchase Order Lines make up an Alma Purchase Order. The authors also noted difficulties in loading and paying EDI invoices; learning to work with records in the Institution Zone, Network Zone, and the Community Zone and understanding how they were linked to each other; and assigning permission or "roles" to staff so that they can perform the work with both cataloging and acquisitions.

Matthews and Davidian described how Rowen University Libraries managed an Alma migration in the absence of their former Acquisitions team.[22] The library used Voyager to track workflows for only print monographs and serials, while it tracked electronic resources in Intota. The collection strategy librarian teamed up with the electronic resources and serials librarian to compare workflows in Voyager and Alma, to build new ledgers for the fiscal year 2020, and to integrate e-book purchasing and invoicing by synchronizing with the university financial system, Banner. Thus, by collaborating with workers from technical services, the Alma implementation team was able to employ new workflow and processes.

Lastly, the authors found one study in the library literature that noted an approach very similar to that taken by our institution while building a new functional ledger for carrying out acquisitions functions. When the University of Kentucky migrated from Voyager to Alma in 2016, it became apparent that much of the hierarchical fund structure in Voyager had to be altered to work in Alma.[23] The library had a complex Voyager fund structure with thirteen ledgers and 855 funds, including summary, allocated funds, and reporting funds. At migration, Voyager reporting funds migrated as allocated lines and not as reporting codes, as structurally, Alma does not have a reporting funds level. Consequently, the library implemented a new fund structure by reducing the number of funds and using reporting codes to accurately export invoice information to the university's financial system. The current case study expands on these concepts by describing how the UIC Library successfully implemented a much-needed change using reporting codes as a feature of a new LSP to improve acquisitions practices and workflows.

The Past: Acquisitions Infrastructure in Voyager

Budgeting Process

Every fiscal year's acquisitions operations began with a collections budget. The Business Office began the process by determining with the dean what percentage of our total budget would be allocated for collection development acquisitions. This total collection development dollar amount was then reconstituted out of university funds accessible to the Library. Specifically, the bulk of the collection development budget for both the Daley and health sciences libraries came from the student IT monies ("CDIT") and state funds ("ICR"); then, one dollar amount was assigned for collection development to the Daley Library and one to the health sciences libraries as a group ("LHS") from each of those funds. This funding was supplemented with various smaller gift fund allocations. These gross allocations were given to the collections coordinator, who collaborated with the resource acquisition librarian to more finely subdivide them into ledgers for the Daley Library and Library of the Health Sciences within Voyager. These two ledgers together included more than one hundred allocation funds and were designed with the subject liaisons and collection coordinator in mind, with the Daley ledger finally allocated into funds for subject+format and the LHS ledger by library site+format.

Voyager Ledger Structure

Each ledger comprised hierarchically organized funds of three types: summary funds, allocated funds, and reporting funds (see figure 1). As the name implies, summary funds encompass and summarize a set of allocated funds; for example, for Daley there was one for each subject area encompassing allocated funds for each format within that subject, and for the health sciences libraries there was one for each library site, encompassing funds used for that site's collection. Allocated funds are funds into which a discrete monetary allocation is placed, and as such they are the building blocks of a ledger. Reporting funds, a feature unique to Voyager, were hierarchically subordinate to allocated funds and did not contain dollar amounts. RAM staff applied reporting funds and not allocated funds directly to each invoice line. Reporting funds were used at our library for three purposes:

to deduct an item's cost from the allocated fund under which the reporting fund was positioned; to provide granular categorization regarding the expenditure's format and thereby facilitate generation of detailed reports around expenditures; and to apply a numerical code called a "FOAP number" to the invoice line, which categorized the expenditure into campus finance categories (table 1). FOAP numbers are four-part numbers which describe a transaction by encoding "Fund," "Organization," "Account Number" and "Program" to standardize expense reporting across university entities. FOAPs are the language of Banner, Ellucian's enterprise resource planning product used by UIC to organize and automate campus finances.

The reporting fund fulfilled a critical role by translating line-item expenditures from Voyager's ledger to two other financial categories used by the Business Office and university. Although the ledger was organized by subject+format (for the Daley Library) and library site+format (for LHS) those categories, internal to library acquisitions, had no resemblance to Banner categories or the university's fund structure. There are two types of campus finance categories relevant to library acquisitions. The first are the university's funds, out of which the library's collection development allocation is ultimately constructed—for example, "CDIT" and "ICR." The second is Banner's FOAP number scheme. The university's funds relate to budgeting and allocating at the university level, whereas FOAP numbers relate to reporting and description of individual expenses. It was the FOAP numbers into which line items in Voyager had to be translated to be processed by our Business Office and fed into Banner.

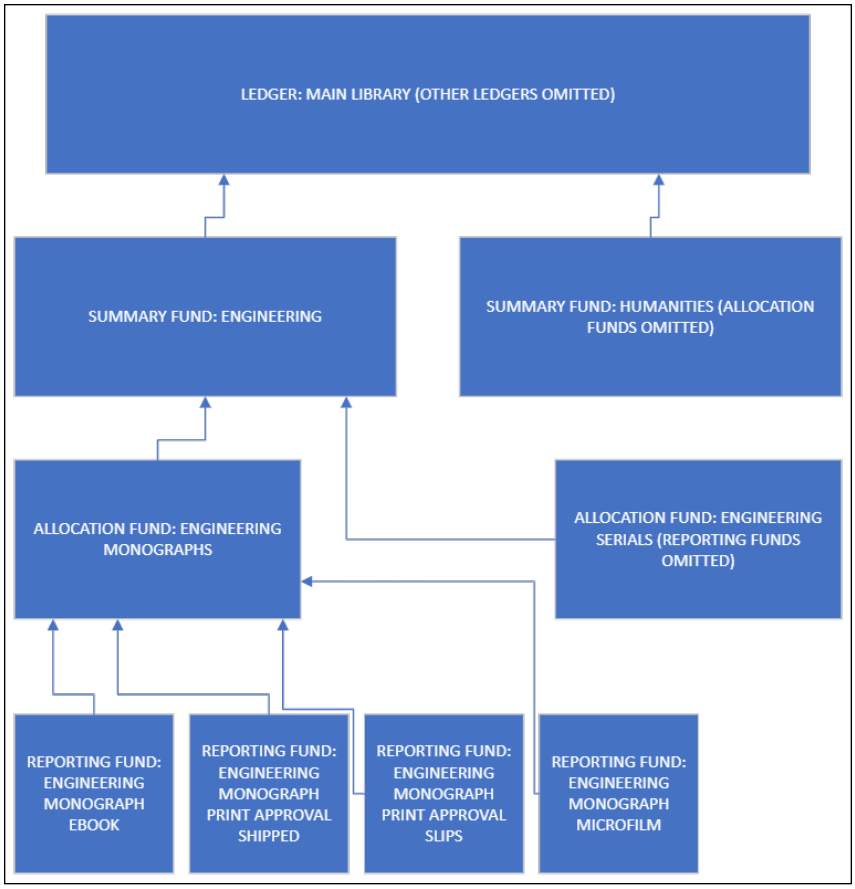

Figure 1. Voyager ledger and fund hierarchy

Table 1. Voyager ledger hierarchy

Ledger Layer	Example	Function(s)
Ledger	Main Library	summarizes summary funds and allocations for either Daley or LHS
Summary Fund	Engineering	summarizes subordinate allocation funds
Allocated Fund	ENG Monographs	dollar amount for this subject and format allocation goes here
Reporting Fund	ENG-MO-Ebook ENG-MO-EbookNC ENG-MO-EBPackage ENG-MO-EBPackageNC ENG-MO-Media ENG-MO-Microfilm ENG-MO-PrintApprShip ENG-MO-PrintApprSlip ENG-MO-PrintFirm	staff apply these directly to line items to apply FOAPs, facilitate resource description for reporting and deduct from parent allocation fund

Voyager and Banner

Banner payment categories used for library acquisitions revolve around a few distinct, basic categories of expenditure for library resources: capped (library-owned) and non-capped (leased/rented) firm orders, continuations, and audiovisual acquisitions, whereas the Voyager ledger included five to ten unique reporting funds under each allocation fund, resulting in hundreds of distinct reporting funds. A FOAP number was stored in Voyager in an "institution ID" field of each reporting fund. Each reporting fund's stored FOAP thus described the format of the expenditure

Table 2. Voyager reporting funds for two Engineering allocated funds; FOAP numbers for internal use are partially anonymized

Reporting Fund Code	Reporting Fund Name	FOAP Number
eng-moeb46	ENG-MO-Ebook	XXXXXX-XXXXXX-166120-XXXXXX
eng-moebNC	ENG-MO-EbookNC	XXXXXX-XXXXXX-166820-XXXXXX
eng-moep46	ENG-MO-EBPackage	XXXXXX-XXXXXX-166120-XXXXXX
eng-moepNC	ENG-MO-EBPackageNC	XXXXXX-XXXXXX-166820-XXXXXX
eng-mome51	ENG-MO-Media	XXXXXX-XXXXXX-166130-XXXXXX
eng-momi93	ENG-MO-Microfilm	XXXXXX-XXXXXX-166190-XXXXXX
eng-mopa21	ENG-MO-PrintApprShip	XXXXXX-XXXXXX-166110-XXXXXX
eng-mops13	ENG-MO-PrintApprSlip	XXXXXX-XXXXXX-166110-XXXXXX
eng-mopf11	ENG-MO-PrintFirm	XXXXXX-XXXXXX-166110-XXXXXX
eng-seej45	ENG-SER-EJournal	XXXXXX-XXXXXX-166120-XXXXXX
eng-seejNC	ENG-SER-EjournalNC	XXXXXX-XXXXXX-166820-XXXXXX
eng-seep45	ENG-SER-EJPackage	XXXXXX-XXXXXX-166120-XXXXXX
eng-seepNC	ENG-SER-EJPackageNC	XXXXXX-XXXXXX-166820-XXXXXX
eng-seme53	ENG-SER-Media	XXXXXX-XXXXXX-166130-XXXXXX
eng-semi91	ENG-SER-Microfilm	XXXXXX-XXXXXX-166190-XXXXXX
eng-sepr41	ENG-SER-Print	XXXXXX-XXXXXX-166120-XXXXXX
eng-sesfNC	ENG-SER-ServiceFeeNC	XXXXXX-XXXXXX-166890-XXXXXX
eng-soeb46	ENG-So-Ebook	XXXXXX-XXXXXX-166120-XXXXXX

but did not itself encode any information about the subject. This is why there were so many reporting funds; all possible FOAPs had to be replicated under each allocation fund via a subordinate reporting fund. The Library used a feeder program that imported invoice data, including the FOAP, from Voyager and translated it into a Banner-usable data format, finally sending that into Banner to keep our campus finance system in sync with Voyager. This feeder program was a basic script coded for us by Library Systems staff. Invoice lines were created in Voyager by RAM staff and assigned to reporting funds as they completed transactions. RAM staff were familiar with both the names and alphanumeric codes of the reporting funds, but they did not need to see or know the FOAP numbers stored within them. For example, table 2 depicts all the reporting funds under the Engineering Monographs and Engineering Serials allocation funds.

Maintaining this setup, in which the Business Office on the one hand and the Acquisitions staff, collections coordinator, and liaisons on the other had completely different understandings of collections expenditure categories involved significant challenges. Since a small set of ten to twenty possible FOAP numbers was repetitively duplicated under each of the allocation funds in the form of reporting funds, the total number of Voyager reporting funds was around five hundred. The reporting funds' institution ID fields needed to be adjusted manually for each new year's ledger, as their FOAP numbers changed slightly each fiscal year. Conversations about expenditures and the budget between the Business Office staff and all other stakeholders required "translation" by a knowledgeable party, which led to at least occasional misunderstandings and inefficiency in communication. Despite these issues, however, the system functioned smoothly in the vast majority of cases, and staff throughout the library were comfortable with it. For their part, Acquisitions staff were fluent with the hundreds of reporting fund names, probably due to an understanding of the recurring patterns among them across different allocation funds, and they understood how to determine the category of a particular expenditure and apply the appropriate reporting fund to it. GOBI Library Solutions, our primary agent for monographs, had all of our reporting funds on file in their system, and our orders placed on their platform would be passed to us with the proper code already applied. Since each reporting fund would deduct the dollar amount on an expenditure from its parent allocation fund, liaisons for subjects or the health sciences library sites could easily monitor their allocations as the fiscal year went on. Despite requiring maintenance of hundreds of very redundant codes, the system negatively affected only the resource acquisition librarian, who had to manually and carefully input hundreds of these repetitive codes into Voyager at the beginning of each fiscal year. Since these processes worked smoothly, we wished to replicate them in Alma for at least our first year in that system.

Problem

In June 2020, ninety-one CARLI member institutions simultaneously went live on Alma and Primo VE. We hoped to minimize differences between our Voyager and Alma configurations during migration due to timing- and staffing-related pressures. Our "go-live" coincided with the very beginning of a work-from-home-period occasioned by the COVID-19 pandemic; this left us with very little time and energy to coordinate any fundamental reimagining of our ledger. However, it quickly became clear that a significant change would be required to get a functioning ledger running in Alma. We realized Alma allows for ledgers, summary funds and allocations funds only; this presented a problem due to the absence of any feature resembling the critical reporting funds. There was no problem with re-creating the general structure of

the ledgers because summary and allocation funds were included. Alma's ledger architecture seems best suited to creating allocation funds that correspond directly to budget allocations existing somewhere in the university or library budget, out of which expenditures would be paid directly. Conversely, our Voyager ledgers basically overlaid an internal collection development-oriented fund structure onto unrelated categorization schemes of university funds and FOAPs. However, without reporting funds or something analogous to it, Acquisitions staff who were accustomed to assigning transactions directly to those categories would be unable to indirectly apply FOAPs. If we couldn't figure out a way for staff to apply FOAPs to line items in a way that would automatically feed Banner with FOAPs, our payments couldn't be processed, and the acquisitions process would break down immediately.

Solutions

Several potential solutions were contemplated. The first was to restructure the ledger such that it would be based on campus finance categories or university funds, and not on subject+format and campus+format. However, the new fiscal year was about to start and we needed to get a ledger up and running within a couple of weeks. There was insufficient time to completely re-imagine a ledger from the ground up. Furthermore, the university fund and campus finance categories are meaningless from the standpoint of subject and format distinctions and the FOAP categories do not have budgets or allocations assigned to them anywhere. The idea of constructing collections allocations proceeding from these categories was not reconcilable with the way we needed to use our ledger.

Another approach would have been for Acquisitions staff to directly add FOAP numbers to line items in the invoice creation screen in Alma. There was a field we were not using, "invoice reference number," on invoices in Alma. However, that field does not allow a set of values to be pre-loaded into it and cannot provide drop-down options for staff; it is simply a free text field. We needed a centrally managed set of values for Acquisitions staff to select from quickly and easily. We became aware that there was an "external ID" field on each of the allocation funds in Alma, but since we determined that the allocation funds in our ledger didn't ultimately correspond to campus finance categories, these fields could only hold one element of the multi-part FOAP numbers. This would mean some kind of script would still have to find or construct the rest of each FOAP number for a line item. It was not worth it to continue to pursue the idea of using scripts to assemble FOAP strings for each line item, as such a process would be extremely complicated and time-consuming to design—not to mention potentially fragile if it were technically possible. We continued to look for a place where we could work with an uploaded set of complete FOAP numbers.

Alma Reporting Codes

In our search for somewhere to input a set of FOAP numbers and, ideally, text labels for each number that would be intelligible to Acquisitions staff, we became aware of a feature in Alma called "reporting codes." According to Ex Libris documentation, these are user-defined "primary, secondary, and/or tertiary codes that can be used for analyzing acquisitions in subsequent reporting."[24] These categories are applied to invoice lines but managed outside of Acquisitions in the Configuration area of Alma. Users upload a set of values that consists of a "reporting code" and a "reporting code description." In our case, the former could be a FOAP number and the latter a reporting fund name staff recognized from Voyager. This flexible feature seemed like a potential solution to our problem, but there were two major hurdles. The first was that we often needed to split line items across multiple FOAPs; this had been possible with Voyager reporting funds. Second, if we simply copied our repetitive reporting funds and their corresponding FOAPS as-is from Voyager, there would be numerous instances of the same FOAP number having different names in the reporting code table. The first problem was overcome when we realized Alma allowed for up to three sets of reporting codes to be uploaded (at the time of migration—now it allows for five) and we determined that we could simply upload an identical set of codes and FOAPs three times in Alma, into each reporting code table, allowing us to employ up to three different FOAP numbers/reporting codes at a time to any line item. The second issue was not so easily solved. An attempt to upload all our reporting fund names and their FOAPs from Voyager into a reporting code table failed. The reporting code field in the reporting code table cannot contain duplicate values; from a database design perspective to repeatedly upload the very same primary key into a table (reporting code/FOAP number) and then label it with different names (reporting code description/the former reporting fund names) is illogical.

To solve that problem, we identified the set of unique FOAP numbers used in acquisitions, and then designed a new reporting code naming scheme that would still be intelligible to Acquisitions staff. To accomplish this, we first isolated the set of all Voyager reporting funds and their FOAPs that had been used over the past couple of years. CARLI ran a report for us against our Voyager data to give us all the reporting funds found in our previous year's ledger along with the FOAP for each one. The set of unique FOAPs used in acquisitions transactions in Voyager turned out to be only about fifty distinct numbers despite our hundreds of reporting funds. We analyzed those FOAP numbers component by component to determine what exactly each piece of each code

represented, and then came up with a new descriptive name for each distinct FOAP number. The end result was a set of reporting code names and FOAPs that de-duplicated the hundreds of Voyager reporting funds down to about fifty distinct campus finance categories, and we worked to develop a set of consistent names for them that Acquisitions staff would understand (table 3). We realized that there would be a training and adjustment period for staff, but overall, this represented a highly workable solution for our overarching problem. Conversations with Library Systems staff confirmed that the Banner feeder could be made to pass this information from these fields in Alma similarly to how it had worked with Voyager, so they gave us a green light to proceed with this new scheme.

Implementation

Previously, Acquisitions staff applied one of several hundred reporting funds to each line item. This served a dual function: due to the ledger structure of Voyager, it simultaneously applied the reporting fund's parent allocation fund to deduct the cost as well as a FOAP number. This conveyed the category of the transaction to the Business Office automatically via the Banner feeder. Now, Acquisitions staff would have to apply these two separate pieces of information separately by first situating the transaction under an allocated fund (e.g., "ENG-MO," "Engineering Monographs") and then applying one of the new reporting codes from a drop-down field on the invoice. Staff were given a "crosswalk" document that translated the old reporting fund into the new reporting code name ("reporting code description") (table 4).

With the crosswalk document and list of new reporting codes in hand, we explained the changes repeatedly in departmental meetings and paid close attention to this new feature when training staff in Alma acquisitions processes. We made sure documentation was updated and strongly emphasized the importance of using the correct reporting code for transactions, as correct coding had such a significant effect on downstream stakeholders in the Business Office and for potential use of the reporting codes for reporting purposes in the future. We tasked staff who were serving as invoice reviewers for others to pay close attention to double-checking this element of invoices. Further training was given immediately whenever errors were detected. Whenever a change was made to the set of reporting codes, the updated set was immediately distributed to staff and they were instructed to delete any copies of the old set to minimize risk of using an outdated

Table 3. Example reporting codes and corresponding FOAPs; FOAP numbers for internal use are partially anonymized

Reporting Code Description	Reporting Code
Daley Electronic Subs NC	XXXXXX-XXXXX1-166820-XXXXX5
Daley Microfilm and Misc	XXXXXX-XXXXX1-166190-XXXXX5
Daley Physical Media and Streaming	XXXXXX-XXXXX1-166130-XXXXX5
Daley Print Monographs	XXXXXX-XXXXX1-166110-XXXXX5
Daley Service Fees NC	XXXXXX-XXXXX1-166890-XXXXX5
Daley Streaming Media NC	XXXXXX-XXXXX1-166830-XXXXX5
Daley Subs and Electronic	XXXXXX-XXXXX1-166120-XXXXX5
LHS Electronic Subs NC	XXXXXX-XXXXX3-166820-XXXXX2
LHS Microfilm and Misc	XXXXXX-XXXXX3-166190-XXXXX2
LHS Physical Media and Streaming	XXXXXX-XXXXX3-166130-XXXXX2
LHS Print Monographs	XXXXXX-XXXXX3-166110-XXXXX2
LHS Service Fee NC	XXXXXX-XXXXX3-166890-XXXXX2
LHS Streaming Media NC	XXXXXX-XXXXX3-166830-XXXXX2
LHS Subs and Electronic	XXXXXX-XXXXX3-166120-XXXXX2

Table 4. Excerpt of crosswalk given to Acquisitions staff to translate reporting fund names into reporting codes

Old Reporting Fund Name	Old Reporting Fund Code	New Reporting Code Description
ENG-MO-EBook	eng-moeb46	Daley Subs and Electronic
ENG-MO-EBookNC	eng-moebNC	Daley Electronic Subs NC
ENG-MO-EBPackage	eng-moep46	Daley Subs and Electronic
ENG-MO-EBPackageNC	eng-moepNC	Daley Electronic Subs NC
ENG-MO-Media	eng-mome51	Daley Physical Media
ENG-MO-Microfilm	eng-momi93	Daley Microfilm and Misc
ENG-MO-PrintApprShip	eng-mopa21	Daley Print Monographs
ENG-MO-PrintApprSlip	eng-mops13	Daley Print Monographs
ENG-MO-PrintFirm	eng-mopf11	Daley Print Monographs
ENG-SER-EJournal	eng-seej45	Daley Subs and Electronic
ENG-SER-EJournalNC	eng-seejNC	Daley Electronic Subs NC
ENG-SER-EJPackage	eng-seep45	Daley Subs and Electronic
ENG-SER-EJPackageNC	eng-seepNC	Daley Electronic Subs NC
ENG-SER-Media	eng-seme53	Daley Physical Media
ENG-SER-Microfilm	eng-semi93	Daley Microfilm and Misc
ENG-SER-Print	eng-sepr41	Daley Subs and Electronic
ENG-SER-ServiceFeeNC	eng-sesfNC	Daley Service Fees NC

code they may have gotten into the habit of using. The fiscal year proceeded and the system worked smoothly.

Two Years Later: Discussion, Retrospective, and New Developments

The new acquisitions infrastructure has shown itself to be stable and durable enough to be used for subsequent fiscal years with minimal changes, and Acquisitions staff's aptitude with it increased rapidly and significantly. As mentioned earlier, yearly maintenance of the old reporting funds was a major inconvenience for the resource acquisition librarian, and the new reporting code-based system saves them a significant amount of time. Since Alma supports exporting and uploading spreadsheets, now the set of all reporting codes/FOAPs can be downloaded, the fiscal year number can be replaced in every instance at once with a "find and replace" command, and the new updated spreadsheet can be immediately re-uploaded. Whenever we need to add or subtract a code from the list, this process can be completed in seconds. One minor disadvantage of the new system is that since the reporting code structure is separate from the ledger structure and is maintained elsewhere in Alma, adding a new collection development allocation fund can sometimes be a two-part process. For example, a new gift fund corresponding to a distinct gift FOAP number must be added both in the ledger as a fund and then separately as a reporting code. However, for most new collection development allocations, new FOAPs do not need to be added. Another manageable challenge created by the new system is keeping Acquisitions staff apprised of any changes to the reporting codes. In our first year in the new system, a few transactions were miscoded, but these were usually caught and corrected by having staff approve one another's invoices in the invoice submission process.

Two fiscal years after this project, in the summer of 2022, a significant additional functionality of our new arrangement was developed to meet an unexpected need. A Banner submission tool used by the Business Office was phased out, and they needed a tool for exporting their own invoices (i.e., those not originating from RAM or related to collection development expenditures) into Banner. We realized we could create a separate ledger in Alma for the Business Office containing a placeholder fund for their use, and they could add their own reporting codes to our table. This would allow them to generate their own invoices in Alma and push them through to Banner with the FOAPs they use, without it interfering or intersecting with Acquisitions data and processes. Acquisitions staff trained Business Office staff in vendor addition, invoice creation, and reporting code creation processes. Business Office reporting code descriptions are preceded by "BO-" in the reporting codes table, to visually offset them from our Acquisitions codes. That our reporting code system in Alma was chosen for the Business Office's use in this situation is a testament to its simplicity and reliability, as various other options were considered by the Business Office, Library Systems, and RAM librarians and staff as potential solutions to that problem. It also points to the flexibility of the reporting codes feature, as it can encompass different sets of numerical codes and labels for different functions within one (or more) tables.

Although our scheme for utilizing reporting codes was borne out of time constraints and a desire not to re-work our old ledger system, it has proven highly resilient and has allowed additional functionality beyond what we initially intended or imagined. Now library departments outside of RAM can also use Alma to feed invoices into the campus finance systems efficiently. Updates to reporting codes can be done quickly and easily, which enhances our ledger's flexibility within the fiscal year. The number of values that need to be maintained and updated was reduced from hundreds (of reporting funds) to tens (of reporting codes), which makes our acquisitions processes more intelligible for training purposes.

In retrospect, several generalizable lessons are apparent from our experiences with this system migration. We were caught off guard by a minor but very consequential difference between the acquisitions infrastructure of the two systems that just happened to conflict with our previous ledger construction principles and Voyager setup. This situation could have been avoided or mitigated in a number of ways; for example, by having or proactively designing a ledger structure that was somehow more in line with university finance categories. We also could have allowed ourselves time for a ledger redesign, or at least a smoother rollout of the new system, if we had run trial acquisitions transactions in more detail in the pre-migration sandbox version of our Alma instance that Ex Libris allowed us to use before our migration. We could have tested every step of acquisitions processes in as realistic a manner as possible instead of trusting that Alma could and would do everything the old system could do in the same way. Our experiences also suggest that regular review of the ledger's structure and contents by major stakeholders with an eye toward simplification and consolidation is beneficial in keeping it as lean, consistent, and uncomplicated as possible. Over time, unedited ledgers can proliferate in complexity and unused funds or codes can clutter the system. With this in mind, the resource acquisition librarian has begun to proactively initiate regular conversations about ledger design with the collections coordinator before each year's rollover and new ledger creation.

Since presenting at a conference on this project, the resource acquisition librarian has answered listserv inquiries from librarians at other institutions interested in solving similar problems with similar applications of the flexible

reporting code feature in Alma. Alma could facilitate many potential approaches to ledger construction and use of reporting codes, so this case study should be of interest to anyone working with ledgers, reporting codes, or invoice automation processes from collection development, library business, or acquisitions perspectives. Facing a migration situation in which we were forced to make significant changes to acquisitions processes and configurations while constrained by unexpected incompatibilities and complex sets of stakeholder needs, this detailed case study provides solutions and examples of how we applied creative thinking and generated long-term solutions for acquisitions and procurement processes.

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Notes on Operations

Collaborative Learning on Linked Data through a Virtual Study Group

Xiping Liu, Sharon Reidt, Jodene Pappas, Jill J. Crane, and Ada Laura Ramirez

This paper examines the challenges and successes of a virtual Linked Data Study Group that began at a multi-campus academic institution in 2018, and later grew to include a total of seven librarians from multiple institutions across the country. It describes the group's planning for their monthly meetings and the discussions at the meetings which covered such topics as Linked Data basic concepts, BIBFRAME Editor, Sinopia Editor, and Wikidata. It also presents a collaborative project the group undertook after two years' learning. The paper concludes with a summary of what the Linked Data Study Group has achieved thus far, the challenges they faced, and their future plans.

Linked Data emerged in the library's digital and cataloging landscape more than ten years ago. Since then, librarians have been eager to learn and understand how Linked Data works. This desire drove four cataloging librarians from the University of Houston Libraries to form a study group. The group created a study plan, with monthly learning themes and reading lists, to prepare for the anticipated switch from MARC to BIBFRAME. Topics ranged from exploring basic Linked Data concepts to using tools for MARC to BIBFRAME conversion.

After the first three months of discovery and learning, the group presented their initial work at the state library association annual conference in 2019. Since then, three additional librarians from other institutions who were also interested in learning about Linked Data joined the group. The expanded group decided on monthly topics of discussion and started their first meeting in late fall that year. In the following months, the group reviewed the basics of Linked Data, explored Sinopia Editor and Wikidata as accessible means of gaining hands-on Linked Data practice, and joined the library metadata community's discussion on the newly published book *Linked Data for the Perplexed Librarian*.[1] This work led to a presentation at the 2020 LD4 Conference on Linked Data in Libraries. In the following year, the study group collaborated on a Wikidata project as part of the PCC (Program for Cooperative Cataloging) Wikidata Pilot. The study group is currently taking a hiatus before deciding what their future plan is.

The paper begins with a brief overview of the literature on Linked Data's development and librarians' collaborative efforts in Linked Data exploration, training, and education. It then describes how the study group was initially started, how it expanded, and what the group worked on in the two years since its inception. It describes a collaborative project the group undertook as a result of the two years' learning. The paper ends by presenting the benefits of a virtual study group, the challenges faced by the team, and their future plans.

Literature Review

Linked Data is a concept that was first introduced by Tim Berners-Lee in 2001 as the key component of Semantic Web, a web of structured data which will replace the traditional web of documents and allow for meaningful searching, data sharing

Xiping Liu (xipingl@gmail.com), former Resource Description Librarian, University of Houston Main Campus. **Sharon Reidt** (sharon.reidt@gmail.com), former Metadata Management Librarian, University of Connecticut. **Jodene Pappas** (pappas_j@utpb.edu), Head of Technical Services, University of Texas Permian Basin. **Jill J. Crane** (jcrane1@udayton.edu), Coordinator of Cataloging and Metadata, University of Dayton. **Ada Laura Ramirez** (alramirez@uh.edu), Senior Library Specialist, University of Houston Main Campus.

and data linking on the web.[2] GLAM (galleries, libraries, archives, and museums) institutions have been exploring the application of Linked Data for their carefully curated metadata ever since. Notably, the Library of Congress (LC) initiated the BIBFRAME (Bibliographic Framework Initiative) project in 2012. It is designed to replace MARC (Machine Readable Cataloging) formats for bibliographic description and make library resources more visible on the web.[3] The Library of Congress also initiated a pilot project in 2015 in which LC catalogers began cataloging in BIBFRAME Editor, a Linked Data based metadata editor developed as part of the BIBFRAME Initiative. Since 2019, over one hundred LC catalogers have joined the pilot project. At the January 2022 BIBFRAME update forum, the Library of Congress reported that 90 percent of the LC catalogers will solely work in BIBFRAME Editor by the end of 2022 without double entering the data in MARC format.[4]

The LD4P (Linked Data for Production) project was another attempt by several well-known universities in the United States to develop standards, guidelines, and infrastructure to communally produce metadata as Linked Open Data.[5] LD4P is currently in Phase 3: Linked Data for Production: Closing the Loop (LD4P3), aiming to "close the loop" to create a working model of a complete cycle for library metadata creation, sharing, and reuse.[6] One important tool developed through LD4P is Sinopia Editor, another Linked Data editor for metadata creation. Currently, LD4P's Sinopia Cataloging Affinity Group is actively engaging in the cataloging community to practice cataloging through Sinopia Editor.

The Canadian Linked Data Initiative (CLDI) was formed to leverage the existing collaboration between the technical services departments of Canada's top five research libraries.[7] CLDI investigated a variety of areas such as grant application, education and training, identifiers, digital projects, BIBFRAME Editor, etc. through different working groups.[8] The cross institutional collaboration allowed the staff members to cover more ground in a coordinated manner and share skill sets and documentation, thus strengthening the existing relationships while forging new ones.[9] One of CLDI's future goals is to build a culture of learning and experimentation within the organizations, allowing the group to move forward both individually and collectively.[10]

In an International Linked Data Survey for Implementers conducted by OCLC Research in 2014, 2015, and 2018 respectively, 143 institutions from twenty-three countries responded to the surveys and reported on their Linked Data projects.[11] Survey respondents indicated that their chief motivations for publishing Linked Data are: to expose data to a larger audience on the web, to demonstrate what could be done with datasets as Linked Data, and to simply try it out by exposing some local data as Linked Data.[12] Survey responders also listed "steep learning curve for staff," "lack of resources," and "lack of tools" as the barriers and challenges during their Linked Data implementation.[13] Based on the survey results, most of the linked data projects or services are done entirely in-house, but still through collaborations with external groups. Twenty-two percent of the respondents carried out the project as part of a multi-institutional implementation.[14]

In 2017, the Association for Library Collections and Technical Services (ALCTS, now part of ALA Core) released the *Core Competencies for Cataloging and Metadata Professional Librarians*. Under "Knowledge of trends in the cataloging and metadata profession," it lists Linked Data as one major trend that cataloging and metadata professionals need to be aware of.[15] In a report on the cataloging and metadata professional development survey published in 2017, Tosaka and Park found that respondents listed Linked Data and BIBFRAME within the top four continuing education topics they were interested in exploring.[16] When examining how the cataloging and metadata community perceive the implications of the Semantic Web, the authors found a strong consensus that Linked Data implementation would represent a new opportunity for the profession, citing "improved user services" and "improved data/resource discovery" as the top two potential benefits of the Semantic Web.[17] When asked about professional competencies important for the future of cataloging and metadata librarians, respondents listed "ability to learn and use software" and "ability to collaborate with people within the organization and beyond" as the top two competencies.[18]

In the book *Linked Data for the Perplexed Librarian* published in 2020, the authors made recommendations on building collaborative partnerships in experimenting on Linked Data projects, because it has shown that the most successful of the largest projects in the Linked Open Data community for libraries, archives, and museums are not one-person operations. Project teams can be formed both within one organization, among local GLAM professionals, or even virtually.[19]

The University of California at Los Angeles' Continuing Resources Study Group's activities around BIBFRAME sets another good example for collaborative learning of Linked Data. Balster reported that their study group began actively investigating Linked Data as early as 2014 in order to better understand the BIBFRAME model.[20] One member of the UCLA group designed training sessions on understanding the basic principles of Linked Data and the Semantic Web and two other members took a Library Juice Academy course series to gain further technical skills. The UCLA group identified tools to convert MARC to Linked Data and held weekly discussions analyzing the conversion results.[21] The UCLA study group inspired the initial incarnation of the Linked Data study group.

Initial Efforts

In Summer 2018, ALCTS hosted an E-forum on Linked Data.[22] During this E-forum, a librarian from the University

of California at Los Angeles shared her successful experience of learning about BIBFRAME through a study group. After the E-forum, the resource description librarian from the University of Houston reached out to the cataloging librarians from other university systems and proposed the idea of a similar study group. All four cataloging librarians had previously established working relationships through emails and various projects though they had never met personally. The desire to better understand Linked Data and BIBFRAME led to a quick agreement to form their own study group. Two librarians volunteered to lead the team and create a study plan for the whole study group.

As a first step, the newly formed study group set up practical goals. During the establishment of these goals, considerations were made for schedules and individual workloads. The goals were focused on understanding the basic concepts of Linked Data, experimenting with BIBFRAME Editor, and if possible, identifying a collection from their shared catalog and exploring ways to convert MARC records in those collections to BIBFRAME, as a prototype for applying Linked Data.

The study group scheduled virtual monthly meetings and listed each member's responsibilities which included preparing the reading materials and leading the virtual discussion. Each learning topic would consist of both a required reading list and an optional one, so everyone could choose how far they would like to delve into the topic based on their availability. The librarians also planned to devote the first two meetings to the basics of Linked Data and BIBFRAME.

The study group relied heavily on the learning materials at the Library of Congress's Cataloger's Learning Desktop to create the reading list. The learning materials were originally designed for the catalogers at the Library of Congress for their BIBFRAME Pilot Project so they provided a wide range of resources, from basic to advanced readings. At the time, these resources met the needs of the study group because they offered flexibility with respect to granularity.

The first meeting was focused on the definition of Linked Data. The group discussed introductory concepts including the Semantic Web, Resource Description Framework (RDF), and triples. Semantic triples, or triples, are the three parts of an RDF statement: these are the *subject* or resource being described, the *predicate* or property, and the *object* entered as text or a Uniform Resource Identifier (URI).[23] Group members each shared their understanding of Linked Data and discussed why the Library of Congress had chosen to replace MARC format with the BIBFRAME model. They talked about the possibility of undertaking a Linked Data project locally but also recognized the challenges each library faces in implementing Linked Data. Finally, the group translated a catalog record into triple statements.

In the next meeting, the study group moved on to discuss the BIBFRAME Editor. Everyone was asked to experiment with the BIBFRAME Editor before the meeting so they could share feedback. Discussion topics included what participants liked and disliked about the Editor, what improvements could be made to the Editor, and what challenges catalogers have faced in moving from editing MARC to editing BIBFRAME. Group members talked about the concepts of BIBFRAME classes and properties and gave a few examples before cataloging a book in the BIBFRAME Editor together. They then used the Library of Congress's MARC to BIBFRAME Comparison Viewer to compare the MARC format with RDF, as shown in figure 1 and figure 2.

In a meeting later that Fall, the group was able to identify a small set of records from the shared catalog and applied the Linked Data tool in MarcEdit to add URIs to the corresponding MARC fields, see figure 3.

In April 2019, the group presented a poster at the state library association annual conference, where they made connections with other librarians who were also interested in learning about Linked Data.[24] After the presentation, the group took a hiatus because of a library-wide system migration to Ex-Libris Alma.

Joint Study Group

A cataloging services librarian and another two librarians from smaller academic libraries and a regional public library system had also been researching and studying Linked Data on their own by viewing online webinars, examining websites such as the LD4 and Library of Congress sites, and reading professional literature. Each of them, as solo cataloging librarians, read articles and attended webinars and conferences on Linked Data, but struggled to understand technical and practical details. Attending the conferences and discussions allowed these librarians to meet and inspire each other to learn more about Linked Data implementation through self-directed projects.

Over the previous few years, the cataloging services librarian took an introductory metadata class where she learned key metadata schemes including Metadata Object and Description Schema (MODS) and Dublin Core, and how to convert these records and MARC records into MARC XML syntax.[25] These records could then be converted into a Linked Data-ready metadata record in RDF/XML syntax. She chose a small collection of monographs, videos and archival collection from her library that focused on a specific theme as a pilot to create Linked Data records. During the state library association annual conference (the same conference in which the above poster was presented), she presented on her progress as a solo librarian. Aware that the lack of funding and supporting staff presented a barrier to Linked Data implementation inspired the Cataloging Services Librarian to start a small group for "solo" catalogers

Figure 1. MARC format in the Library of Congress's MARC to BIBFRAME Comparison Viewer

Figure 2. Turtle serialization

to learn together. She issued an invitation to the other two librarians to overcome the lack of funding and staff by working and studying together through virtual monthly meetings. Later at the conference, they saw the poster presented by the librarians from the study group from the University of Houston Libraries and suggested that they join together virtually.

Two of the librarians from different institutions initiated a plan in the Fall of 2019, brainstormed goals, and presented them to the rest of the group for agreement. Their goals were to: (1) stay up to date with the current development of Linked Data and BIBFRAME; (2) seek opportunities to convert and publish respective collections into Linked Data; (3) explore Alma's Linked Data capabilities; and (4) publish an article or present at a conference. As part of the study group's programming, a monthly schedule of topics and topic facilitators were drafted for the academic year.

This fulfilled the group's only rule, that everyone should share in leading the monthly discussions. As a facilitator, each member would identify the learning materials (including webinars, reading material, etc.) and identify discussion topics. The group decided to meet through Zoom and scheduled a recurring meeting at the beginning of each month. Study materials and documents—including the study plan for each month, links to resources, and questions to review before and during monthly meetings—were shared through Google Drive. The newly expanded group of six librarians from the various institutions had their first meeting in November 2019. They called themselves the Linked Data Study Group (LDSG).

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Figure 3. A sample MARC record with URI added in the 100, 6xx and 7xx fields

Review over the Previous Year and Sinopia Editor

During the first meeting, the LDSG decided to review the lessons of the previous year that had been undertaken by the University of Houston librarians, focusing on the basic concepts of Linked Data and BIBFRAME. This served to develop a shared understanding of the fundamental work of the group before moving forward with additional learning objectives. For example, some members had a small collection of records that they wanted to convert to Linked Data. Others did not have a particular project in mind but were eager to find opportunities to practice Linked Data with real world examples.

During the ALA Annual Conference that year, the LD4P (Linked Data for Production) project team presented Sinopia Editor as a Linked Data cataloging tool. The group decided to evaluate the tool together and try cataloging a few books using the Sinopia Editor. In preparing for this meeting, all members read articles about the development of the Sinopia Editor and its Profile Editor and reviewed the BIBFRAME Editor so they could compare the two tools (see appendix B for a detailed reading list). As part of their collaborative evaluation, the group walked through the steps together to catalog a title and discussed the positives and negatives of using the Sinopia Editor, as seen in figure 4. They agreed that the type head and automatic linking function were an improvement compared to the current MARC format, but the switch between templates for different entities was clumsy.

Wikidata

Their third study session focused on Wikidata, a knowledge base readable by both humans and machines that serves as a data source for Wikipedia and other Wikimedia projects. Wikidata has gained increasing attention from the library community for its Linked Data and identity management capabilities and was the focus of a recent PCC initiative. The meeting facilitators provided an overview of Wikidata and walked study group members through a guided tour of the Wikidata website. They reviewed items and statements and demonstrated the steps needed to add and edit items; several of them had the opportunity to create Wikidata items for their libraries.

After discussing the "how" of Wikidata, they discussed the "why." They reviewed the Association of Research Libraries White Paper on Wikidata, which focuses on the use of Wikidata as a global discovery tool for institutions'

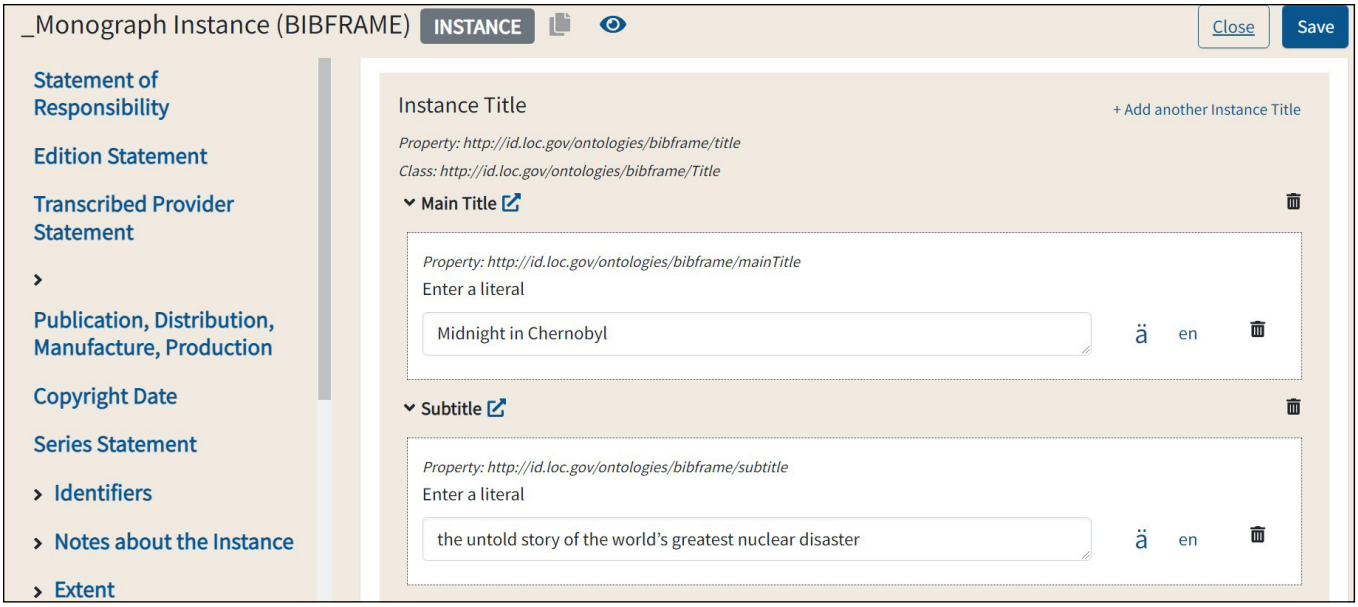

Figure 4. Catalog in Sinopia Editor's Monograph Instance Template

collections.[26] They discussed the University of Virginia's use of Listeria within Wikidata to highlight people, places, and things affiliated with UVA, as shown in figure 5. Wikidata's potential in providing an alternate form of authority control with fewer barriers than the Name Authority Cooperative Program, as a means of promoting research and scholarship at the group members' universities, and as a way to collect statistics on faculty publications and scholarship was another topic of conversation during this session.

Study group members were enthusiastic about exploring Linked Data concepts via Wikidata to test its value for their individual institutions. After their Wikidata meeting, they individually explored Wikidata and WikiProjects pursued at other academic libraries and shared their discoveries via email. One WikiProject that caught their eye was the Stanford Libraries' WikiProject, shown in figure 6. Many aspects of the project seemed translatable to projects group members could start at their own respective universities.

A member of the study group invited the coordinator of the WikiProject at the Stanford Libraries to meet with the group, and she graciously agreed. Since Wikidata is also a topic of interest to members' colleagues outside of the study group, these colleagues were invited to participate in the presentation although they do not regularly attend the LDSG meetings.

During their meeting, the WikiProject coordinator shared an overview of her training and Wikidata expertise development. She shared the history, progression, and organizational structure of Stanford Libraries' WikiProject. She gave practical advice on how to get started using Wikidata and how members of the group could start WikiProjects of their own.

Participation in Outside Webinars and Presentations

When the ALCTS New Members Interest Group (ANMIG) announced the virtual read-along program for the book *Linked Data for the Perplexed Librarian*, the study group members chose to participate in the program.[27] This was a great opportunity for the group to interact with the authors, ask follow-up questions, and ultimately enhance their knowledge about Linked Data. This follow-up discussion enabled them to ask questions of each other about the book itself and about the ANMIG discussion.

Members of the study group also attended a webinar hosted by the Georgia Library Association's Technical Services Interest Group titled "Linked Data for the Real World: Leveraging Metadata for Cataloging," it was presented by Robin Fay. In the presentation, Fay provided an overview of Linked Data and described Linked Data's potential in freeing up catalogers' time and increasing access and discoverability of library materials.[28]

Earlier in the year, a member had suggested that the group consider presenting at the LD4 conference and could share how they pursued a collaborative approach to learning Linked Data. Since the conference was slated to be held in College Station, Texas, the majority of study group members would be able to attend. Members of the group reacted favorably to this idea and decided to submit a proposal. Two librarians volunteered to submit the proposal, and everyone agreed to work on the presentation if the proposal was accepted.

Later, the group learned that their LD4 proposal had been accepted by the conference organizers. When the

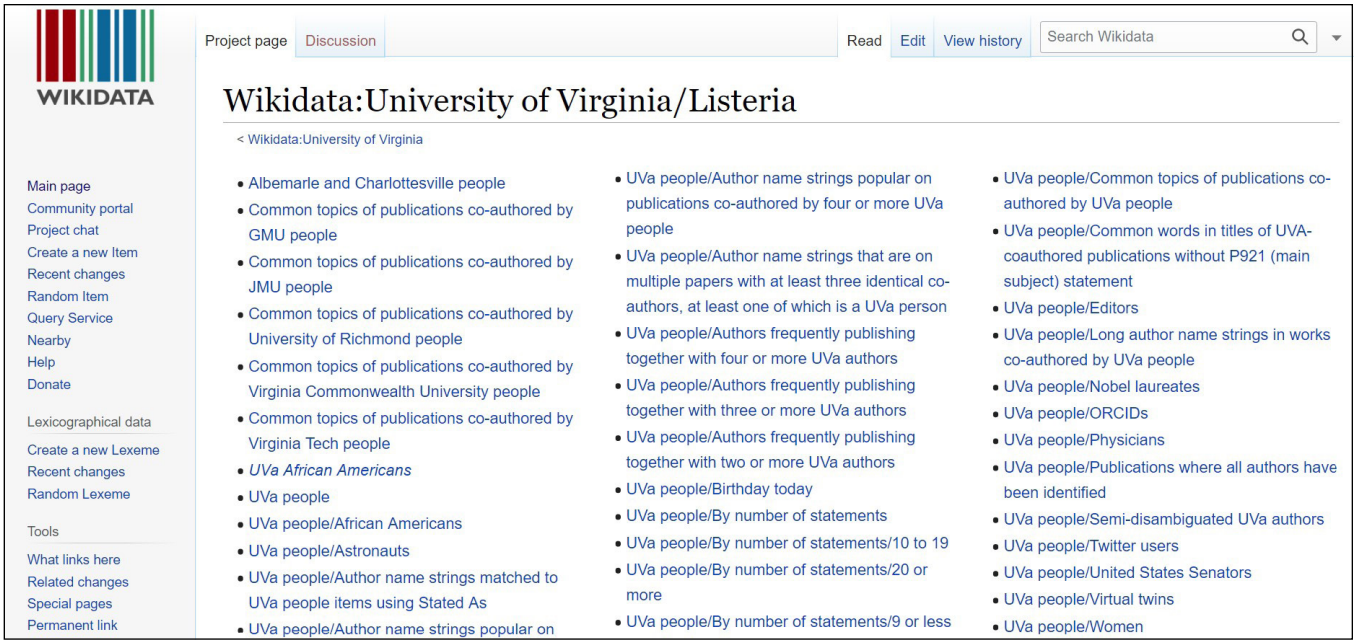

Figure 5. Wikidata: University of Virginia/Listeria

Figure 6. Wikidata: WikiProject Stanford Libraries

decision was made to switch to a virtual conference due to the COVID-19 pandemic, LDSG members agreed to continue to present as planned and welcomed the opportunity for everyone in the group to participate in the presentation. During the meetings leading up to the conference, members discussed and reviewed the materials; in-between meetings they added content to the slides. The group met outside their regular meeting hours to review the presentation slides, approve their final draft, and perform several run-throughs. The study group's presentation, "Being Solo No More: Collaborative Learning through a Virtual Study Group on Linked Data," was delivered on July 21, 2020.[29]

PCC Wikidata Pilot

In September 2020, the LDSG began their second year, continuing monthly meetings and adding a new librarian into the group. Since then, the Linked Data Study Group had spent part of the previous year investigating Wikidata's Linked Data functionalities, having read two articles and a book, as well as learned about a Wikidata project at Stanford University. When the call went out from the PCC for participants in their Wikidata Pilot, it seemed to be a good fit for the LDSG to participate as a group. By participating in the pilot, LDSG could achieve several objectives. It would allow the group to support the learning objectives of the pilot in assessing Wikidata's viability as a means of facilitating identity management.[30] It would give LDSG members a chance to develop hands-on experience using Linked Data. Participation would also provide an opportunity to judge the value of Wikidata and, by extension, Linked Data.

Roughly seventy-five institutions from all over the world participated in the pilot, bringing in a diverse range of projects, with most institutions focusing on creating personal and corporate entities for their faculty, departments, schools, and colleges. Some are highlighting local collections by creating entities for local agents and works appearing in these collections.

After discussing possible collaborative projects, LDSG decided to pursue a project that would benefit a third-party

organization, the Conflict Archive on the INternet (cain.ulster.ac.uk) or CAIN. The CAIN website and project gather resources regarding the Northern Ireland conflict, also known as The Troubles. This archive was deemed as important to amplify in Wikidata due to the historical and political importance of the data, which span decades, from 1968 to the present.[31] At the time, CAIN faced funding challenges; working with its data offered the possibility of assessing Wikidata's added value. One of the librarians reached out to the archive's aggregator and director for CAIN/Ulster University for permission to re-use and publish the information to Wikidata. Each librarian attended the Wikidata Pilot Project kickoff, signed up for the Pilot listserv, and attended training programs and the LD4 Wikidata Affinity Group meetings.

After receiving permission from the CAIN archive's director, the group chose to focus solely on the organizations listed on the website. Narrowing the scope made the task feasible for a one-year project. One of the study group librarians created a shared Google spreadsheet with a list of organization names contained on the CAIN site. The names were reconciled with Wikidata so that each organization listed on the spreadsheet had a link to its Wikidata entry (where one existed). A Wikidata Project Page was created under the auspices of the PCC Wikidata Project. This included a metadata application profile that outlined specific mandatory and optional statements to create basic or more complete items for each of the entries. Unlike the traditional name authority records which follow the policy and standards of the Library of Congress, the LDSG created the metadata application profile based on their judgment on what worked best for CAIN and what would drive traffic to their website.

The study group's next meeting involved walking through the process of adding Wikidata records and setting up an optional weekly working hour in addition to the monthly meetings. The weekly working hour served to specifically work on Wikidata together and discuss questions around the project. From the Google spreadsheet of organizations mentioned on the CAIN archive/website, LDSG members created or augmented Wikidata items.

Monthly study group meetings for the rest of the academic year focused on Wikidata and the pilot program. Questions about syntax, common usage, and errors regarding specific Wikidata statements and qualifiers were discussed and decided upon. Additionally, LDSG members learned about deprecation of statements, disambiguation, and Wikidata scripts and gadgets meant to simplify item creation.

By July of 2021, the LDSG created or updated 283 items for entities in Wikidata. In addition, 102 items were reviewed and found to have already met the basic or complete standard for entry into Wikidata. Only thirty-five of the 420 items on the spreadsheet were not created, mostly due to a lack of information about those organizations on CAIN's website. The LDSG hopes the increased internet visibility that adding these items will allow more people to learn about this important archive/website and motivate the creators of CAIN to continue to add information.

LDSG's communication with CAIN has been sporadic, and it is difficult to determine what, if any, impact Wikidata has played on the archive. They have not been able to ascertain whether increased presence on Wikidata has increased traffic to the CAIN website. It's also unclear if LDSG's Wikidata work played a part in easing CAIN's funding challenges; as of February 2021 the archive's future was no longer in jeopardy.[32] The inability to gauge Wikidata's effectiveness made the project less satisfying.

Working together on a group project through the PCC Wikidata Pilot Project allowed the LDSG to apply Linked Data concepts through Wikidata and learn how Wikidata works in a practical way. Creating Wikidata entities is very similar to creating the Library of Congress Name Authority Records. However, the ease of adding attributes to Wikidata items gives more flexibility to metadata practitioners. The weekly working hours kept the project moving forward and helped to create a learning environment through the questions asked during entry creation. Participation in the pilot gave LDSG members the opportunity to share information with other project members and with the colleagues at their institutions. The project provided a concrete sense of accomplishment, both individually and as a team. It gave several LDSG members the confidence and the skillset to create Wikidata projects for the benefit of their institutions. The resources provided by the PCC and the projects created by peer institutions also served to make Wikidata less daunting and enabled colleagues outside of technical services to get up to speed. The group trusts the work benefited the global community, as well as enabling the team to learn about Northern Ireland's conflict. Working on the PCC Wikidata Pilot also gave the LDSG some direction for the next year of study. With renewed focus, the team aims to learn more about efficiently creating and manipulating Linked Data through SPARQL queries, batch loading, OpenRefine, and other tools.

Year Three of the Joint Linked Data Study Group

As the academic year (and the PCC Wikidata Pilot Project) drew to a close, the LDSG members discussed whether to continue meeting for a third consecutive year. Each member valued the group's work and felt there were Linked Data concepts they would benefit from studying with each other. Rather than pursue a single topic, as they had in year two, they opted to take a more generalist approach, similar to what they had done in their first year.

Group members brainstormed ideas on a shared Google doc, then reviewed and selected the topics they wished to pursue. In year three, they have met on a regular, if not quite

monthly, basis. Topics covered over the course of the year include Wikidata, SPARQL, and OpenRefine.

In the future, the LDSG will continue to meet remotely and use their meetings to continue discussing new developments relevant to Linked Data and BIBFRAME, along with any conferences, webinars, and reading from which they have learned. The LDSG plans to explore practical ways to convert records into Linked Data ready records, both individually and as a group. They also plan to continue working together on future conference presentations.

Discussion

Not only have the study group members exceeded the goals and expectations they set for themselves, but they have also built a successful template for how other librarians can partner to learn more about Linked Data (or other professional topics of interest). The basic structure for forming a successful study group consists of four steps: finding others to study with, deciding on desired goals and outcomes, establishing a study plan and meeting schedule, and maintaining contact between meetings.

The first and most important step to replicate is for one or more individuals to reach out to colleagues to gauge interest in forming a group. The study group can be centered at one's own institution (as was the first iteration of the Linked Data Study Group) or with like-minded colleagues from across institutions.

Part of what made the Linked Data Study Group so successful from the perspective of its participants was the ability to study the theory of Linked Data with colleagues who approached the topic from a beginner's perspective. This enabled them to ask questions freely without fear of judgment. When assembling a study group, give some thought as to whether your group would benefit from having participants from similar or disparate levels of experience.

Once the group has been formed, it's essential to decide upon the aim and goals of the group and establish a study plan and schedule. Now is the time to choose how and how often you will meet, how meetings will be led, how you will communicate and share information as a group, and what your study plan will be. For the Linked Data Study Group, meetings took place virtually once a month during the academic year, and group members took turns leading individual meetings. The key is to find what works for your group.

During this step, you may wish to consider whether or not to pursue a group project. The Linked Data Study Group found that the group projects they pursued helped them in their efforts to turn theory into practice. A group project can help solidify understanding of the concepts being studied. Maintaining contact between meetings helps members gauge progress and iron out scheduling difficulties and conflicts that arise. It also allows members to share timely information about upcoming webinars and conference presentations centered on the study topic.

The study group went above and beyond their goals for the group in several respects. They have met for two academic years, and they typically meet every month of the academic year. In addition to their regularly scheduled meetings, they inform each other of outside learning opportunities, and each of them attended Linked Data programs hosted by ANMIG and the Technical Services Interest Group of the Georgia Library Association.

Their preparation before meetings, along with the meetings themselves, enabled them to build a solid foundation of Linked Data concepts despite the limited time and resources at their disposal. They increased their knowledge of the theoretical concepts behind Linked Data through curated readings provided by the topic facilitators and by reading through *Linked Data for the Perplexed Librarian*. Because they were interested in practice as well as theory, they found ways to develop hands-on practice using Linked Data concepts and gained experience using Sinopia Editor and Wikidata.

Another key accomplishment achieved during their first year was their group presentation at the July 2020 LD4 Conference. They spent time outside of their normal meetings to work on the presentation, and because the conference was virtual, each of them was able to present. Through their presentation, they shared their study group's experiences, and gave participants information on how to create informal Linked Data study groups of their own. In their second year, they expanded their hands-on experience using Linked Data through collaboration on a WikiProject. While they are no longer actively adding items to Wikidata as part of this project, they hope to revisit it in the future to assess the value of Wikidata.

Both Linked Data and group participation presented challenges to the LDSG. Studying Linked Data can be frustrating because moving from theory to practice is difficult. The members of the study group, like many librarians, have limited opportunities to experiment with Linked Data in the cataloging work that they do. One reason Wikidata resonated so strongly with the group is that it is an accessible tool for gaining practical experience with Linked Data. At times it was difficult to strike a balance between work commitments and participation in the group. Scheduling between two time zones across five different institutions also complicated matters. Finding a Linked Data project that they could work on together was challenging due to the limited resources at their disposal, system dependencies and constraints, and the varying amounts of time they are able to devote to activities that fall outside of their normal work obligations.

Participation in the study group has proven immensely beneficial to each of them, regardless of Linked Data expertise level or experience in metadata. The LDSG members have helped each other gain a solid grasp of Linked Data

concepts during the course of their first year studying together as a group. Having a theoretical framework has given them the confidence to explore practical Linked Data applications to assess the potential benefits of Linked Data, and has enabled them to speak confidently about Linked Data concepts with colleagues at their institutions who do not work in metadata. During their second year, they expanded their Linked Data knowledge from the conceptual to the practical as they undertook a WikiProject. By showcasing their knowledge of and experience with Linked Data, they will be in a better position to facilitate and advocate for the adoption of Linked Data projects at their respective institutions and during professional interactions. They are now equipped to act as Linked Data ambassadors at their organizations, and are poised to justify the adoption of BIBFRAME and other initiatives to library leadership who may lack an understanding of Linked Data. The Wikidata projects they've undertaken at their individual institutions have increased cross-departmental collaboration, yet these projects would not have been possible without their participation in the PCC Pilot.

Participation in the PCC Pilot and their work with Wikidata gave them much needed hands-on experience working with Linked Data. Other practical applications have been limited, and for now most of the members' Linked Data experience remains theoretical. This theoretical knowledge mirrors the current status of Linked Data in libraries. BIBFRAME is on the horizon, but its implementation date remains unknown. It is encouraging to know that they are not alone. Since they are approaching the topic from the same level of expertise, they feel safe asking questions of one another and acknowledging when they do not know the answers to questions.

They have developed an informal network among themselves. In addition to their monthly meetings, they routinely share information via email outside of these meetings. They discuss WikiProjects at other institutions and share information on webinars and presentations related to Linked Data. Participation in the group allows them to network with librarians outside their respective institutions and at different kinds of academic libraries (both large public universities and small liberal arts colleges). Working with each other on a monthly basis has strengthened these relationships. Now in their third year, they continue to grow as a group, sharing information and learning from one another as they go. The collaborative learning process has given them confidence and provided motivation and inspiration to continue to stretch their knowledge and move forward with studying Linked Data.

Conclusion

By the close of summer 2021, each member of the LDSG had a solid foundation in Linked Data theory and developed strong peer-to-peer information sharing relationships with colleagues across institutions. Their success is directly attributable to their participation in the study group, which has come at no cost, excluding staff time, and has given them opportunities to use their knowledge to the benefit of their institutions. Although the study group plans to remain relatively static in their membership, they believe that the work they've done is easily reproducible and would encourage librarians interested in learning more about Linked Data or other professional topics to connect with like-minded colleagues to form their own independent study groups. This approach allows members to pursue a topic of interest to them and gives them the freedom to develop a curriculum for their shared benefit. Members have ownership of their learning progress and provide each other with a supportive learning environment. Participating in an independent study group creates networking opportunities, and there is the possibility of cross-institutional collaboration if working with colleagues from other organizations. The Linked Data Study Group set the perfect example for the academic library community.

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18. Tosaka and Park, "Continuing Education," 11–12.
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32. "The Future of Cain," Ulster University, accessed August 20, 2022, https://cain.ulster.ac.uk/cainfuture.htm.

Appendix A: Timeline

University of Houston Study Group

Summer 2018—First contact proposing a study group amongst cataloging librarians at the University of Houston, creating goals, schedule, and reading list.

September 2018—First meeting of University of Houston study group. Introductory concepts: Semantic Web, Resource Description Framework (RDF), and triples.

October 2018—Discussion of BIBFRAME Editor, likes and dislikes, suggested improvements, challenges. Exercise using Library of Congress' MARC to BIBFRAME Comparison Viewer.

November 2018—Exercise in using Linked Data tool in MarcEdit to add URIs to MARC fields.

April 2019—Poster presentation at state library association annual conference.

Linked Data Study Group (LDSG)

Spring 2019—Connections made between posters, presentations and previous interactions of those interested in studying Linked Data together through a virtual study group.

September 2019—The new LDSG agreed to goals, study plan and programming over the next academic year.

November 2019—Reviewed concepts and lessons from the previous year (Linked Data and Semantic Web, RDF, BIBFRAME).

December 2019—Evaluate the Sinopia Editor and its Profile Editor, discuss positives and negatives.

February 2020—Overview of Wikidata, guided tour of Wikidata website, demonstration of how to add and edit items. Examination of how Wikidata is being used at the University of Virginia. Review of ARL White Paper on Wikidata. Call for proposals for the LD4 conference, should we present?

April 2, 2020—Meeting with coordinator of the WikiProject at the Stanford Libraries.

April 16, 2020—Discussion about our proposal for Linked Data for Production (LD4) conference presentation about LDSG.

April 30, 2020—Discussion on the book: *Linked Data for the Perplexed Librarian*.

May 28, 2020—Discussion on LD4 presentation and potential individual project for the summer. Discussion on taking part in PCC Wikidata Pilot Project as a group.

July 2020—Writing and developing LD4 presentation.

July 21, 2020—LD4 Conference Presentation (online).

September 2020—Share thoughts after the Pilot kickoff meeting. Discuss our project ideas. Encourage participation in the LD4-Wikidata Affinity Group meetings and work hours.

October 2020—Review the project page together, add everyone's Wikipedia ID, review the basic and extended properties, walk through the process of creating a Wikidata entry for an organization together. Set up goals and working hours for the next few months.

November 2020—Discuss Wikidata Dashboard and any questions around creating/editing Wikidata items. Update from CAIN webmaster. Learn about scripts and gadgets on Wikidata.

March 2, 2021—Updates from members, director of the CAIN site, and the progress on our Wikidata project. Discussed how to handle incorrect statements in Wikidata, and how to deprecate a statement for an incorrect statement and assign to a deprecated rank. Suggestions from another PCC project participant were shared.

April 13, 2021—After individual updates and comments, a link to news on CNN about recent riots in Northern Ireland was shared (since it was relevant to our project). One member also suggested that members review British English vs. American English. Disambiguation page. Ex. https://www.wikidata.org/wiki/Q207829. This page may help with some of the questions that have come up while creating or updating CAIN items.

May 11, 2021—Updates, questions and discussion of the use of Wikidata by the broader library community, a topic that was included in a recent PCC membership meeting.

June 8, 2021—Update on the Wikidata project. One question in past meetings included how to handle items with very brief descriptions on the CAIN site. At the suggestion of one member, it was decided to skip creating Wikidata items for organizations with very brief descriptions. Add "CAIN's entry is very brief" in the "Level of Completeness" field and "n/a (see Notes)" in the "Wikidata Item" field. The LDSG has created/updated 283 items out of 420 organizations as of 6/3/21. Encouragement to continue and finish strong was expressed. Ideas for next year's LDSG meetings were asked for and could be added to a newly created Google document.

July 27, 2021—Final report on our PCC Wikidata project, including the numbers on how many items were created/updated from the list of organizations on the CAIN website. A wrap-up email will be sent to the director of the CAIN website. The members shared thoughts about this project, the good, the challenges, what we can do better next time (if we want to work on a similar project again), etc.

* In addition to these meetings, from October 2020 through July 2021, optional weekly working hours were scheduled for members of the LDSG to virtually meet and work on the PCC Wikidata Project together.

September 28, 2021—Discussion of the announcement that the PCC Wikidata Pilot project has been extended until December 2021. Since we have completed our group project, do we want to start on individual projects? We will continue bi-weekly Wikidata working hours for the LDSG group through the end of the year and bring our own projects. One member of the group has batch added Wikidata items for the remaining CAIN orgs via OpenRefine. This can be covered during one of the regular monthly meetings.

December 6, 2021—Discussed future meeting topics suggested on the shared Google document. These topics included SPARQL queries, Open Refine, batch creating Wikidata items with Open Refine, Python, BIBFRAME and Sinopia Editor, the RDA toolkit, and JSON and JSON-LD. Are the following topics still the ones we would like to learn? Are there any new topics? Order of learning? What approaches should we take? Should we assign one person to lead the discussion for each topic? This person will also be responsible for researching and providing learning resources, discussion questions? We can take our time and extend our learning time if needed. The members also discussed writing a paper about our experience with the Wikidata Project and decided to continue the bi-weekly LDSG Wikidata working hours to work on our own Wikidata projects.

Appendix B: Sample Workform for Starting a Linked Data Study Group

Timeline	Action	Notes/Suggestions
Pre-meeting organization	Contact possible members to propose study group, suggest topics, and create a meeting schedule.	Suggest meeting dates over a specific time period (i.e., one academic or calendar year). Discuss working and communication styles. Ex: Allow each member to lead a topic or meeting.
First meeting (in-person or virtual)	Discuss goals, study plan and program for individual meetings. Create shared spaces.	Create shared drives; folder(s) for members to include suggested readings, activities, or learning opportunities. Appendix C in this document includes a suggested reading list.
Second meeting	Discuss introductory concepts: Semantic Web, Resource Description Framework (RDF), and triples.	
Subsequent meetings	Discuss topical readings, tour Linked Data websites, learn programs, complete exercises, etc. according to agreed upon study plan and program.	
	Refine curriculum.	Consider creating individual or shared Linked Data projects to practice creating metadata. Create a "working hour" every week or month to work on projects.
Second year/time period	Review what has been learned and accomplished, create a new study plan and program for the next time period.	Set new learning goals, consider new tools and strategies that will move the group forward.
Remain aware and open to newly published literature, to learning opportunities, and open projects your study group may be able to participate in as a group or individually.		

Appendix C: Suggested Reading List

Understanding the Basics

"BIBFRAME Training at the Library of Congress." *Library of Congress*. https://www.loc.gov/catworkshop/bibframe/.

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Understanding BIBFRAME

"BIBFRAME Update Forum at the ALA Annual Conference 2022." *Library of Congress*, https://www.loc.gov/bibframe/news/bibframe-update-an2022.html.

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Sinopia Editor

"Training Videos Based on Library of Congress Tools." LD4P. https://github.com/LD4P/sinopia/wiki/Training-Videos-based-on-Library-of-Congress-tools.

"Profile Editor Compared in LC BF and Sinopia." https://docs.google.com/document/d/1oNvUWFuMHzgGsb8ad175FeqlhKtADdb0Jzx6f933GCA/edit.

Nelson, Jeremy. "Developing Sinopia's Linked-Data Editor with React and Redux." *Code4Lib Journal* 45 (August 2019). https://journal.code4lib.org/articles/14598. The introduction and conclusion provide useful information about the background of the Sinopia editor. The rest is too technical for our purposes and can be skipped.

Linked Data for Production: Pathway to Implementation. Yale University. https://web.library.yale.edu/ld4p/charter.

Wikidata

Wikidata: University of Virginia/Listeria. https://www.wikidata.org/wiki/Wikidata:University_of_Virginia/Listeria.

"Wikidata Getting Started: Helpful Resources, Labels, Aliases, Descriptions." Microsoft PowerPoint presentation. https://drive.google.com/file/d/1UHOtsOquIGOuVHIPKTsA0dq4jrsh5P0o/view.

Wikidata: Introduction. https://www.wikidata.org/wiki/Wikidata:Introduction.

"Introduction to Wikidata for Librarians Structuring Wikipedia and Beyond." OCLC. Microsoft PowerPoint presentation. https://www.oclc.org/content/dam/research/events/2018/oclcresearch-lih-fernandez-introduction-to-wikidata-wip-2018.pdf.

"ARL White Paper on Wikidata Opportunities and Recommendations." ARL Task Force on Wikimedia and Linked Open Data. https://www.arl.org/wp-content/uploads/2019/04/2019.04.18-ARL-white-paper-on-Wikidata.pdf.

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Appendix D: Members of the Linked Data Study Group:

Jill Crane, Coordinator of Cataloging & Metadata, University of Dayton

Martha Hood, Associate Director, Assessment & Planning, University of Houston Clear Lake

Xiping Liu, former Resource Description Librarian, University of Houston Main Campus

Marla McDaniel, Catalog Librarian, University of Houston Downtown (2018–2019)

Jodene Pappas, Head of Technical Services, University of Texas Permian Basin

Ada Laura Ramirez, Senior Library Specialist, University of Houston Main Campus

Sharon Reidt, former Metadata Management Librarian, University of Connecticut (2019–2022)

Susan Vandale, Technical Services Librarian, Dickinson College

Book Reviews

Michael Fernandez

Metadata for Digital Collections, Second Edition. By Steven Jack Miller. Chicago: ALA Neal-Schuman, 2022. 505 p. $69.99 softcover (ISBN 978-0-8389-4748-7).

The ability to create digital collections has become more accessible to libraries and cultural heritage institutions of all sizes over the last few years, making it a good time to release the second edition of Steven Jack Miller's *Metadata for Digital Collections*. Miller is successful in his goal to write a textbook that is "accessible to beginners and library and information studies students as well as experienced professionals with little formal metadata training" (xxl). Throughout the book he introduces fundamental concepts that everyone developing a digital collection will need in order to be successful. Complex concepts—such as interoperability, linked data, and controlled vocabulary—are introduced early in the book in a manner that is appropriate for someone who is unfamiliar with the topics. Later chapters examine each of these topics in-depth providing a solid grounding and understanding of these concepts. In addition to writing plainly, Miller includes many examples that clearly illustrate the concepts being introduced. He also created a number of useful sidebars; I particularly found the "Typology of Metadata Standards" (15) and "Five Ways to Improve Metadata Quality and Interoperability: Summary Overview" (316) sidebars helpful in how they summarize the information in their respective sections which will make it easy for me to reference in the future.

Organized in a logical manner, the book starts with two chapters that introduce concepts that will be built upon throughout. These chapters also lay out a solid foundation to metadata, both in general and as it applies specifically to digital collections and describing the items in your digital collections. In the discussion of resource description, Miller includes information on best practices, but then describes what actually happens in many libraries that don't have the staff or time to follow them. There is also a brief discussion on the potential value that users can add to the description of a resource and how best to incorporate that into your metadata. These are followed by a deep dive into Dublin Core, currently the most common content standard used in libraries, before moving on to chapters that delve into the specifics of resource description. These chapters are applicable across content standards but use Dublin Core in their examples. XML encoding, Metadata Object Description Schema (MODS), and Visual Resources Association (VRA) are introduced next; many libraries are starting to use MODS and VRA is common among museums and other cultural heritage institutions. The final three chapters address the importance of metadata interoperability, a brief introduction to linked data, and developing a metadata application profile. Miller does a good job of explaining linked data in an approachable manner that includes the realities of linked data in libraries. He explains that "there has been a great deal of hype about Linked Data, which can lead to unrealistic and over-inflated expectations. In the end, Linked Data is still just *data*" (390).

While I found the entire book useful, there were three parts that stood out: the three chapters on describing resources, the chapter on metadata interoperability and quality, and the final chapter on developing a metadata application profile. The first two chapters on describing resources cover the various kinds of information contained in a record: titles, dates, rights, formats, subjects, etc. In each section there is deep discussion of what kinds of information go in each part of a metadata record, different ways the metadata can be formatted, and real-life situations to consider when thinking about how to record the information. At the end of the first of these chapters Miller reminds us that "metadata scheme designers and metadata creators need to meet the resource discovery needs of their users" (119). This is something that I believe should be stressed in all cataloging—not just in digital collections—and should be incorporated more in literature and practice. In the section on subjects, not only does Miller discuss the coding of subjects and where in a metadata record they go, he also gives a thorough grounding on subject analysis, exhaustivity, specificity, and how it all relates to indexing. One of the strongest parts of this is his discussion of remaining objective and that metadata creators need "to avoid projecting their own subjective interpretations onto an image and into its metadata" (141). Finally, the third chapter on describing resources is an in-depth introduction to controlled vocabularies. This is particularly important when many people and systems want to rely on keyword searching, but Miller provides great examples on why keyword searching isn't perfect. He also provides a brief explanation in this chapter on when and why a library might want to create their own controlled vocabulary for a project.

As technology has advanced and more libraries are starting to make their digital collections more accessible online, it

has become clearer that metadata about the collections needs to be able to be shared. Even if a library doesn't share their collection widely online, they still need to think about interoperability of their metadata. Due to continually evolving systems and technology, a library might migrate a collection to new or different platforms multiple times. By introducing the idea at the beginning of the learning cycle, whoever is planning the collection will be able to think and put plans in place. Miller makes an excellent argument that part of what makes sharing (or having your metadata harvested) successful is having quality data. As such, a good portion of chapter 10 "Metadata Interoperability, Shareability, and Quality" is on creating and maintaining quality metadata. One of my favorite sidebars is in this chapter ("Five Ways to Improve Metadata Quality and Interoperability: Summary Overview" (316)) and Miller goes into depth on all of the five suggestions in this chapter, including my favorite: documenting local practices.

Another highlight of the book for me is the final chapter, "Metadata Application Profile Design." It brings together all of the concepts introduced in the preceding chapters and brings them into the day-to-day work that someone creating a digital collection will need to do. This provides a chance for a student to create something to apply what they've learned or for a library to create the local standard which they will implement when they start building their digital collection.

Overall, the new edition of *Metadata for Digital Collections* is a strong introduction to describing a library's digital collection. It would make an excellent textbook for a class on metadata, as it approaches each topic sensibly, comprehensively, and is written to be understood by anyone who is not familiar with metadata. Even if a professor does not adopt the full textbook, there are several chapters that could be used to support student learning in a variety of courses, particularly the "Introduction to Metadata for Digital Collections," "Controlled Vocabularies for Improved Resource Discovery," and "Linked Data and Ontologies" chapters. In addition, this title would be valuable as part of a departmental reference collection, particularly at a small to medium-sized library that is starting to develop a digital collection, and where the librarians or staff need a good foundation in the concepts. Both students and practitioners can work their way through the book and come out at the end with a finished metadata application profile that could be implemented.—*Lynn E. Gates (lgates@uccs.edu), University of Colorado Colorado Springs*

Transforming Technical Services through Training and Development. Eds. Marlee Givens and Sofia Slutskaya. Chicago: ALA Editions, 2022, 168 p. $69.99 softcover (ISBN: 978-0-8389-4877-4).

The new ALA Editions title, *Transforming Technical Services through Training and Development*, collects chapters by practitioners in technical services departments (academic, public, and consortia) discussing their approaches to training. Three themes recur through many of the thirteen chapters of this volume and help to tie them together: documentation; cross-training and engagement; and COVID-19. Documentation plays a crucial role in developing a learning culture, with the editors noting in the introduction that "successful training is impossible without a strong emphasis on current, up-to-date, and complete documentation" (xi). Cross-training staff and ensuring that they are engaged in all aspects of the training and development processes is crucial for a successful program. The final (and perhaps inevitable) theme that recurs through many of the chapters is the COVID-19 pandemic and its role in changing the way that library technical services departments have operated since 2020.

The editors, Marlee Givens and Sofia Slutskaya, state their goal in the book's introduction: "to collect different training methodologies and case studies in order to offer technical services managers and trainers useful examples of creating a learning culture in their departments" (x). The editors further state that these chapters are an indication that "training needs are universal across different types of libraries and departments" (x). These themes weave the chapters together and help to ensure that the thirteen chapters build a strong and cohesive narrative; in editing this volume, Givens and Slutskaya have curated a collection that truly does build a picture of transforming and improving technical services departments through training and development. In fact, the picture they build is one of proactive and vibrant departments with engaged staff and leaders. This is possible through both hard work and planning; readers can achieve such a department by learning the lessons that these chapters teach.

While all of the chapters have noteworthy elements, some in particular merit further discussion. These chapters are not only well written and structured, but many—or most—of them have easily transferrable real-world application.

Chapter 1, written by Beth Ashmore, Maria Collins, Xiaoyan Song, and Lynn Whittenberger, details the strategies used in North Carolina State University Libraries to build what the authors term a "technical services learning culture." Following the creation of a single Acquisitions & Discovery department in 2011, the department began to implement cross-training for all staff. Among the techniques the department's managers used were "exposure learning" (learning about library topics that do not currently impact daily work, but which may in the future), targeted training or learning (such as when there is a change in working practices), and informal training (what the authors call the

apprenticeship approach). The authors also describe some core competencies training which was undertaken due to gaps in knowledge—interestingly, these gaps came about because a "reliance on informal or ad hoc training mostly for new staff had resulted in inconsistent knowledge and practice" (5)—and a team of managers identified core competencies on which the department would need to be trained. They also describe a pilot team that they've created called the Library Impact Analysis cross-unit team, which collects, cleans, and reports library statistics.

Laura Sill, in chapter 6, describes a case study from the Hesburgh Libraries of the University of Notre Dame in which a metadata community of practice was created in order to facilitate cross-organizational learning. This chapter describes the community of practice that was developed following several library reorganizations, most recently in 2020. One aspect of this chapter which really hit home for this reviewer was the emphasis that Sill placed on planning and governance. Even a "community of practice" group, which on the face of it might not need much governance, required a great deal of planning. Sill details that each meeting had the following details defined: learning outcomes or deliverables; learning methods; and learning assessment. This level of governance allowed the Notre Dame metadata community of practice to become a successful framework for connections and learning within the Hesburgh Library. This chapter is replete with useful examples as well as charts and figures which help to illustrate how the Metadata Community of Practice operates, is assessed, and the types of learning plans used.

The chapter entitled "Reactive and Proactive Approaches in the Training Program for the University of Nevada, Las Vegas Acquisitions Unit" by Jennifer R. Culley is another standout. Culley describes the benefits of on-the-job training and noted that as a lead acquisitions librarian new to UNLV, she asked her direct reports to train her on what they do and reviewed training manuals and procedures. She noted that one of the major benefits of taking this approach was that she was able to identify goals for future training and retraining as well as opportunities to streamline workflows. Usefully, as with many of the chapters in this book, Culley included real world examples and figures of specific job responsibilities, tasks and documentation from her experience. These examples provide ample illustration that helped this reviewer in identifying procedures and workflows that could be either built upon or borrowed wholesale from the descriptions in the book to the reader's workplace. In this way, this volume provides direct, real world examples of either best practices or suggestions for improvements that many readers will find are useful in their workplaces.

The thirteen chapters in this book are almost all based on either case-studies or the authors' real-world examples. Only one chapter (chapter 3, "A Deming Approach to Training in Technical Services") is purely theoretical and may have benefited by some real-world examples. The rest of the chapters are based on case studies or contexts of specific libraries, mostly university libraries with one public library consortium. All are based in North American libraries.

While the scope of this volume may sound fairly narrow—specific to technical services departments—and the contexts are also somewhat narrow (primarily North American university libraries) there is a refreshingly broad scope for the included chapters. For instance, while some chapters focus on training technical services workers (such as chapter 4, "Just-in-Time Training for Continuous Improvement Within a Consortium" by Rachel K. Fischer) others detail bringing training outside of the technical services department, training surrounding system migrations, and training for student workers.

In all, this is an excellent volume with useful contributions on a wide range of topics. It will be useful for technical services managers and supervisors who are interested in improving and revamping their training programs, but it will also be of interest more broadly to anyone interested in library training and professional development. The overall picture is one of a profession that is responding to significant changes in their area of work, and of a workforce that is adapting to new working practices—from new acquisitions and cataloging procedures to remote working and reduced workforces. While there are many challenges, there are also innumerable opportunities introduced by these developments, and this book will help many technical services departments successfully adapt, improve, and transform. Ideally this title will also be made available as an e-book in order to facilitate access to these valuable chapters which contribute to the advancement of the profession.—*Joshua Hutchinson (joshuah8@usc.edu), University of Southern California, Los Angeles*

Project Management in Technical Services: Practical Tips and Case Studies. Eds. Elizabeth German and John Ballestro. Chicago: ALA Editions, 2022. 244 p. $69.99 softcover (ISBN 978-0-8389-4991-7).

While library literature and conference programs abound with project management guidance, relatively little has been published on adapting these techniques for technical services. *Project Management in Technical Services: Practical Tips and Case Studies* helps fill this gap with a compilation of instruction and case studies in various approaches to project management ranging from individual techniques for managing workloads to coordinating institutional and consortial

projects. According to the preface, the goal of the book is to "help technical services professionals build their own 'project management toolkit'" and "right-size" an approach that will work for any type of project (viii). With this mission in mind, the book's two parts are further outlined in the preface. Part I: Implementation Perspectives is divided into chapters on personal project management and departmental implementation and Part II: Case Studies is divided into chapters on technology, space, and collection maintenance. While the majority of the cases discussed in the book focus on one-off projects, several chapters (especially chapters 2, 3, 4, 5, and 7) also address how project management techniques can be useful for the cyclical, individual work common in technical services. The benefits of adapting project management in technical services are discussed throughout the book, including increased productivity and organization, improved evaluation of projects (both while they are ongoing and following completion), facilitating communication, increasing transparency, encouraging collaboration, and avoiding burnout. Other common themes include tool recommendations, agile project management methods, and adapting to change.

Chapters 1–3 focus on personal project management. Each chapter centers around a particular type of task and provides techniques and tools for implementing project management in that area. In chapter 1, the author discusses project planning and goes into detail about the steps involved in creating a formal project plan with an example of applying those steps in a book shifting project. Beyond simply completing tasks associated with a project, the chapter also addresses communication and assessment best practices. Chapter 2 details several techniques and tools for improving time management that are based in project management frameworks. The approaches outlined are practical and can be applied to just about any type of work, including time-bound projects and daily, repetitive tasks. Detailed tips and examples for applying project management tools to personal projects follow in chapter 3, which concludes with a template for a personal project management spreadsheet. This chapter situates itself within existing literature on personal project management (PPM) and personal information management (PIM) and gives a strong overview of the benefits of practicing PPM.

Chapters 4–6 outline implementations of project management techniques for department-level projects. The main themes of these chapters are coordinating work among multiple staff, overcoming challenges in personnel management and organizational culture, adapting to changes in technical services work as a whole and those forced by the COVID-19 pandemic, and creating a project management infrastructure. There is a useful list of techniques for breaking up large projects into smaller deliverables with deadlines and clear objectives in chapter 4. The chapter also addresses reframing recurring tasks as quarterly deliverables and training and equipping staff with the tools they need to complete their work. Chapter 5 details a series of lightweight project management adaptations, particularly from the agile project management framework, that have proven helpful in the library's technical services workflows which have drastically changed over the last several years. Because of its emphasis on what it terms "lowercase 'p'" project management (i.e., adapting and scaling down commonly used project management tools), this chapter would be particularly helpful for professionals who are concerned that project management frameworks require too much overhead to implement. Chapter 6's authors discuss project management in terms of change management and organizational culture and illustrates the importance of both with a case study on a library services platform (LSP) migration. The case study in particular is helpful in identifying potential organizational hurdles to implementing a project management framework.

Moving into Part II: Case Studies, chapters 7-9 focus on technology-intensive projects. While previous chapters often included examples of project management implementation, the chapters in part II are almost entirely detailed project overviews. Chapter 7 addresses electronic resources management, and chapters 8 and 9 concern digital asset management system (DAMS) and LSP migrations. Other themes in this section include adapting the agile project management framework, internal and external communication, and project planning. Chapters 7 and 9 provide overviews of several tools that were critical to project success; chapter 9 further includes examples of templates used during the project described. Unique within the book, chapter 8 concerns consortial projects and includes two brief case studies for the purpose of comparing different approaches—centralized vs. decentralized—to project management.

Chapters 10–11 provide case studies for large-scale space projects; chapter 10 discusses building renovation projects and chapter 11 a library closure. While chapter 10 is less of a case study and more a general overview of what to expect during a renovation project, it still provides a thorough breakdown of the process while remaining general enough to be applicable to a wide range of technical services contexts. Chapter 11's recounting of a library closure provides a detailed overview of project management frameworks used in such a situation and a guide to managing personnel during a time of extreme uncertainty and rapid change.

Finally, chapters 12–14 provide case studies on collection maintenance projects, specifically relating to moving the contents of a collection storage facility to a new location (chapter 12), managing high-density storage (chapter 13), and a large weeding project (chapter 14). All three chapters reiterate themes that were introduced earlier in the book, particularly the importance of planning and choosing project management tools, communication strategies, and adapting

to change. Like chapter 11, chapter 12 also details managing a project with changing and uncertain timelines and expectations. In chapter 13, the authors provide a high-level overview of managing a high-density storage facility and how project management techniques, namely planning and evaluation, led to successes such as participation in what is now known as the Google Books project. The volume concludes with chapter 14, which gives an incremental overview of a weeding project from planning through reporting stages and very helpfully includes project documents in appendixes.

Project Management in Technical Services serves as an excellent overview of the possibilities in implementing project management techniques in technical services. Readers who are new to project management and hoping to learn what options exist for their particular work would benefit from adding this to their reading list alongside sources that provide a broader overview of different project management frameworks. Technical services professionals who have already committed to implementing project management in their work would likely benefit the most from closely reading the particular chapters or sections that most closely resemble their context. Ultimately, anyone working in technical services who wants to make improvements to their own work or their team's work will find something of value in this book.—*Lisa Lorenzo (lorenzo7@msu.edu), Michigan State University Libraries*

The Ultimate Privacy Field Guide : A Workbook of Best Practices. Eds. Erin Berman and Bonnie Tijerina. Chicago: ALA Editions, 2023. 86 p. $29.99 softcover (ISBN 978-0-8389-3730-3).

Privacy, a concept that provides individuals with the right to control how their personal information is used, is one of the core values of librarianship. This is so because the practice of librarianship is a patron-driven discipline closely allied with modern democratic values such as freedom of access to information as well as freedom from external powers—governmental, corporate, administrative, or what have you—attempting to limit such freedom of access. Privacy is also a core value of librarianship because librarianship in our time is one of a larger set of disciplines associated with information management and digital security. As librarians, we are entrusted with the privacy and confidentiality of our patrons' and staff's information and our patrons and staff, in turn, have a right to expect us to protect that information. Furthermore, in addition to keeping information private, librarians should also be able to explain which information should be kept private and also why any specific pieces of information fall under privacy constraints, if for no other reason than in order to justify the high estimation librarians have of privacy.

It is crucial to bear in mind that privacy encompasses various distinct topics, including safeguarding free speech and protecting health information, rather than being a singular concept. Consequently, privacy and its various constituent aspects can be a difficult concept to understand in the digital age as well as a complicated concept, due to its quite varied aspects. Yet, by learning the basics of information science, digital security, and the principles associated with the value of privacy, librarians can better understand their rights and responsibilities when it comes to protecting online privacy and undertake better practices regarding privacy.

The Ultimate Privacy Field Guide: A Workbook of Best Practices, a publication of the ALA Office for Intellectual Freedom, is intended to be used as part of an ongoing effort to improve the privacy practices of libraries and, given its comprehensive treatment of the issues, could in principle aid other organizations as well. The book covers a number of central topics, from the basics of digital security to practices and policies surrounding user data and how to talk about privacy with others, how our language affects the way we use technology, as well as how to address issues outside of technology being just some examples of what the book provides. It also offers guidance on conducting privacy audits, negotiating contracts and licensing agreements, writing privacy policies, and addressing privacy with vendors. It is, as the title suggests, a "field guide," comprehensive enough to give the reader an overview of the entire field and succinct enough to give easy access to the essential information in the field. While by no means covering (or intended to cover) every issue associated with privacy in library settings, it is a valuable resource for libraries. By providing a broad understanding of the essentials concerning policies, procedures, technology, and best practices, the book is crucial for being a librarian in the digital age while also offering the important foundations for further knowledge and study in this area.

Besides being an excellent informational handbook—designed for use in school, public, and academic settings of all types and sizes—the book is also an easy-to-use workbook, packed with practical, hands-on exercises to guide librarians toward creating a more privacy-focused library. Both the book's style and relatively low price make it an outstanding source for teaching courses on the ins and outs of privacy to librarians, library staff, and library administrators. The book is not only a valuable resource of information, it also aids the reader through its exercises to develop the skills necessary for reflecting on privacy issues as well as how best to manage them. The exercises in chapter 7, "Vendors and Privacy," were especially helpful in creating a check list in what to add for contract negotiations regarding privacy. The "creating

persuasive arguments" section in chapter 2, "How to Talk About Privacy," was also quite valuable in helping to create a communication plan on the importance of privacy in libraries.

The book is well organized, easy to read, and very practical. The sections are presented in logical order, beginning with the basics and progressing to more complex topics. There are clear headings, allowing readers to locate relevant information quickly. While not intended to be a comprehensive treatment of all aspects of privacy in libraries, the authors hope that this guide will help library staff become more aware of the importance of protecting patron privacy, both in regard to their own actions and also with respect to the actions of others.—*Kristy White (whitek9@duq.edu), Duquesne University*

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225 North Michigan Avenue, Suite 1300, Chicago, IL 60601 ● 312-280-5038
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