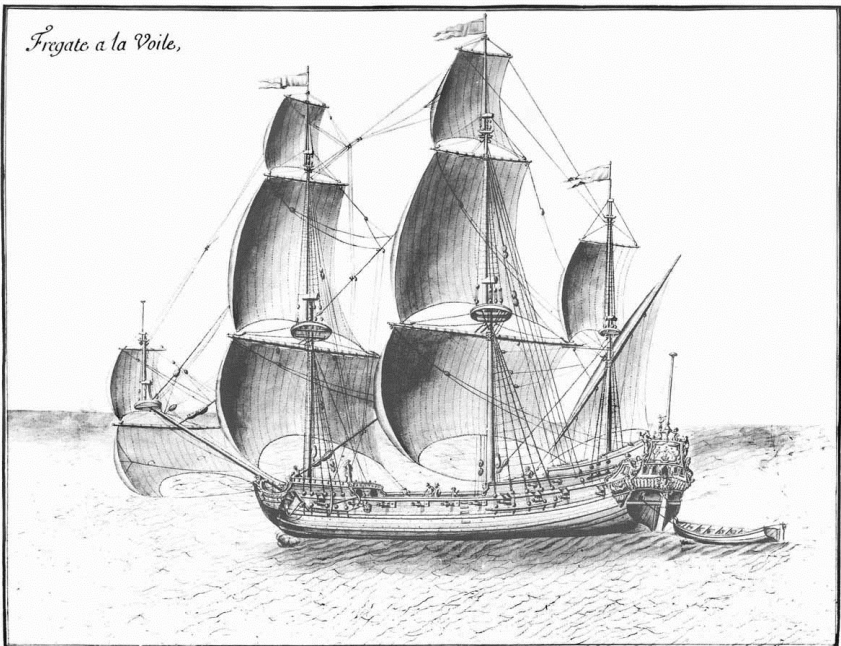


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About the Cover

Drawing of a *fregatte de 28 canons* thought to resemble the *Concorde*, the vessel Blackbeard converted into his pirate flagship *Queen Anne's Revenge*. The boat had previously served as a slave ship and as a privateer during the War of Spanish Succession (1702-1714). Courtesy David Moore, North Carolina Maritime Museum.

**More than Just Linking: Integrating MARC
and EAD in a Single Discovery Interface at
Duke, UNC-Chapel Hill, and NCSU**
by Noah Huffman

Abstract

This article describes a recent project undertaken by the Triangle Research Libraries Network (TRLN) consortium to improve the discovery of archival collections by integrating MARC and EAD records in a single discovery layer. The article gives a summary description of the project, measures its impact on discovery to date, and suggests what the project might reveal about the value of structured archival data more generally.

A version of this paper was presented in Session 102: "Structured Data is Essential for Effective Archival Description and Discovery: True or False," at the Society of American Archivists annual conference in Washington, D.C., August 12, 2010.

Librarians and archivists spend a lot of time creating structured data. We write finding aids in Encoded Archival Description (EAD), create catalog records in Machine-Readable Cataloging (MARC) format, and describe digital objects in a seemingly endless variety of metadata structures. Now that archival researchers are relying more on web search engines like Google to discover collections, some in the profession have begun to question the value of structured archival data, noting that most web-scale

discovery systems do little to exploit the potential or justify the costs of creating structured data.

To leverage the structured archival data produced by archivists at Duke University, University of North Carolina at Chapel Hill, and North Carolina State University, a task group of the Triangle Research Libraries Network (TRLN) undertook a project in early 2009 to re-engineer the consortium's shared library catalog platform (Endeca) by integrating EAD records and MARC records for archival collections. The goal of the EAD in Endeca project was to simplify the discovery experience for users and enhance the visibility of archival collections at each institution by combining MARC records and EAD finding aids in a single discovery interface. This article discusses motivations behind the EAD in Endeca project, describes aspects of the system architecture, and highlights some notable features of the user interface. By exploring some preliminary Google Analytics data, the article also considers the impact of the project on the discovery of archival collections at Duke in particular. Finally, the article suggests how lessons learned from the project might help archivists assess the costs and benefits of structured archival data more generally.

Motivations

Many archival researchers report confusion about where to find descriptions of archival collections. This confusion is probably the result of complementary but sometimes competing archival data structures and the absence of a truly unified discovery environment for archival resources. For example, at Duke and at many institutions, archival description lives in two silos—library catalogs and finding aid databases—and it comes in two different

flavors—MARC and EAD. Few researchers understand how these two types of description are related.

For a single archival collection, archivists typically create both an EAD-encoded finding aid, which can contain a very detailed description of a collection including a box list or folder list, as well as a MARC record, which contains more concise collection-level description. As a data structure standard, EAD is very flexible. EAD-encoded finding aids can be painfully detailed or they can be brief depending on the nature of a collection, its perceived research value, or a number of other factors. EAD-encoded finding aids can describe material at the item level or maybe only at the series level. For the most part, these EAD-encoded finding aids are discoverable in local finding aid databases maintained by a repository and on the web with search engines like Google, Yahoo, or Bing. To complicate matters, many institutions, including Duke, have created finding aids for only a subset of their total collection holdings.

Compared to EAD-encoded finding aids, archival MARC records are typically much more structured and consistent in the level of detail they provide, and they are discoverable in WorldCat and in traditional library catalogs alongside bibliographic records for other published library resources. Unlike EAD, most archival repositories have created collection-level MARC records for the majority of their holdings.

Despite their differences, both MARC and EAD have their virtues as forms of structured archival data. As Steve Hensen suggested in 2001, MARC and EAD “co-exist as parts of an essential metadata structure for management and discovery of manuscript and archival materials.”¹ Archival MARC records allow researchers to discover

archival collections alongside related published content in bibliographic databases, while EAD finding aids allow researchers to explore the contents of a collection in greater detail. Over the past several years, most institutions have adopted the practice of linking to EAD-encoded finding aids from archival MARC records, most commonly via the MARC 856 field. While this linking strategy unites MARC and EAD records to a degree it is still confusing to researchers and only allows discovery of collection-level descriptions in the library catalog.

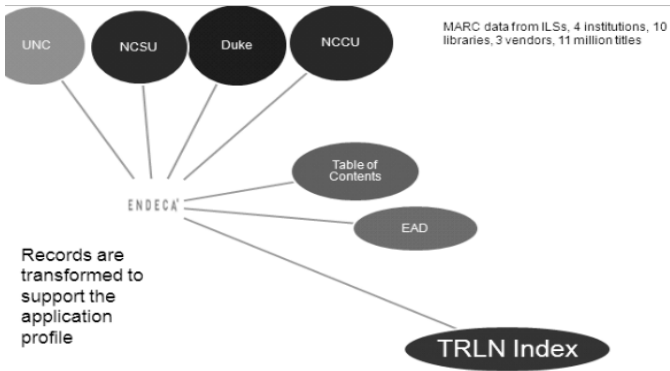
To provide a more seamless discovery experience for archival researchers, TRLN decided to fully integrate MARC and EAD in one discovery interface called Endeca that exploits the most useful qualities of each data structure. In Endeca, EAD and MARC co-exist not as independent records, but as a hybrid record that contains selected descriptive elements from each structure.

Endeca is the name of the software platform that powers the shared library catalog for Duke, UNC, NCSU, and North Carolina Central University. Unlike traditional library catalogs, Endeca is a discovery layer that harvests data from each institution's integrated library system (ILS) and provides additional functionality and services like faceted navigation, tabbed browsing, and term suggestion. Implementation of discovery layers has been one of the top library technology trends over the past few years and other popular discovery platforms include Blacklight, vuFind, and Encore.²

Unlike a traditional ILS like Aleph, Millennium, or SirsiDynix, Endeca has the ability to index and display both MARC and non-MARC datasets. For example, when the TRLN consortium first implemented Endeca in the summer

of 2008, it also began licensing table of contents data and cover images for books provided by a vendor called Syndetics. Syndetics provides table of contents data as XML and this XML is merged with MARC data from the ILS to create an “enhanced record” in Endeca. Because combining MARC data with table of contents XML data in Endeca was relatively straightforward, TRLN began to explore other types of non-MARC data that might enhance catalog records in the Endeca interface. Many archivists have probably used the table of contents metaphor to describe an archival finding aid, so TRLN decided to explore the possibility of handling EAD-encoded finding aids like table of contents XML data in the Endeca interface.

Fig. 1. Basic system architecture



As a result, in late 2008 the EAD in Endeca project began in earnest with the formation of a task group that included archivists from each of the member libraries along with IT staff from each serving as consultants.³ Derek Rodriguez, a program officer at TRLN, chaired the task group, coordinated meetings, wrote project documentation, and completed most of the technical work. At an initial

meeting, the task group identified three desired outcomes of the project:

- 1) To enable discovery of EAD-encoded finding aids alongside other library content in Endeca
- 2) To provide full-text searching and display of *full* EAD records in Endeca
- 3) To leverage Endeca’s “next generation” features like faceted browsing, improved relevancy ranking, and term suggestion to improve discovery of archival materials.

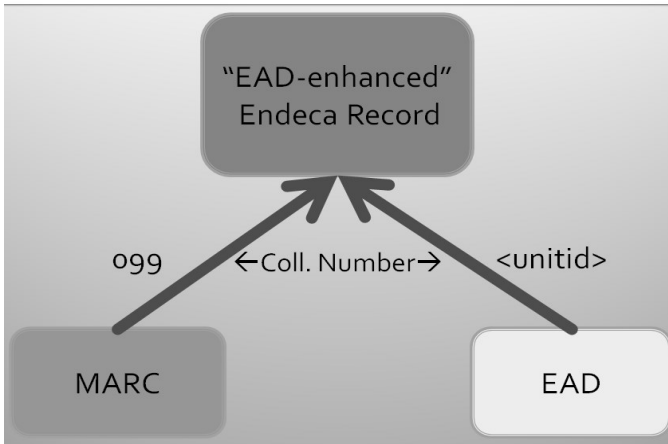
System Design

To achieve these desired outcomes, the task group developed a strategy to merge or “roll-up” MARC and EAD records that described the same archival collection into one hybrid “EAD-enhanced” record in Endeca. To facilitate the roll-up, the task group cross-walked descriptive elements from MARC and EAD to a third schema defined by Endeca.

Initially, the task group considered harvesting and indexing MARC and EAD records separately in Endeca, but ultimately decided to create a single hybrid record to avoid presenting duplicate records in Endeca that described the same archival collection, and to take advantage of the more consistent data structure, access points, and better authority control typically found in archival MARC records at each institution.

Because the Endeca interface was initially configured to rely on the MARC-formatted subject headings and fixed fields to generate browsing facets, the task group determined that archival MARC records should serve as the backbone of the system, providing most of the navigational metadata. The added EAD content, in turn, would supplement the MARC record by offering fuller description

Fig. 2. Joining MARC and EAD



in the form of box lists, folder lists, and lengthier biographical and scope and content notes that might improve the discovery of archival collections in the library’s primary discovery interface.

To create the hybrid EAD-enhanced records in Endeca, the task group developed a strategy to join MARC and EAD records based on a common identifier element already found in both schemas (Fig. 2).

At UNC and NCSU, the archival collection number located in the MARC 099 field and the collection-level <unitid> element in EAD served as the common identifier. At Duke, however, the absence of collection numbers required inserting a MARC 024 field (local identifier) into each archival MARC record that matched the <eadid> element in that collection’s EAD finding aid. Institution-specific prefixes were added to all identifiers to avoid potential conflicts with duplicate collection numbers across the institutions.

In Endeca, EAD-enhanced records contain nearly

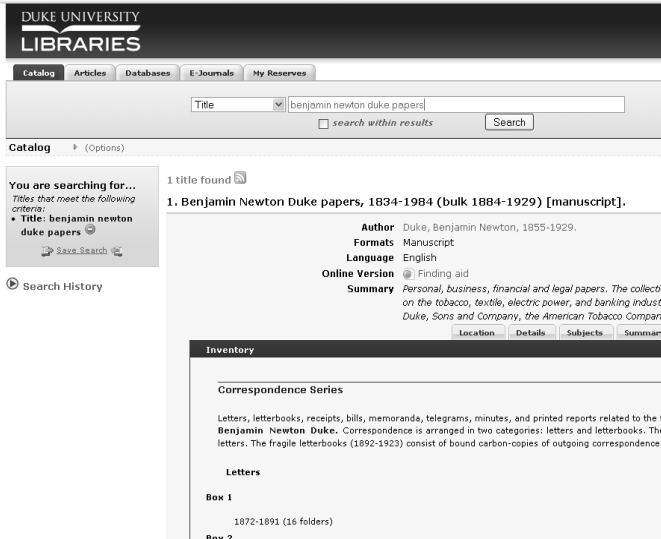
all of the data elements from the archival MARC record, but only selected elements from the EAD record. The task group chose to include only those EAD elements that would augment description and enhance discovery and to exclude any redundant data elements found in both EAD and MARC. For example, hybrid EAD-enhanced records do not contain <controlaccess> data from EAD because the task group determined that the MARC subject headings are typically more consistent and have been subjected to better authority control.

EAD elements added to the hybrid Endeca records include both collection-level elements such as: <bioghist>, <scopecontent>, <accessrestrict>, <userrestrict>, and <acqinfo> as well as the entire component or <dsc> section of EAD, which typically contains series descriptions, folder titles, and other component level description not found in an archival MARC record. Because the addition of component-level description from EAD markedly increased the total size of hybrid records when compared to records for other library resources like books and serials, the task force decided to reduce the relative weight of these added EAD elements when determining relevancy ranking in Endeca.

Features of the User Interface

Once the task group developed a method to merge MARC and EAD, it then considered how to display the hybrid records in the Endeca interface. Fortunately, the existing tabbed record display in Endeca provided a convenient way to include but also clearly segregate content for EAD-enhanced records. For example, the most basic descriptive elements for each hybrid record like Title, Creator, Format, and Language are displayed at the top of the

Fig. 3. Tabbed display of EAD-enhanced Endeca record



record, while the remaining metadata elements are displayed in a series of labeled tabs. Three new labeled tabs were added to Endeca to display the added EAD content-- Overview, Historical Note, and Inventory. The Overview tab displays the full collection-level <scopecontent> note from EAD, the Historical Note tab displays the full collection-level <bioghist> note, and the Inventory tab displays the entire component or <dsc> section of the EAD finding aid (Fig. 3). Data from other EAD elements like <accessrestrict> and <acqinfo> were added as additional bullets under the existing Details tab.

Historically, Duke has provided much fuller scope and content, biographical, restriction, and provenance notes in EAD than in MARC, so having the ability to index and display the fuller notes in Endeca has been useful. Moreover, enabling researchers to search across and view the additional

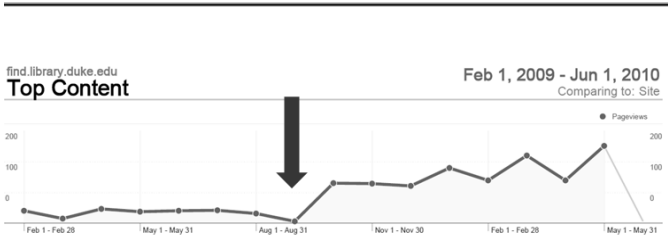
EAD content alongside the other 10 million titles represented in the shared SearchTRLN Endeca catalog has simplified the discovery experience for our archival users and staff and enhanced the visibility of our collections. Despite the addition of EAD content to Endeca, however, Duke continues to maintain a separate standalone finding aid database where users can search across only archival finding aids. The EAD-enhanced Endeca records still contain links to these “finding aids of record” in the standalone database.

Impact on Discovery

Shortly after EAD-enhanced records debuted in Duke’s Endeca catalog in September 2009, the library began collecting Google Analytics data to determine what impact, if any, the project might have on the discovery of archival collections. While it has been difficult to isolate and track visits to EAD-enhanced records themselves in Endeca, Google Analytics data does track visits to each of the EAD-enhanced tabs.

From September 2009 to May 2010, there were only 657 total views of all of the EAD-enhanced tabs combined. At first, this number seems rather insignificant, but a more thorough analysis of the analytics data does reveal some interesting trends in user behavior. For example, while relatively few users actually view the EAD-enhanced tabs from within Endeca, the total number of users linking from EAD-enhanced records in Endeca to our local finding aids database has increased 475 percent since September 2009 (Fig. 4). The arrow on the graph below identifies the date when EAD-enhanced records first appeared in Endeca. Such a significant increase in traffic from Endeca to our standalone finding aids database indicates that although not

Fig. 4. Traffic from Endeca to Duke's stand-alone finding aids interface



that many users are actually viewing the new EAD-enhanced tabs in Endeca, they are discovering the records for archival collections much more frequently in Endeca than before. Once researchers locate a record, the data suggests that they prefer to link out to the full EAD-encoded finding aid elsewhere rather than view the additional EAD tabs in Endeca.

Even with such a marked increase in traffic from Endeca to Duke's stand-alone finding aids interface, this segment of traffic only represents a small fraction of total visits to Duke's finding aids. In fact, Google Analytics data

Fig. 5. Top referring sites to Duke finding aids

Source/Medium	None	Visits	Individual Source/Medium performance: Visits
1. google / organic	144,033	92,642	64.32%
2. (direct) / (none)	2.02	10,439	7.25%
3. yahoo / organic	2.02	6,016	4.18%
4. bing / organic	00:01:36	5,290	3.67%
5. duke.edu / referral	80.31%	4,343	3.02%
6. en.wikipedia.org / referral	74.54%	3,887	2.70%
7. aol / organic	100.00%	2,485	1.73%
8. find.library.duke.edu / referral	2.02	1,903	1.32%
9. search / organic	00:01:36	1,853	1.29%
10. catalog.library.duke.edu / referral	80.25%	1,216	0.84%

reveal that from September 2009 to May 2010, the overwhelming majority of the total visits to finding aids originated from Google--over 64 percent of all visits (Fig. 5). During the same period only 1.3 percent of all visits came from Endeca. Not surprisingly, even Wikipedia generated almost twice as much traffic to finding aids as Endeca and there are currently only 68 Wikipedia entries that contain links to Duke finding aids.

Structured Data and “Meaningful Discovery”

Despite the task group’s hard work on the EAD in Endeca project, it is clear that discovery of archival collections happens primarily on the open web, not in local finding aids databases, institutional OPACs, or even in “next-generation” discovery layers like Endeca. Given these statistics, then, why should archivists continue putting so much effort into creating structured data? If most of our online visitors come from Google, wouldn’t a simple HTML finding aid suffice?

A closer examination of Google Analytics data reveals that perhaps not all discovery is equal. Figure 6 depicts the same list of top referring sites to Duke’s finding aids, but instead of total visits, the graph depicts the average amount of time visitors from that referring site spend on Duke’s finding aids site. Visitors from web search engines like Google, Yahoo, Bing, and AOL spend an average of a minute or less viewing a finding aid, whereas visitors coming from Endeca and other library databases spend between eight and nine minutes on average.

Similar analytics data indicates that visitors from web search engines only view an average of 1.7 pages per visit, whereas visitors from Endeca and other Duke Library

Fig. 6. Top referring sites to Duke's finding aids (avg. time spent)

Source/Medium	None	Visits	Individual Source/Medium performance:	Avg. Time
1. google / organic	Google	92,642	00:01:13	
2. (direct) / (none)		10,439	00:02:36	
3. yahoo / organic		6,816	00:00:55	
4. bing / organic		5,290	00:00:57	
5. duke.edu / referral		4,343	00:03:35	
6. en.wikipedia.org / referral		3,887	00:00:55	
7. aol / organic		2,485	00:01:03	
8. find.library.duke.edu / referral	Endeca	1,903	00:09:20	
9. search / organic		1,853	00:00:56	
10. catalog.library.duke.edu / referral		1,216	00:08:07	

websites view an average of 5 pages per visit. Given this behavior, we can infer that a much higher percentage of users who discover finding aids in Endeca and in other library databases database are actually doing research. They are spending more time reading finding aids, clicking around, and viewing other finding aids. While the majority of total finding aid visits may originate with Google, a higher percentage of meaningful visits still comes from library catalogs, discovery layers, and finding aid databases where researchers can more effectively exploit the structure of our archival data. Overall, the EAD in Endeca project might not have resulted in a significant increase in overall discovery of Duke finding aids, but a 475 percent increase in the small segment that represents more meaningful discovery is notable.

Conclusions

The results of the EAD in Endeca project and the analytics data collected to date can help archivists assess the

value of structured archival data more generally. Let us first consider the value of structured data for discovery. Google Analytics data reveal that a huge majority of researchers discover finding aids for archival collections on the open web through Google and other web search engines that pay very little attention to the structure of archival data. But, the same analytics data also show that more “meaningful discovery” of archival collections still happens in places where researchers can exploit the structure of archival data—places like library discovery layers, finding aid databases, and other domain-specific environments.

While the structure of archival data might have relatively minimal impact on the overall discovery of collection information, archival data structures are still essential as a way to promote more effective archival description. As Michael Fox contends, structured archival data is critical for migrating data over time, for sharing and reusing archival description in different research environments, and for providing a greater degree of control over how archivists can present description to the end user.⁴ While these are largely administrative arguments, they are important ones. If archivists could not share and re-use descriptive data in new ways, preserve it over the long term, or constantly re-invent how we display it on the web, our researchers might be able to locate information about our collections, but they may have trouble making any sense of it.

To capitalize on the benefits of structured data, then, archivists must not only improve current archival data standards, but also develop and promote shared tools for creating structured archival description more efficiently. Moreover, we should move beyond the paper inventory

metaphor and begin thinking of EAD more as data and not just text with tags around it. Current efforts underway to revise the EAD standard and the widespread adoption of shared tools like Archivists' Toolkit and Archon are steps in the right direction.⁵

Finally, we should borrow and apply some principles of the More Product, Less Process (MPLP) movement to streamline the creation of more standardized and structured archival description, recognizing that interoperability and accessibility of our data should trump flexibility and granularity. We should not let our impulse towards customization get in the way of our ability to share information about our collections as widely as possible and wherever our researchers happen to be doing their research.

Noah Huffman has been the Archivist for Metadata and Encoding in the Rare Book, Manuscript, and Special Collections Library at Duke University since June 2008. His duties include coordinating metadata activities for Duke's Digital Collections Program, overseeing encoding and publication of EAD finding aids, and helping to manage other technical services operations. He earned a BA in History from Furman University in 2003, an MA in History from the University of Louisville in 2005, and an MLS from UNC-Chapel Hill in 2008.

NOTES

1. Steve Hensen, "Archival Cataloging and the Internet: The Implications and Impact of EAD," *Journal of Internet Cataloging* 4, (2001): 75-95.
2. Lorcan Dempsey's Weblog, "Discovery Layers – Top Tech Trends 2," blog entry by Lorcan Dempsey, July 4, 2010, <http://orweblog.oclc.org/archives/002116.html>.
3. EAD in Endeca task group members included: Lynn Holdzkom (UNC-Chapel Hill), Noah Huffman (Duke), Rusty Koonts (Duke Medical Center Archives), Derek Rodriguez (TRLN), and Linda Sellars (NCSU).
4. Michael J. Fox, "Why Do We Do This to Ourselves? On Being Structured in an Unstructured World." Paper presented at the annual meeting of the Society of American Archivists, Washington, D.C., August 12, 2010.
5. In February 2010, SAA charged the Technical Subcommittee for Encoded Archival Description (TS-EAD) to undertake a revision of the EAD standard within a 5 year period; A recent survey conducted by OCLC research indicates that 45 percent of archival repositories surveyed use Archivists' Toolkit or Archon to create EAD finding aids (See: Jackie M. Dooley and Katherine Luce, "Taking Our Pulse: The OCLC Research Survey of Special Collections and Archives," OCLC Research (October 2010), <http://www.oclc.org/research/publications/library/2010/2010-11.pdf>).

2010 Gene J. Williams Award Winner

The Gene J. Williams Award, presented annually by the Society of North Carolina Archivists, recognizes excellence for a paper on an archival topic written by a North Carolina graduate student for a graduate-level course. This award honors the late Gene J. Williams, archivist at the North Carolina Division of Archives and History and at East Carolina University, and charter member of the Society of North Carolina Archivists.

Usability Studies of Online Finding Aids: A Content Analysis of the Literature, 1998-2008 by Emily Walters

Abstract

This study examines articles published between 1998 and 2008 that report on the usability of online finding aids. In an attempt to better understand the body of literature that exists on the usability of online finding aids, information about the publication, contributors, and study methods were coded and analyzed. Results showed that professors, practitioners, and students are publishing these studies about equally in the following sources: *American Archivist*, *Archivaria*, *Journal of Archival Organization*, and as master's papers at the School of Information and Library Science at the University of Chapel Hill. All but two studies were published in 2004 or later; one third of the total studies were published in 2008 alone. On-site usability testing is the most frequently employed data collection technique. Studies overwhelmingly engaged subjects in retrieval tasks during

the study. Display issues were most troublesome for subjects. Additionally, a variety of reporting practices were observed which made conducting the analysis that much more difficult because it was often difficult to determine what was actually done in the studies. Therefore, recommendations have been made for reporting on empirical studies that employ human subjects.

Introduction

Finding aids are descriptive objects created to facilitate people's use of archival collections.¹ These descriptive objects, usually written by archivists for researchers, act as guides to archival collections and are intended to make navigation of collections more efficient.² In the past, it was necessary for users to physically visit an archive to view finding aids and locate materials. As such, users were required to interact with archivists, who served as interpreters of finding aids because, "Archivists have tended to prepare their finding aids in a language and manner they are more comfortable with than are the researchers seeking to use archives."³

The advent of the Internet changed traditional service models in archives, "erod[ing] the close relationship between researcher and archivist."⁴ Because the Internet made information immediately accessible, user expectations of archives changed.⁵ Archives responded, and in the past fifteen years, archives have been mounting finding aids online, changing forever the model of service for archives. In 2004 Christina Hostetter predicted that 60 to 100 percent of all processed collections will have online finding aids in the next decade.⁶

Online finding aids are far more accessible than their paper counterparts. Users are no longer limited to one access point (the reading room or reference desk) and instead can access finding aids through a variety of access points (Google, library web pages, OPACs). This multiplicity of access points has changed the way in which archival research is conducted; more users expect to be able to conduct research without ever visiting an archive.⁷ Whittaker notes, “we can no longer control all the haystacks in which to go searching for needles. People do not have to come to the reading room to see our idiosyncratic descriptions and finding aids.”⁸ Because users are no longer encountering the archivist-as-interpreter model of service, it is imperative that finding aids are as usable as possible, because these descriptions now serve as the sole guide to collections. Archives cannot simply make this content accessible; it must be easy to use and must meet the needs of users.⁹

Because online finding aids are structurally and informationally complex, it is challenging to provide content to users, especially those unfamiliar with archival terminology, clearly and efficiently.¹⁰ Despite challenges, it is necessary that libraries and archives design services with usability in mind and create interfaces that display information in usable ways. Van Schaik and Ling state, “Design for usability is of principal importance in order to attract and retain visitors to both commercial and non-commercial Web sites.”¹¹

To create usable archival services, web usability practices must be incorporated into the design of online finding aids. Usability, for the purposes of this paper, can be defined as “the effectiveness, efficiency, and satisfaction with which specified users can achieve goals in particular

environments.”¹² In a virtual environment it is challenging to know who the users are and what their tasks will be, therefore making usability tests a challenge to design and create. Conducting a usability study is one way to determine a website’s audiences and purposes.

Usability studies seek to determine “users’ thoughts, opinions, and needs and to determine whether users can navigate the site easily and retrieve the information they are seeking.”¹³ A typical usability study life cycle consists of first identifying target audiences, conducting formalized tests, and analyzing the results.¹⁴ Iterative testing is ideal, but very often time and budget constraints prevent repeated testing.¹⁵

An understanding of users' needs is the first step in developing usable web services. Archivists have called for a more complete understanding of how users use archival resources,¹⁶ and that call has been answered with online finding aid usability studies.¹⁷ Because there has not yet been a review of this research, not much is known about the body of literature as a whole. A greater understanding of this body of literature is needed and will aid in the further development of usable archival systems. A content analysis of these studies will help answer the following questions:

RQ1: How much literature exists on the usability of online finding aids? Who is writing these articles? In what sources are these articles published?

RQ2: What methods are employed in these studies?

Specifically: How many subjects are employed? What types of subjects are employed? How are these subjects recruited? What is the most common data collection technique for conducting usability testing for online finding aid studies? What sorts of tasks are subjects asked to complete?

RQ3: What are the major findings of online finding aid usability testing?

This research will review usability studies published from 1998 to 2008 in an attempt to better understand who is conducting these studies, how online finding aid usability tests are being conducted, and the outcomes of these studies. The findings of this study will establish a more complete understanding of online finding aid usability studies that will be potentially beneficial for the archival community.

Literature Review

This review will examine literature about the nature of usability testing in libraries and archives and highlight several online finding aid usability case studies. The case studies will be analyzed in greater detail in the Results section.

Usability Testing In Library and Information Science: A Case for Usability Testing

Usability studies are a vital part of designing efficient and usable systems. Craven and Booth note that, “usability studies and user testing are emerging as an important feature of service design and development.”¹⁸ Libraries promote much of their content on library web pages; therefore it is critical that users can efficiently use the information displayed on library websites. Usability testing is necessary to ensure that users’ needs are being met.¹⁹ Chen et al. notes that, “focusing on usability will help to limit user frustration and enhance a site’s functionality.”²⁰ Traditionally, libraries most frequently employ usability testing on the library’s main page and the OPAC, but there

exists a need to test lower-level pages as well as web services that extend beyond the OPAC.²¹

Reviews of Usability Testing and Measures

The following studies systematically reviewed usability guidelines and tests. In 2009, Chen et al. surveyed 113 ARL libraries to determine whether web usability Policies/Standards/ Guidelines (PSGs) existed. Additionally, Chen et al. identified “the levels of difficulty surrounding implementation, the impact of PSGs on actual usability practice...and the relationship between ARL ranking and usability practice or PSGs.”²² Chen et al. found that 85 percent of libraries surveyed had conducted usability testing, but only 30 percent had PSGs.²³ This study reports that the most common usability testing methods employed by ARL libraries were in-person observations and think-aloud protocols and that students, faculty, and staff were most commonly tested.²⁴

Kasper Hornbaek reviewed 180 studies from human-computer interactions literature in an effort to understand current usability measures.²⁵ To be considered for this study, the following criteria were required: the results or method of a study must report quantified data on usability measures, studies that focused on human users and interfaces (as opposed to cognitive models), and studies must use measures of usability to describe differences in interactions between human users and interfaces.²⁶ Effectiveness, efficiency, and satisfaction were the three categories used to classify the measure of usability.²⁷

When reporting measures of usability, Hornbaek found that 22 percent of studies reported no measures of effectiveness.²⁸ Hornbaek found “that a number of studies

combine usability measures into a single measure, report the combined values, [and] make statistical tests on the combinations.”²⁹ Though these combinations simplify data analysis, Hornbaek concludes that “combined measures do not lead to clarity in analysing and reporting the results.”³⁰ This research reported that 57 percent of studies measured “time” as the amount of time taken to complete a task, though even this measurement varied.³¹ While satisfaction is commonly measured, the details on how that data is gathered are not readily reported in most studies.³² Hornbaek found that “approximately one quarter of the studies do not assess the outcome of the users’ interaction, leaving unsupported any broad claims about usability.”³³

Usability Testing Guidelines

Several articles provide how-to methods for conducting usability studies in libraries. In their 2006 article Craven and Booth outline a checklist for usability testing based on their examination of usability case studies. Craven and Booth describe and provide information on each of the following items for usability testing: choosing objectives for the usability test; deciding on the type and number of participants; recruitment of participants; pilot testing; ethics; conducting the test; transcribing the data; data analysis; and reporting the findings.³⁴ Genuis offers descriptions of common usability testing types including card sorting, focus groups, questionnaires, and formal usability testing.³⁵ Guenther lists usability testing methods and provides instructions for in-house usability testing (as opposed to outsourced testing).³⁶ Guenther’s guidelines include identifying and recruiting users; designing the test, determining test criteria, measurement, and data collection

instrument; developing materials; conducting the usability test and documenting the results; and finally, analyzing the data.³⁷

Usability testing is important for the success of library's web services, though analysis of usability testing in the library and information science field shows that the way in which usability tests are conducted varies. This variation illustrates the need for an understanding of common data collection techniques employed in the testing of online finding aids.

Online Finding Aid Usability Case Studies

Duff and Stoyanova analyzed the results of focus group discussions about online finding aid usability, determining that subjects preferred archival displays incorporating web design guidelines over then-current systems.³⁸ Duff and Stoyanova were among the first to discuss the importance of web design guidelines when designing archival finding aids. They state, "The results from this study indicate that users preferred an archival display created according to design guidelines over archival displays produced from existing systems."³⁹

In another study Altman and Nemmers employed usability testing to inform the first phase of the Pepper OnLine Archival Retrieval and Information System (POLARIS) project at Florida State University Libraries. Surveyed subjects reported that the search and navigation of the online finding aid was useful and found that the online finding aid was more efficient than traditional paper finding aids.⁴⁰

In 2004 Prom hypothesized "that experts and novices employ different search strategies and reach

different search results.”⁴¹ Prom found that subjects reporting computer expertise performed nearly as well as those subjects reporting archival expertise, leading Prom to conclude that “archival and computer expertise are both important predictors of efficient finding aid usage.”⁴² Prom found that all subjects struggled with terminology and suggested that archives “avoid archival terminology.”⁴³ Prom concluded, “it is unlikely that on-line finding aids will ever make the chaotic nature of archival systems wholly understandable to archives users.”⁴⁴

The purpose of Yakel’s 2004 study was to identify and examine “design and content elements that inhibited the convergence of EAD interfaces and the users’ worlds and acted as barriers rather than boundary objects between users and archival collections.”⁴⁵

Yakel found the results to be “disappointing” in terms of user understanding.⁴⁶ She found that subjects had difficulty with “terminology, search functions, and contents display issues.”⁴⁷ The study found that finding aids acted as “both barriers and boundary spanners.”⁴⁸

Scheir’s 2006 study tested the routes novice users take to locate archival materials within an online finding aid in order to determine which of those features are useful and those that are not. Scheir found that though participants were confused by archival terminology, their use of the finding aid was not hindered.⁴⁹ Additionally, Scheir noted that novice users were generally able to adapt, self-educating during the study.

In 2008 Dowell conducted a study to “reveal some of the usability issues particularly related to the Web sites of rare book and manuscript libraries.”⁵⁰ Dowell found that participants struggled with terminology: “The results of

almost every task raised questions about the vocabulary selected for headings and menus.”⁵¹ Additionally, Dowell found that participants encountered issues with context.

Nimer and Daines conducted usability testing to inform the finding aid redesign process. Nimer and Daines found that subjects generally dislike the entire EAD structure.⁵² They found that while subjects wanted simple paths to information, too much simplification prevented subjects from understanding the context of the collection’s content. As Scheir found, Nimer and Daines found that neither novice nor experienced subjects’ struggle with terminology hindered their use of the finding aid.

The diversified results point to the need for some coalescence of online finding aid usability study findings. Without some sort of qualitative assessment of these studies, the archival field will continue to duplicate efforts and will not have the opportunity to learn from the findings of their peers. This sort of content analysis is particularly timely because usability tests will be used increasingly in an attempt to design web services that are understood by most subjects.

Method

This research uses content analysis to analyze usability studies of online finding aids. Content analysis examines attributes of content in order to infer suppositions about a set of materials. Klaus Krippendorff (1980) defines content analysis as “a research technique for making replicable and valid inferences from data to their context.”⁵³ Bernard Berelson (1952) defines it in this way: “Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication.”⁵⁴

The systematic examination of content can be either quantitative or qualitative. Quantitative content analysis is deductive and the results are usually more generalizable than the results from qualitative content analysis.⁵⁵ Quantitative content analysis usually has large samples,⁵⁶ focuses on “numerically measurable objectives,”⁵⁷ and draws on deductive reasoning to examine content.

As opposed to quantitative content analysis, qualitative content analysis research is able to observe meaning beyond that of simply what is present within the text. Zhang and Wildemuth define it in this way: “Qualitative content analysis goes beyond merely counting words or extracting objective content from texts to examine meanings, themes, and patterns that may be manifest or latent in a particular text.”⁵⁸ Qualitative content analysis is a “process designed to condense raw data into categories or themes based on valid inference and interpretation.”⁵⁹ Due to the variance in the ways that usability tests are conducted, data is collected, and findings are reported, it will be necessary to make inferences and to interpret the data. Therefore this study will systematically review documents as a form of content analysis.

Sample

As this study seeks to draw conclusions about online finding aid usability studies from across the field, an attempt was made to establish a census sample of all articles reporting on such studies, though the resulting data set most likely only approximates a census sample because of accessibility issues and exclusion decisions made during the course of the study. Nevertheless, every effort was made to

identify all articles that were appropriate for the scope of this study.

Only peer-reviewed journal articles were considered. The inclusion of which journals to include was based on the archival journal rankings proposed by an international group of archives and records academics for the 2009 Archival Education Research Institute (AERI) Conference (please see Appendix A for the complete list of journal rankings). Journals receiving a score of “A+” or “A” were selected for inclusion in the sample. The following journals were included: *Archival Science*, *Archivaria*, *American Archivist*, *Journal of the Society of Archivists*, *Archives and Manuscripts*, and *The Records Management Journal*. Additionally, because of known usability studies, *The Journal of Archival Organization*. An attempt was made to access all journals through the library system of the University of North Carolina at Chapel Hill. *The Records Management Journal* was not accessible and therefore was not included in the sample.

Master's papers from the University of North Carolina at Chapel Hill's School of Information and Library Science were also included in the sample. In addition to known usability studies, master's papers were included in an effort to better understand the type of researchers (academic, practitioner, graduate student) conducting this type of research. The following fields of the master's paper index were searched using the term “finding aid”: “Title Keyword or Phrase,” “Abstract Keyword or Phrase,” and “Subject Keyword or Phrase.” Master's papers were accessed online through the School of Information and Library Science at the University of North Carolina at Chapel Hill.

Each journal and master's paper was examined

manually for articles reporting on results of an empirical evaluation of the usability of online finding aids. Article titles and abstracts (when available) were read in an attempt to ascertain the subject of the article. When it was not possible to determine whether an article was about an online finding aid usability study from the title and abstract, the article was read for understanding.

To be included, articles needed to report a specific usability study and report what subjects were tested, what online finding aids were tested, and the results of the test. Articles that reported users' perceptions of finding aids or the information seeking behaviors of archival researchers were excluded from this study.

Finally, to be included studies must be peer-reviewed*, written in English and have been published between 1998 and 2008. This time frame was chosen because it is believed that the first online finding aid usability study was published in 1998 by Duff and Stoyanova. Due to the scope of this paper, a ten year time period was believed to be manageable.

Data Collection

Due to the lack of consistency in reporting practices in the literature, an open approach to coding was necessary. The lack of systematic reporting is problematic as it complicates this sort of review. Therefore, the code sheet used to collect data consisted of six broad categories of variables (as opposed to specific variables): "Publication

** Master's papers published by students of the School of Information and Library Science at UNC-CH are not peer-reviewed, but are reviewed by faculty members prior to publication.*

Information,” “Subjects,” “Study Method,” “Types of Tasks,” and “Findings.”

In the “Publication Information” category, information on the author, title of the journal, and the year of publication were captured. This data was analyzed to show which authors are most prolific in this field, which journals most frequently publish online finding aid usability studies, and when these articles were published. In addition to the author’s name, information about the type of researcher (practitioner, professor, or student) and their affiliation were recorded. This information helps to determine who is publishing these studies: practitioners or academics.

The “Subject type” category documents the type of subjects, the number of subjects, and the recruitment of subjects. Analyzing this data illustrates the average number of subjects, the type of subjects most frequently tested, and the way these subjects are recruited, all of which will aid the creation of future usability tests.

The “Study Method” section will capture the specific study methods employed in each study. “Types of Tasks” will record information about tasks used in testing. In addition to illustrating the most frequently employed task type, this data helps to illustrate the reporting practices of study authors.

The findings of each study were recorded in the “Findings” section. This data helps to build an understanding of how subjects interact with online finding aids. Gathering assessment information is a vital component when analyzing the current state of online finding aid usability studies.

After all articles were identified, the articles were read once for general understanding. Articles were read a second time and coded according to the code book in a

Microsoft Excel document (see Appendix B). The resulting data was sorted and analyzed.

Results and Discussion

This section reports on the findings of this study and offers observations on the reporting practices of the articles examined.

Publication Information

How much literature exists on the usability of online finding aids? Nine articles were identified for this study. The articles and their associated codes appear in Table 1.

All but two of the articles were published in 2004 or later; one third of the total articles were published in 2008. Articles appeared in one of three journals (*American Archivist*, *Archivaria*, or *Journal of Archival Organization*) or were published as master's papers at the School of Information and Library Science at the University of North Carolina at Chapel Hill.

Author Information

What authors are writing these articles? The nine articles identified for this study represent the work of 12 authors. Table 2 illustrates the authors represented in this study.

Though there has been a concentrated research effort to examine the information seeking behaviors of archival users,⁶⁰ no author has exhibited a concentrated research effort in the area of online finding aid usability. Each of the 12 authors represented in this study published only a single piece on online finding aid usability during the

Table 1. Article codes

Article Title	Author	Source	Year	Author Affiliation	Article Code
The Usability of On-Line Archival Resources: The Polaris Project Finding Aid	Altman, Burt & Nemmers, John R.	<i>American Archivist</i>	2001	Florida State University Libraries	Article1
User Interactions with Electronic Finding Aids in a Controlled Setting	Prom, Christopher	<i>American Archivist</i>	2004	University of Illinois at Urbana-Champaign	Article2
Transforming the Crazy Quilt: Archival Displays from a Users' Point of View	Duff, Wendy & Stoyanova, Penka	<i>Archivaria</i>	1998	University of Toronto	Article3
Encoded Archival Description: Are Finding Aids Boundary Spanners or Barriers for Users?	Yakel, Elizabeth	<i>Journal of Archival Organization</i>	2004	University of Michigan	Article4
First Entry: Report on a Qualitative Exploratory Study of Novice User Experience with Online Finding Aids	Scheir, Wendy	<i>Journal of Archival Organization</i>	2006	Rutgers University Libraries	Article5
What Do You Mean It Doesn't Make Sense? Redesigning Finding Aids from the User's Perspective	Nimer, Cory & Daines, J. Gordon III	<i>Journal of Archival Organization</i>	2008	Brigham Young University	Article6
The Finding Aid Container List Optimization Survey: Recommendations for Web Usability	Howard, Dawn E.	<i>SILS master's paper</i>	2006	University of North Carolina at Chapel Hill	Article7
What Would Users Do? An Empirical Analysis of User Interaction with Online Finding Aids	Chapman, Joyce C.	<i>SILS master's paper</i>	2008	University of North Carolina at Chapel Hill	Article8
A Qualitative Study of the Experiences of Novice Undergraduate Students with Online Finding Aids	Johnston, Rita D.	<i>SILS master's paper</i>	2008	University of North Carolina at Chapel Hill	Article9

Table 2. Article authors

Article	Author
Article1	Altman, Burt and Nemmers, John R.
Article2	Prom, Christopher J.
Article3	Duff, Wendy and Stoyanova, Penka
Article4	Yakel, Elizabeth
Article5	Scheir, Wendy
Article6	Nimer, Cory and Daines, J. Gordon III
Article7	Howard, Dawn E.
Article8	Chapman, Joyce C.
Article9	Johnston, Rita D.

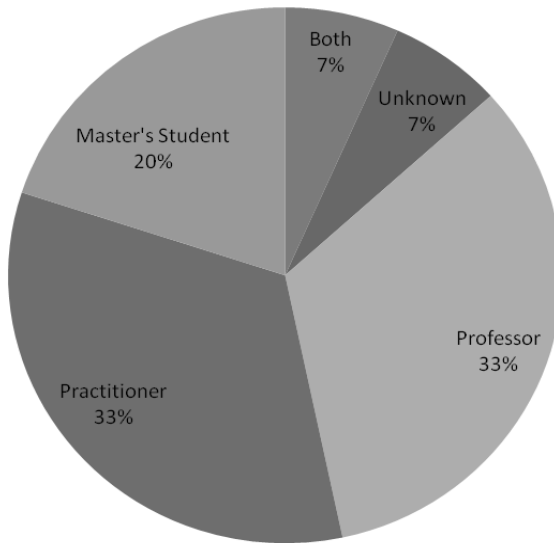
chosen ten year time frame. As usability testing is an iterative process, further testing and reporting is necessary and beneficial for both the tested system and the archival community at large. Further research in this area would both inform and promote an environment of recurrent usability testing in a way that one-off studies cannot.

This study examined the type of authors conducting online finding aid usability studies. Figure1 illustrates the type of authors represented in this study.

This study found that practitioner-authors and professor-authors each accounted 33 percent of the examined studies. This finding is in contrast to Watson-Boone's 2000 study that found that practitioner-authors accounted for 43

Fig. 1. Type of researcher

Type of Researcher



percent of articles published in the *Journal of Academic Librarianship* between 1985 and 1995.⁶¹

However, Watson-Boone considered a larger sample that contained a more diverse representation of topical areas. Though practitioner-authors published fewer articles than previously found, it is encouraging to see practitioners publishing this type of work despite the fact that practitioners very often do not have the resources (time, financial, staff, etcetera) to conduct this type of study or support a sustained research program.⁶²

Despite the split between practitioner-authors and professor-authors, it is important to note that all the authors

Table 3. Author Affiliation

Institution	Number of Authors Affiliated	Percentage
University of North Carolina at Chapel Hill	3	25%
Florida State University	2	17%
Brigham Young University	2	17%
Rutgers University	1	9%
University of Illinois at Urbana-Champaign	1	8%
University of Michigan	1	8%
University of Toronto	1	8%
Unknown	1	8%

in this study were, at the time of publication, affiliated with a university as opposed to a public or private archives or library setting. Table 3 illustrates the affiliation of each author.

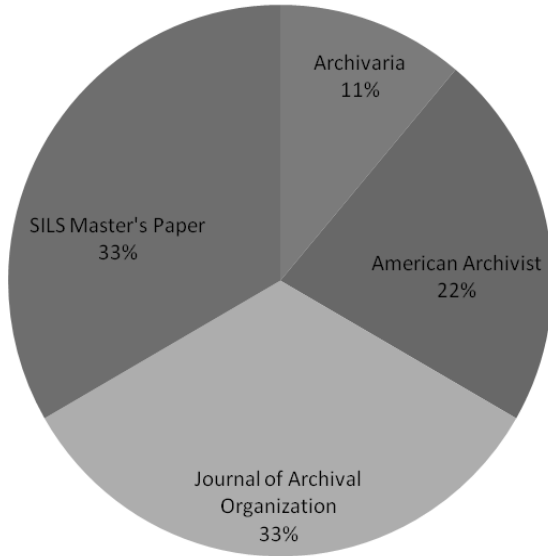
Student-authors (all Master's of Library or Information Science students at UNC-CH's School of Information and Library Science) accounted for 20 percent of examined articles. This high percentage of student-authors is encouraging as this sort of research is needed for problem solving and better decision making in the archival field.

Source Information

The *Journal of Archival Organization* and University of North Carolina at Chapel Hill's School of Information and Library Science (SILS) master's papers were the two most common sources of publication of articles discussing online finding aid usability testing. *American Archivist* was the second most common, followed by

Fig. 2. Articles by source

Articles by Source



Archivaria. Figure 2 represents the publication source of the nine articles.

Year of Publication

Results found that a third (33 percent) of the articles were published in 2008. Figure 3 shows the increase of articles during this study's time frame.

It is not surprising that the number of online finding aid usability tests increased during the ten year time period examined as computer use in all parts of life has increased. Online finding aids have become increasingly common and therefore the need for testing has increased. However, the

Fig. 3. Articles by year

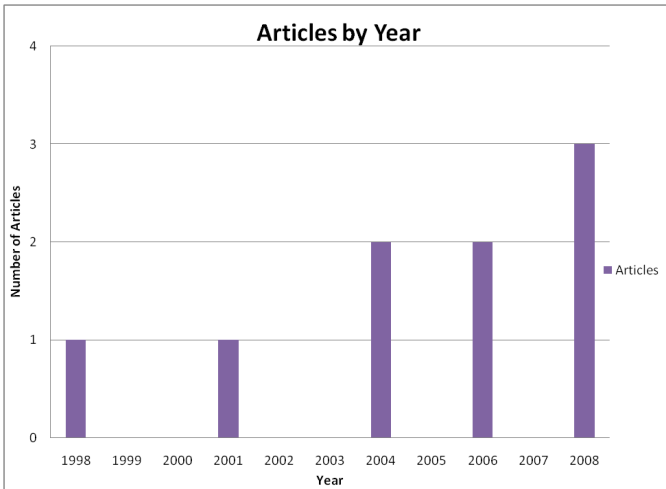
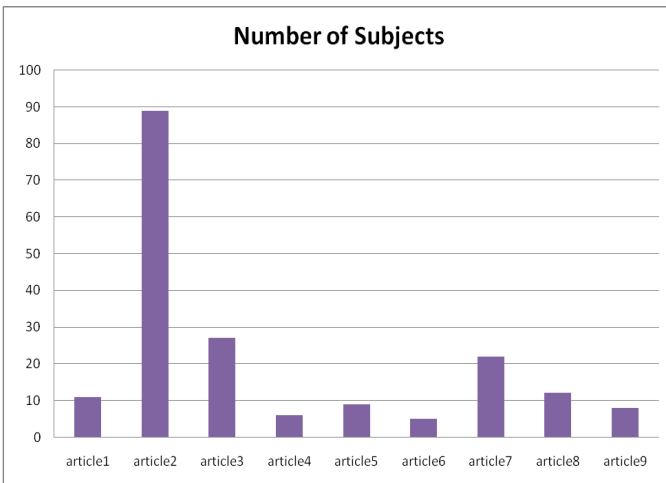


Fig. 4. Number of subjects



increase in studies does not seem sufficient given the number of archives and libraries that now mount finding aids online.

Table 4. Number of subjects

Mean	Median	Standard Deviation	Range
22.44 subjects	12 subjects	26.56	83

Subjects

The number of subjects is an important feature of usability testing. This study examined the number of subjects employed in online finding aid usability testing. Figure 4 displays the numbers of subjects.

Table 4 shows the mean, median, standard deviation, and range for the number of subjects in the study.

It is important to observe that Article 2 (Christopher J. Prom’s “User Interactions with Electronic Finding Aids in a Controlled Setting”) employed 89 subjects, creating a wide range in the number of subjects and thus slightly skewing the data. Prom conducted both an on-site usability test and an off-site test which may account for the large number of subjects employed in his study. Additionally, it is important to note that three of the nine studies examined were those written by students pursuing a master’s in Library or Information Science. Typically, students have less time in which to conduct a study and fewer financial resources to offer subjects as incentives. Despite this consideration, the master’s students in this study managed to recruit and test subjects on par with other examined studies.

What types of subjects are employed in online finding aid usability testing? Table 5 displays the number of subjects, type of subjects, and specific data about subjects employed in the studies examined.

Of the studies that examined only novice users, two of the three tested only subjects with master’s degrees or

Table 5. Subject type

	Article1	Article2	Article3	Article4	Article5	Article6	Article7	Article8	Article9
Number of Subjects	11	89	27	6	9	5	22	12	8
Type of subjects									
Knowledge of Archives	Expert	Both	Expert	Novice	Novice	Both	Expert	Both	Novice
General Public		X	X			X		X	
Under-graduate Degree		X	X		X	X			X
Master's Degree		X	X	X	X	X	X	X	
Doctorate Degree		X	X	X	X	X	X	X	
Unstated	X								

Table 6. Recruitment of subjects

	Article1	Article2	Article3	Article4	Article5	Article6	Article7	Article8	Article9
Recruitment: Flyers		X							X
Recruitment: Emails		X	X		X		X		X
Recruitment: Not stated	X			X		X		X	

higher (the third study reported on undergraduate novice archival subjects). In the studies that examined expert users and novice users, all of the examined studies recruited subjects with various educational backgrounds. Testing of novices and expert users is even.

How were these subjects recruited? Table 6 illustrates the methods used to recruit subjects. Emails were most commonly used to recruit subjects for testing.

In nearly half of the examined studies, the author did not fully report the recruitment procedures. No study reported on whether or not incentives were used.

Table 7. Study methods

Study Method	Number of Articles that Employed Study Method	Percentage
On-site Usability Test	5	56%
Off-site Usability Testing	2	22%
Focus Group	1	11%
Questionnaire	1	11%

Study Method

What is the most common data collection technique for conducting usability testing for online finding aids? Table 7 shows the primary study methods represented in this study.

Findings show that on-site usability testing was the most frequent study method employed. Focus groups and questionnaires were used least often as a primary method of data collection. Most on-site and off-site usability tests used additional data collection techniques such as questionnaires and interview. Often participants were surveyed in order to

collect demographic information prior to usability testing and were interviewed as a follow-up to usability testing. The study method used to test the online finding aid or online finding aid system was coded as the primary study method.

Tasks

What sorts of tasks are subjects asked to complete? Overwhelmingly these studies engaged subjects in retrieval tasks. These tasks asked subjects to find items within a finding aid. Items could be intellectual concepts, such as series or subseries, or physical objects such as boxes or folders. One study asked subjects to compare different finding aid displays and discuss likes and dislikes. Another study had subjects rate the ease of use of a particular finding aid (though no official usability test was employed) using a multiple choice questionnaire.

Findings

What are the major findings of online finding aid usability testing? Tables 8 and 9 illustrate the areas in which subjects struggled during testing.

Subjects mentioned display issues most frequently as causes of confusion in finding aids. Terminology was reported as the second most problematic aspect, though interestingly 19 percent of subjects said that it did not hinder their use of the finding aid (ten percent reported that terminology did hinder use). Searching, help functionality, navigation, and amount of context were also mentioned. The findings appear to be somewhat conflicting. Some studies showed that searching can confuse subjects, while others showed that subjects want searching. The issue of terminology is an interesting one. Nearly a third of all

Table 8. Problem areas I

Terminology 1 = was mentioned as a trouble area, but did not hinder success

Terminology 2 = was mentioned and did hinder success

	Article1	Article2	Article3	Article4	Article5	Article6	Article7	Article8	Article9
Context						X			
Display			X	X	X	X	X		X
Help	X								X
Navigation	X				X				
Search		X		X			X		X
Terminology 1					X	X		X	X
Terminology 2			X	X					

Table 9. Problem areas II

Theme	Number of sources that cited this theme	Percentage
Display	6	29%
Terminology 1	4	19%
Search	4	19%
Terminology 2	2	10%
Help	2	9%
Navigation	2	9%
Context	1	5%

subjects mentioned terminology as a problem with finding aids though only one third of these subjects reported it to be enough of a problem to hinder success. This raises questions of the truthfulness of subjects and whether they accurately report areas in which they struggle. Another possible explanation is that subjects are able to succeed despite poorly designed systems.

Most studies had few positive things to say about online finding aids. The two most common themes that surfaced was the subject's use of ctrl+f and the subject's ability to self-educate during the course of the usability testing. Examined studies showed that subjects were able to locate items by using the browser's ctrl+f (the "Find in page" function) as opposed to finding items using an understanding of online finding aids. This sort of finding is inherently negative as it requires subjects to employ a work around to the created system in order to be successful. A second positive theme common throughout the studies was that subjects were able to self-educate during the course of the study. This means that subjects learned enough throughout

the course of the study to work more efficiently at the end of the study than at the beginning. This is a common usability testing, but it is not necessarily positive. Again, it seems that these authors are relying on the ability of subjects to learn how to cope with a bad system rather than working to design a useful, intuitive system.

Over half of the studies reported that computer expertise played a role in a subject's success with a finding aid. Closer examination of these results shows that "computer expertise" was really a misnomer. Authors were really describing users' search expertise. One study found that "both factors [computer expertise and archival expertise] play significant and roughly comparable roles in the efficient navigation through electronic finding aids."⁶³ This type of claim relieves some of the onus on online finding aid creators and instead places that burden on users of the system.

Overall, due to the variations and inconsistencies that existed in the reporting of these studies, it was difficult to make generalizations and summaries of the data.

Observations about Reporting Practices

In conducting this study, a variety of reporting practices were observed. This made conducting the analysis that much more difficult because it was often difficult to determine what was actually done in the studies and in many cases, key pieces of information about the method were missing. While various standards and styles exist for more traditional types of archives scholarship, many of these do not provide guidelines about how to report results of empirical studies with human subjects. Of course, one of the most important reasons for providing a detailed description

of method is to ensure replicability. It also provides reviewers with better information about which to determine the believability of the study results. Finally, it helps facilitate retrospective reviews of the literature (such as this one) which are likely to become increasingly important as more usability studies are conducted.

The publication manual of the American Psychological Association (APA) provides guidance about how to report empirical studies with human subjects. These recommendations require authors to fully report information on subjects, the recruitment of subjects, study methods, and results. This adherence to guidelines would help authors create more useful data. Based on the sample of articles examined, the archival community could benefit from employing the recommendations of the APA Publication Manual. For example, the APA Publication Manual recommends that when human subjects are employed in a study, the recruitment procedures and incentives should be reported.⁶⁴ Additionally, the APA Publication Manual recommends that authors describe their study method in detail as it allows “the reader to evaluate the appropriateness of your methods and the reliability and the validity of your results.”⁶⁵ The lack of full methodological reporting could be, in part, due to the length requirements for scholarly articles. The master’s papers included in this study reported more fully on study methods used, perhaps because a page limit did not exist for the publication and this was a required as part of the paper. Ultimately, some discussion needs to take place in the archival community to improve reporting practices of usability studies so that more can be learned from the research.

Conclusion

Results showed that professors, practitioners, and students are publishing usability studies about equally in the following sources: *American Archivist*, *Archivaria*, *Journal of Archival Organization*, and as master's papers at the School of Information and Library Science at the University of Chapel Hill. All but two studies were published in 2004 or later; one third of the total studies were published in 2008 alone. The results of this study showed that usability testing accounted for more than 75 percent of the study methods used in online finding aid usability testing. Fifty-six percent of studies examined used on-site usability testing while an additional 22 percent used off-site usability testing.

Using content analysis, this study determined a significant number of studies reported users struggling with the following features of online finding aids: display, terminology, and searching. While more than half of those studies that reported users struggled with terminology note that this did not hinder their overall success, it continues to be an important theme. Overwhelmingly, the most important finding of note was the lack of consistent reporting in these articles. This lack of reporting made the answering of this study's research questions difficult. Because such discrepancies exist in the reporting of findings of online finding aid usability studies, it is nearly impossible to draw conclusions about the work as a whole. Because such a summation is impossible to make, the record of research published on this subject is unable to inform future testing and creation of finding aids.

Emily Walters submitted this master's paper to the School of Information and Library Science at the University of North Carolina at Chapel Hill in the spring of 2010. She currently is the project manager for the CLIR-funded Changing the Landscape project at North Carolina State University Libraries.

APPENDICES

Appendix A: Journal Rankings

The entirety of the following journal ranking summary can be found at this web address:

<http://aeri2009.files.wordpress.com/2009/05/archival-journal-ranking-aeri.doc>.

Proposed Journal Ranking List for Archives and Records Management

Title	Proposed Rank
<i>Archival science</i>	A+
<i>Archivaria</i>	A+
<i>American archivist</i>	A+
<i>Journal of the Society of Archivists (UK)</i>	A+
<i>Archives & manuscripts: Journal of the Australian Society of Archivists</i>	A
<i>The records management journal</i>	A
<i>Archives: The journal of the British Records Association</i>	B
<i>Information management journal (ARMA)</i>	B
<i>Archival issues – Journal of the Midwest Archives Conference</i>	B
<i>Archives & social studies: A journal of interdisciplinary studies</i>	B
<i>Libraries and the cultural record</i>	B
<i>Arkiv, samhälle och forskning (ASF)</i>	C
<i>IQ: InfoRMAA quarterly</i>	C
<i>Journal of archival organization</i>	C
<i>Library and archival security</i>	C

Appendix B: Codebook

Unit of Data Collection: Individual articles reporting on the findings of online usability testing.

Publication

Article Title: Report the article's title, including subtitle.

Article Publication: Report the journal title in which the article appears.

Contributors

Article Author(s): Report the article's author(s) (please report only the first four names that appear).

Article Author's Affiliation: Report the article's author's affiliation, if applicable.

Author's Affiliation Type: Report the author's affiliation type, if applicable.

Study Method

Subjects: Report in the number of subjects and type of subjects.

Data Collection Technique: Report the type of instrument used to gather this information.

Tasks: Report the nature of each task, purpose of task, time limitations given to complete each task, and number of tasks.

Findings: Report the findings.

Appendix C: Code Sheet

Code	Data	
Year		
Issue		
Number		
Journal Title		
Article Title		
Author		
Author Affiliation		
Affiliation Type		
Subjects	Number of Subjects	
	Type of Subjects	
Data Collection Technique		
Nature of Tasks		
Findings		

NOTES

1. Cory Nimer and J. Gordon Daines, III, "What Do You Mean it Doesn't Make Sense? Redesigning Finding Aids from the User's Perspective," *Journal of Archival Organization* 6, no. 4 (2008): 217, doi: 10.1080/15332740802433214.
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REVIEWS

Kathryn Burns. *Into the Archive: Writing and Power in Colonial Peru*. Durham: Duke University Press. 2010. 264p. Bibliography, glossary, illustrations, index, maps, and tables; \$24.95.

Joining her voice to those of scholars such as Ann Laura Stoler and Natalie Zemon Davis, Kathryn Burns calls on historians to treat archives as a fundamental part of research rather than simply mining the documents that lie therein. Her rich case study of colonial Peru interrogates the production of archival documents and thus has wide-ranging methodological implications for historians and archivists interested not only in colonial Latin America but also in legal history, the early modern period, and the power of writing.

Her clear and conversational writing style builds a convincing argument through visual and textual examples that show the constructed nature of truth in archival documents. Silences of many types, Burns insists, populate archives. Much was not written and many documents disappeared, but even the documents that remain are suspect, having been translated and polished, sometimes by several actors. The numerous and carefully chosen illustrations add immeasurably to the work. In seeing artistic doodles, blank pages with signatures, small pieces of paper with instructions for the notary, and handwriting gauged to fit the allotted space, we begin to understand the archival puzzles that inspired this monograph.

Taking an “ethnographic approach to the archive” (11), Burns systematically examines the process of document production. The main focus of her work is thus the

notaries who literally wrote the archive. Using notarial manuals, literary references, and archival documents, Burns illuminates the daily labor of document production, taking readers step-by-step through the creation of wills, mortgages, and legal statements. In the process, she highlights the gap between theory and practice and the overwhelming importance of local “custom” in determining notarial practice. For instance, despite repeatedly-stated regulations to the contrary, custom dictated that many clients would sign blank sheets of paper rather than waiting to verify the final product.

These customs come to life in her vivid portrayal of notarial workplaces, which housed the apprentices who did the actual labor of setting pen to paper while the notaries focused on composing proper formulaic phrases. This understanding of how labor was delegated informs Burns’s interpretation of the cover sheets of notarial registers. While many scholars might ignore these oddities in search of the wills, mortgages, and sales that might reveal colonial lives and possessions, Burns interrogates the doodles that often populate these pages. She notes that their array of swear words, “fanciful creatures,” and satirical caricatures seem like the work of “giggling, prepubescent boys” (68). In fact, given her analysis of apprentices’ background and duties, they probably were.

The inclusion of several tables that track the price paid for their office reveals notaries to be “word merchants” who had to turn a profit (65). The notaries in Burns’s Cuzco maneuvered within “complex webs of relations,” rather than neutral instruments, they were businessmen with their own financial and personal interests (57). They belonged to fraternal orders, had property to maintain, and had children

to place in religious orders. Burns thus approaches their work as business history, attempting to understand how, despite constant proclamations of absolute truth, they might have produced partisan documents.

From bribing notaries to withholding information, Burns reveals the weapons that both the powerful and the weak used to manipulate “notarial truth” (96). She reminds us that we cannot see lies and partial truths until we find another document that “unsettles” the first with different claims (129). Counter-contracts, for example, claimed duress or pure falsehood in attempts to reverse contractual terms. And many women used a notarial form called exclamation to influence the reading of other documents. Take, for example, two documents from 1701 and 1704 involving the property of Doña Clara de Montoya. In the first, a notary certified her intention to donate her house to her confessor. Written in the first person and signed by a witness, the instrument fulfilled all legal forms; Doña Clara’s intentions seem clear. Yet a 1704 exclamation composed by another notary declared that Doña Clara was pressured by the “large number of people present . . . and because the said Doctor Don Pedro de Oyardo was my confessor, I was ashamed to contest anything that was done” (125-126).

Carefully narrating how specific documents might illuminate the lives of colonial actors, Burns evaluates competing claims to truth and thus brings the reader into the process of historical research and writing. But Burns is not paralyzed by the contingent nature of these documents; she argues that by looking for patterns and “subtle differences, we can glimpse varying strategies of self-representation and self-defense” (109). We must always analyze these words, however, as a “blended, composite agency” that includes not

only the first-person subject but also the notary composer and perhaps even the apprentice who actually wrote the words (38).

These conclusions lead Burns to differ with the New Philologists, like James Lockhart, who work with indigenous-language notarial documents in Mexico. Their use of linguistic markers to draw conclusions about power and cultural change, Burns argues, assumes that indigenous notaries faithfully reproduced not only the desires but the words and grammatical constructions of their clients, something that notaries in Cuzco seldom did. In fact, their role was to purify and rephrase language, crafting it into the proper terms for the written record.

Burns insists that archives must be analyzed as “historical artifacts” that are “products of particular people’s labor” (15) and therefore must be read not for individual voices but rather as “an echo chamber of blended, collaborative agencies” (24). She urges readers to understand their sources according to a culturally- and regionally-specific process of production and preservation. In her conclusion, Burns thus proposes a new metaphor for archives: Rather than a mirror or a window into the past, she sees them as chessboards, a field on which many actors played out a strategy. In her words, “document making was like chess: full of gambits, scripted moves, and countermoves” (124).

This monograph explores the specificity of Spanish and Spanish American notarial practice and thus makes arguments about social actors and customs specific to a particular time and place: Cuzco from the late-sixteenth to the late-eighteenth century. Given the primary audience of Colonial Latin Americanists, despite the inclusion of a

glossary, some passages may be difficult for readers unfamiliar with Spanish-language terms. However, Burns's methodological arguments about document production will interest a much wider audience through a cogent analysis of the possibilities of historical research and the existence of power, truth, and fiction in the archive.

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Elena S. Danielson. *The Ethical Archivist*. Chicago: Society of American Archivists, 2010. 437p. Appendixes, index, and notes. \$49 (nonmember); \$35 (member).

Archivists often encounter ethical challenges when acquiring or processing collections, working with donors and researchers, or dealing with privacy issues. Elena S. Danielson has written a comprehensive book that deals with a number of ethical dilemmas archivists might encounter in their daily work. Danielson's writing style is concise and readable and she gives pertinent examples and case studies to enhance the reader's understanding of the various ethical topics covered in her book. Drawing from twenty-seven years of experience at Stanford University's Hoover Institution Archives, she has written articles and essays as well as lectured about ethics in the archival world.

Danielson divides *The Ethical Archivist* into eight chapters addressing codes of ethics, acquisition, disposal, access, the Cigarette Papers case study, privacy, authenticity and forgery, and displaced archives. At the end of most chapters is a list of approximately twenty questions for the reader to ponder about the topic covered in that chapter. Also

included are appendixes listing the codes of ethics for organizations such as the American Library Association and the Society of American Archivists, the acquisitions guidelines and collections management policy of the American Heritage Center of the University of Wyoming, a selective list of Federal legislation affecting access to private information, and a bibliography of works cited and end notes to the eight chapters. Archivists will find all eight chapters and the supplementary material useful in gaining insight for solving potential ethical predicaments; however, there are three chapters that I found particularly interesting and informative.

Chapter five is devoted to the Cigarette Papers case study and details the leaking of thousands of confidential internal documents by an anonymous Brown and Williamson Tobacco Corporation (B&W) employee to academic institutions, Congress, and the media. On May 12, 1994, approximately four thousand pages of B&W records arrived without warning at Professor Stanton A. Glantz's office at the University of California, San Francisco (UCSF). Glantz donated the papers to the UCSF library where the archivists processed the papers and opened the collection for public use. With a growing demand for access to the documents, the library scanned the records and made them available through the Internet. B&W sued the university to have the documents returned. After a lengthy battle, the courts found in favor of the university. Danielson summarizes, "The case is primarily about open and equal access to once-privileged proprietary, internal business archives. In addition, the study cuts across many other fundamental ethical topics: respect for property rights, the acquisition of stolen papers, the authentication of a gift without reliable provenance background, third-party

privacy in massive amounts of data, privileged circulation and use records, attorney-client privilege, freedom of information, and the right of citizens to be informed about important public health issues that affect their welfare” (165). The Cigarette Papers case makes interesting reading while illustrating many pertinent ethical issues.

In chapter seven, Danielson discusses the ethical, monetary, and criminal motivation for forgery and illustrates with case studies how distorted historical records have been used to steal national culture, manufacture conspiracy theories, and attack public figures. Monetary profit has been an important motive for creating forgeries, such as the case of the fake Adolph Hitler diaries sold to the German magazine, Stern, in 1983. She states that “the ethical archivist needs to develop a range of skill in assessing the genuineness of paper records, manuscripts, and archives” (224). Danielson also covers how archivists can authenticate digital documents and emails. In the absence of an “original” document and the ease with which digital documents can be altered, archivists need to develop skills to analyze and evaluate electronic documents that are placed in their care.

Danielson discusses displaced archives in chapter eight. Displaced archives are records or papers that have been confiscated, lost, requisitioned, purchased under duress, seized, or stolen. She gives several case studies on topics such as personal papers seized during war, classified documents found in private collections, and international stolen property. Every archivist in North Carolina should read the case study documenting the 2005 return of the North Carolina Bill of Rights after it was stolen by a Union soldier in 1865. This case proves that even after 140 years, stolen

archival material can be returned to its rightful owner. Danielson also writes about the principles and procedures that archivists should follow if they believe material has been stolen.

Danielson illustrates with case studies and examples how archivists often face ethical challenges when accessing and processing collections or dealing with donors and researchers. Overall, the case studies are the most interesting portions of the book since they provide examples of the types of ethical considerations an archivist might encounter. I would highly recommend that new and seasoned archivists read this book. *The Ethical Archivist* would be a good volume to add to any archivist's library.

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Michael Nash, ed. *How To Keep Union Records*. Chicago: Society of American Archivists, 2010. 228p. Appendixes, bibliography, illustrations, index, and notes. \$49 (nonmember); \$35 (member).

In 1992 the AFL-CIO's Labor's Heritage Press published *How To Keep Union Records: A Guide for Local Union Officers and Staff*. Debra Bernhardt, then director of the Tamiment Library and the Robert F. Wagner Labor Archives at New York University, wrote the pithy 44-page glossy manual to help union officials and office workers manage their active records in a manner that observed legal record keeping requirements and prepared their historical records for an easy transition to an archival repository. Having dedicated her archival career to labor union records

and dealing with labor union personnel provided Bernhardt with an ideal background to write the manual. She understood both labor union records and her audience, and produced a records management guide that was easy to use and practical.

Bernhardt's successor at the Tamiment Library and Wagner Labor Archives, Michael Nash, undertook the job of updating Bernhardt's guide. Nash and others knew that Bernhardt's guide had been popular in local union offices throughout the country, but that it had also become dated. More specifically, Bernhardt's guide was published prior to the explosion of digital records. The character of labor unions and the labor movement had also changed a good deal. Nash assembled an impressive group of labor archivists to author chapters related to their particular areas of expertise. The nine contributors either currently work at or have previously worked at some of the most important labor archives in the country, such as the aforementioned Wagner Labor Archives, the Walter P. Reuther Library of Labor and Urban Affairs at Wayne State University, the Historical Collections and Labor Archives in the Special Collections Library at Pennsylvania State University, the Southern Labor Archives at Georgia State University, the Kheel Center for Labor-Management Documentation and Archives at Cornell University, and the Teamsters Archives Project at the Special Collections Research Center at George Washington University.

The book addresses primary archival functions and a number of issues specific to labor archivists in a coherent and methodical fashion. There are chapters on records management (William LeFevre), appraisal (Thomas Connors), arrangement, description, and preservation (Nash),

reference (Diana Shenk), oral history (Lauren Kata), photographs and other non-print materials (Barbara Morley), and electronic records (Julia Sosnowsky and Nash). There are also chapters that explore the unique context under which labor archivists work. Here we find chapters that explore labor historiography, the history of labor archives and their importance in historical scholarship (Nash), donor relations and collecting (Pamela Hackbart-Dean), and labor union mergers (James Quigel). The book also includes two appendixes, a brief four-page bibliography and a lengthy (thirty-two-page) directory of labor archives in the U.S.

In the preface Nash refers to the book as a “revised and updated edition of *How to Keep Union Records*, which is only partly accurate (viii). The original intent when the project began in 2003 was to write a guide for local unionists. But after the funding for publication from the AFL-CIO evaporated, the essays were revised for a different audience, professional archivists, and the manuscript was published by the Society of American Archivists. Some of the essays made the transition more completely than others. The book is situated between the original goal of writing a manual that would be used by local unions and one for professional archivists who manage labor union records.

Professional archivists who work with labor records will find a good deal of the book’s content directly relevant to labor union records. For example, Michael Nash’s brief discussion of labor historiography and the history of labor archives (“Labor History and Archival Management”) provides the context for labor union records in both the academic and archival environments. Pamela Hackbart-Dean’s essay (“Unions and Labor Archives”) explores the unique relationships that have developed between unions and

repositories that collect their records. She includes examples of donor relations, deposit agreements, and financial assistance specific to institutions collecting labor union records. James Quigel discusses how the union merger trend has affected archival institutions that collect labor union records at the national and local levels. He seeks to make labor archivists aware of the challenges, provide possible solutions, and encourage archivists to consider mergers when developing loan or deposit agreements in the future so that these issues can be explicitly addressed in advance. These chapters efficiently provide an historical and current context that aptly explains the labor archives environment.

Most of the chapters that address traditional archival functions also attempt to do so in a manner that is relevant to those archivists working with labor union records. For instance, in his discussion of arrangement and description, Nash argues that the Greene and Meissner minimal processing philosophy that is currently in vogue “must be used with extreme caution” by labor archivists because it would make it more difficult for researchers to find “the voices of the rank and file, frontline organizers, and activists” that researchers have been most interested in accessing in recent times (87). William LeFevre’s chapter on records management follows the original Bernhardt manual by providing the legal environment and appropriate records schedules for the most common records produced by labor unions.

But labor archivists will also find that some of the information in the book is a basic review of information that is both rudimentary and at times not directly tied to working with labor records. Diana Shenk’s article on reference, for example, is a well-written and concise introduction to

archival reference and the related legal and ethical issues. But the chapter is not particular to labor union records and largely reviews information that most professional archivists will find familiar. The chapter on electronic records similarly provides a somewhat generic introduction to the challenges of born-digital records, but it does not address the issue in a way that is specific to labor union records. Lauren Kata's chapter on oral history is an excellent and succinct primer on how to create an institutional oral history project, but there is little that is particular to labor archives and it would likely be far more useful to those who had no prior exposure to oral history projects than professional archivists.

How To Keep Union Records is a welcome addition to the archival literature. The book hovers somewhere between the initial goal of the Bernhardt manual and its new audience of professional labor archivists. Motivated local unionists interested in their historical records and professional archivists will both find portions of the book useful. The audience that will perhaps find it most useful is archivists who work in repositories that have pockets of labor union records in their collection, although do not collect heavily in the field. These archivists will likely find *How To Keep Union Records* a handy reference to understanding and managing that part of their collection.

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The *Journal for the Society of North Carolina Archivists* seeks to support the theoretical, practical, and scholarly aspects of the archival professions by publishing articles and reviews related to curatorial issues (e.g., collection management and development), technical services (e.g., cataloging, processing, digital collections, EAD, preservation, conservation, etc.), and public services (reference, instruction, outreach) for special collections and archives.

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