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In an effort to move towards a practical and user-centered model for online finding aid navigation, this usability study asks -- what kind of navigational features are effective, efficient, and user-valued components within an academic archive's online finding aid? Using Princeton University's Finding Aid website as a prototype, the researcher collected quantitative as well as qualitative data from ten relatively inexperienced online finding aid users as they interacted with and reacted to the finding aid interface in question. The results of the study suggest major navigational difficulties experienced by users included ambiguous and/or unintuitive labeling, unclear relationships between tabs, and insufficient visual cues for certain navigational features. In contrast, user-valued navigation aids included centralized hyperlinked content, nested and hierarchical content tabs, and a collection-level search bar. The paper concludes with ten pragmatic guidelines for archival professionals trying to solve the ongoing puzzle of online archival finding aid usability.

Headings:

Finding aids -- Archival resources

Universities and Colleges -- Archives

Websites -- Use studies

User interfaces -- Human-computer interaction

Information retrieval -- Electronic information resource searching

Electronic information resources -- Evaluation

LOOKING FOR ANSWERS: A USABILITY STUDY OF ONLINE FINDING AID
NAVIGATION

by
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Introduction

“With a significant number of finding aids now online, we need to assess the various formats that have been employed and how effective they are for search and retrieval of information.”

– Christina J. Hostetter, “Online Finding Aids: Are they Practical?” *Journal of Archival Organization* 2, no. 1-2 (2004): 127.

The traditional archival finding aid was a physical document, crafted by an archivist, intended to represent the structure and content of a collection of materials which users could access within the controlled environment of a supervised reading room. However, in the last few decades the archival finding aid has transitioned from stagnant document to online interface. Online archival description represents a groundbreaking step forward in that it facilitates enhanced discovery through remote interaction with collection content and allows for wider and easier access to previously sequestered archival materials.

In the last decade or so, the professional literature has dealt deeply with archival description in the context of the World Wide Web. Since its emergence in the mid-1990s, there have been more than 30 articles dealing with online finding aids and Encoded Archival Description (EAD) in the *American Archivist* journal alone, and dozens more have been published in other major journals like the *Journal of Archival Organization*, *Technical Services Quarterly*, *Archives and Manuscripts*, and *The Journal of the Society of Archivists*. This professional discourse reveals that while the merits of online archival description have been sung by many,¹ most professionals agree

that there remains significant room for improvement for online finding aids, especially in the realm usability, navigation, and user interface design.²

The uniqueness and diversity of archival collections, their complicated history and context, and their hierarchical structure all make effective presentation of archival information on the web a challenge. In the past, archivists have been accused of developing and implementing online archival description without consideration of user needs.³ To date, there have been a dozen or so usability studies focused on online archival interfaces, and while most of these were relatively small in scope and scale,⁴ a few have been of a more sizable measure.⁵ Taken together, these studies have pointed to several potentially addressable usability issues. For example, well-recognized problems with online finding aids include confusing profession-specific jargon, lengthy blocks of text, long lists of folders and subfolders, and numerous links embedded within extensive descriptive hierarchies.⁶ Suggested solutions to these challenges have included simplified labeling terminologies,⁷ advanced keyword search options,⁸ and “quick links” for topical searching.⁹ Despite the fact that several finding aid usability studies have been conducted and written about within the professional literature, there has yet to be a consensus about what an ideal user interface might look like for online archival content, and certainly no model for finding aid navigation has been proposed.

Today, Christina Hostetter’s call for assessment of online finding aid interfaces through usability testing resonates as loudly as it ever did.¹⁰ On whole, relatively few academic archives have considered the added value that efficient and effective navigational features could offer online finding aids users. In response to this lacuna, the central research question asked in the current study is as follows:

What kinds of navigational features are effective, efficient, and user-valued components within an academic archive's online finding aid interface?

Answering this question will require, not just understanding the needs and expectations of users and testing navigational models, but also the marrying of two distinct literatures which, for the most part, have previously been siloed in their respective fields – (1) archival description standards and best practices (2) and user interface and website usability evaluation techniques. The following literature review will synthesize these corpora and contextualize the usability issues faced by online finding aid users.

¹ A. J. Gilliland-Swetland, "Popularizing the Finding Aid: Exploiting EAD to Enhance Online Discovery and Retrieval in Archival Information Systems by Diverse User Groups," *Journal of Internet Cataloging* 4, no. 3/4 (2001): 199-225; L. A. Morris, "Developing a Cooperative Intra-Institutional Approach to EAD Implementation: The Harvard/Radcliffe Digital Finding Aids Project," *American Archivist* 60, no. 4 (1997): 388-407; Janice E. Ruth, "Encoded Archival Description: A Structural Overview," *American Archivist* 60, no. 3 (1997): 310-329; Steven J. DeRose, "Navigation, Access, and Control Using Structured Information," *American Archivist* 60, no. 3 (1997): 298-309.

² Wendy Duff and Penka Stoyanova, "Transforming the Crazy Quilt: Archival Displays from a Users' Point of View," *Archivaria* 45, (1998): 44-79; Elizabeth Yakel, "Encoded Archival Description: Are Finding Aids Boundary Spanners or Barriers for Users?" *Journal of Archival Organization* 2, no. 1-2 (2004): 63-77; Jihyun Kim, "EAD Encoding and Display: A Content Analysis," *Journal of Archival Organization* 2, no. 3 (2004): 41-55; Rosalie Lack, "The Importance of User-Centered Design: Exploring Findings and Methods," *Journal of Archival Organization* 4, no. 1-2 (2007): 69-86; Xiaomu Zhou, "Examining Search Functions of EAD Finding Aids Web Sites," *Journal of Archival Organization* 4, no. 3-4 (2007): 99-118; Cory Nimer and J. G. Daines, "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): 216-232; J. G. Daines and Cory L. Nimer, "Re-Imagining Archival Display: Creating User-Friendly Finding Aids," *Journal of Archival Organization* 9, no. 1 (2011): 4-31; Morgan G. Daniels and Elizabeth Yakel, "Seek and You May Find: Successful Search in Online Finding Aid Systems," *The American Archivist* 73, no. 2 (2010): 535-568; Joyce Celeste Chapman, "Observing Users: An Empirical Analysis of User Interaction with Online Finding Aids," *Journal of Archival Organization* 8, no. 1 (2010): 4-30.

³ Richard J. Cox, "Revisiting the Archival Finding Aid," *Journal of Archival Organization* 5, no. 4 (2008): 5-32.

⁴ Duff and Stoyanova, "Transforming the Crazy Quilt" 44-79; Burt Altman and John R. Nemmers, "The Usability of Online Archival Resources: The Polaris Project Finding Aid," *The American Archivist* 64, no. 1 (2001): 121-131; Yakel, "Encoded Archival Description," 63-77; Anna Sexton, Chris Turner, Geoffrey Yeo, and Susan Hockey, "Understanding Users: A Prerequisite for Developing New

Technologies,” *Journal of the Society of Archivists* 25, no. 1 (2004): 33-49; Wendy Scheir, “First Entry: Report on a Qualitative Exploratory Study of Novice User Experience with Online Finding Aids,” *Journal of Archival Organization* 3, no. 4 (2006): 49-85; Lack, “The Importance of User-Centered Design,” 68-86; Nimer and Daines, “What do You Mean it Doesn't make Sense” 216-232; Chapman, “Observing Users,” 4-30; Rita D. Johnston “A Qualitative Study of the Experiences of Novice Undergraduate Students with Online Finding Aids” (MLIS, University of North Carolina at Chapel Hill, 2008).

⁵ Christopher J. Prom, “User Interactions with Electronic Finding Aids in a Controlled Setting,” *The American Archivist* 67, no. 2 (2004): 234- 268; Dawne E. Howard, “The Finding Aid Container List Optimization Survey: Recommendations for Web Usability” (MLIS, University of North Carolina at Chapel Hill, 2006).

⁶ Thomas J. Frusciano, “Online Finding Aids, Catalog Records, and Access? Revisited.” *Journal of Archival Organization* 9, no. 1 (2011): 1-3.

⁷ Danielle L. Fasig, “Usability Evaluation of Finding Aids for Archives” (MLIS, University of North Carolina at Chapel Hill, 2013).

⁸ Altman and Nemmers, “The Usability of Online Archival Resources,” 121-131.

⁹ Chapman, “Observing Users,” 4-30.

¹⁰ Christina J. Hostetter, “Online Finding Aids: Are they Practical?” *Journal of Archival Organization* 2, no. 1-2 (2004): 117-145.

Literature Review

“EAD and its related standards have initialized the realization of an information future in which serious scholars and the casually curious alike will easily find the cultural treasures they seek. In this emerging future, information seekers will follow clearly marked paths from catalogs to finding aids, and from finding aids to a wealth of information in a multitude of digital and traditional formats....

In this way archives will be able to better serve those we have traditionally served, but we will also for the first time, have the means to make our collections accessible to educators and students of all levels and to the general public....”

– Daniel V. Pitti, “Encoded Archival Description: The Development of an Encoding Standard for Archival Finding Aids,” *American Archivist* 60, no. 3 (1997): 283.

1.1 Online Finding Aids: The Good, the Bad, and the Ugly

Now nearly two decades old, online finding aids have had a complicated history within the archives profession. The first and most prominent champion of the online finding aid was Encoded Archival Description (EAD) creator, Daniel Pitti. As the principal investigator of the famous Berkeley Project (1993-1997), where the idea of machine readable finding aids began, Pitti saw standardized computer based data structures as a way of moving toward universal intellectual access and setting the stage for remote viewing of actual archival materials.¹¹ After a long, thorough, iterative, and community driven process – involving the Library Congress, the Society of American Archivists, and multiple leading universities throughout the country – EAD1 was released as a “work in progress” standard in 1998. And after a period of further

feedback and commentary from practitioners, additional changes were made to the EAD schema to meet the needs of XML and related technologies, and EAD2 appeared on the scene in 2002. Today at the dawning of EAD3 (scheduled for release winter of 2015) it seems clear that the standard is here to stay and Pitti's goal has arguably been realized.¹²

When EAD and online finding aids were new to the scene, they received a wealth of scholarly support and attention. The entire fall and summer editions of the 1997 *American Archivist* journal were dedicated to a discussion of EAD and its implementation. In these issues EAD was heralded as a potentially groundbreaking technology that should be supported and contributed to by the archival community. Proponents of EAD were confident in the schema's features, optimistic about its incorporation into professional practices, and even went so far as to imply that EAD finding aids were the logical next step for archival description.

In these early moments for online finding aids, Kris Kiesling argued that the EAD schema had a great deal of potential as a description standard because it offered a widely adaptable data structure and fostered common practices amongst diverse institutions in terms of online data content.¹³ Likewise, Janice Ruth, a part of Pitti's original Berkeley team, explained that EAD was vetted and thorough as it was constructed by "continued input and assistance from the entire archival community" and had undergone an "extensive fine-tuning" process.¹⁴ Several articles within the 1997 *American Archivist* issues noted the specific technical advantages that EAD finding aids offered. For example, Steven J. DeRose applauded the more recent XML-compatible version of EAD, as a "semantically simple" language that archivists could wield with ease.¹⁵ Additionally, Ruth's article explained in detail the ways in which EAD allows

the archivist to “encode rich, hierarchical descriptions,” and repeat descriptive elements at each level of that hierarchy, including value-added “linking, display, and search term elements.”¹⁶ Overall, there was a sense that it was never too soon to begin adopting EAD and putting archival content online, at any institution. Elizabeth Dow, as a lone arranger at University of Vermont, took it upon herself to implement EAD at her institution during those early years. She felt that EAD was “quickly becoming fundamental to the web presence of small and micro-repositories,” like local historical societies and cultural heritage institutions.¹⁷ On the other end of the institutional spectrum, Leslie Morris supported the implementation of EAD for Harvard’s online finding aids, claiming that for large institutions interested in inter- or intra-repository collaboration, EAD was a logical and strong choice.¹⁸

While EAD’s reception was undeniably positive, one would be remiss in not mentioning any of the cautionary tales found in these same issues of the *American Archivist*. For example, Dennis Meissner warned that finding aids needed substantial amounts of reengineering in terms of look, feel, and structure before they could be made into effective online collection descriptions.¹⁹ He stressed that “it is important to create finding aids that contain sufficient wayfinding tools to enable users to understand them and the materials they describe without the mediation of archivists” in the content of the virtual environment.²⁰ On whole, the professional community seemed to be embracing Daniel Pitti’s idea of standardized online archival description, without concerns about usability and interface. However, online archival description and its EAD schema would come under a significant amount of fire in the following years as practitioners

began to question the functionality, display, and effectiveness of EAD finding aids in the context of the World Wide Web and its users.

The first to critically consider the content and format of online displays in archival information systems were Wendy Duff and Penka Stoyanova. Just a year after the release of EAD1 these academics were asking users what information about archival materials they would like to see online and how would they prefer it to be displayed.²¹ The first usability study of its kind for online archival content, these researchers used focus group feedback to critique existing finding aid interfaces. Their results indicated that users had trouble with abbreviations and specialized terminology like “linear extent” and “fonds,” and preferred archival information presented on the page according to bibliographic display guidelines and not current archival practice.²² While recognizing that more research was still needed on multi-level description, the authors made the following suggestions to archivists: 1) use current research on system designs to provide a better interface for their users, and 2) conduct more usability studies to better understand archive users’ needs.²³ Luckily, their call for more usability testing was heard by several members of the profession in the following decade.

In 2001, Burt Altman and John Nemmers evaluated the usability of archival finding aids and their searching functions for the Pepper OnLine Archival Retrieval and Information System (POLARIS) at Florida State University. Their research revealed that navigation was a central concern for finding aid functionality because, given the hierarchical nature of archival description, users needed to be aware of “where they are” in the collection at all times.²⁴ They also discovered that there was a need for both basic and advanced search interfaces to allow for different types of searching within the

collection. Finally, study participants also showed a preference for item level rather than folder level description when searching for content.²⁵

Elizabeth Yakel's usability study from a few years later revealed similar findings. Her research showed that subjects had trouble understanding archival terminology and how to best search for information within archival websites.²⁶ To add to this, the structure of the finding aid also proved difficult for study participants. Many participants stated that they had "gotten lost" within the descriptive hierarchy.²⁷ Yakel suggested a navigation menu and improved online reference as potential solutions but did not elaborate on these. Rather, she pushed archivists to begin incorporating established design principles from the field of human-computer interaction into EAD interfaces to improve the user's experience.

Another study by Jihyun Kim focused on data elements and labeling within EAD finding aids as well as the searching, browsing, and other navigational functions that some repository websites provided. Kim found that there were significant element inconsistencies across institutions making it difficult for users to understand the meaning of labels when moving from one website to another.²⁸ In addition, it appeared that data elements in the EAD tag library were not being sufficiently utilized and, therefore, finding aids did not provide diverse enough access points for users. Importantly, Kim determined that EAD finding aids tended to contain narrative forms of information and long container lists without appropriate navigational elements, thereby making it very difficult for users to effectively identify information and determine their location within the finding aid hierarchy. Finally, browsing by

collection was proven to be a time consuming and inefficient activity that did not assist in information retrieval.²⁹

Responding to Kim's note that "search functions are a growing necessity on EAD sites,"³⁰ Xiaomu Zhou offered analysis of fifty-eight EAD websites and their searching capabilities. Zhou's results showed that a disappointingly low number of EAD finding aids were aided by searching functions, and those that did allow searching did not arrange search results for users in a structured way.³¹ Zhou lamented that "the advantages of EAD finding aids for hierarchical searching has not yet been fully realized [...] It is unfortunate that archivists' focus has been on the issue of encoding finding aids rather than the subsequent process of delivery of archival information via a web interface."³² Even archivists that had once ardently supported EAD finding aids were becoming severe detractors of EAD standardized online description. For example, by 2009, Elizabeth Dow, having once been an optimistic supporter of EAD when the technology was in its infancy, called it a "halfway technology," explaining that the descriptive standard was not successfully connecting researchers to materials in the way Pitti and his colleagues had originally intended. She indicated that the profession should begin looking for a fuller technology to replace it.³³

It seems that after a decade of practice with EAD, there was a growing consensus within the community of archival professionals that unresolved interface issues – particularly usability and navigation functionality – represented significant barriers to user access and were the result of serious design flaws in the implementation of EAD. In 2008, all of the above concerns about online archival description were reflected upon by J. Gordon Daines and Cory Nimer, as they prepared for an interface redesign at

Brigham Young University.³⁴ Summing up the literature and taking into account their own professional experiences, Daines and Nimer cited four major problems with EAD online finding aids to date: (1) unintuitive, profession-specific jargon and inconsistently implemented labeling practices; (2) long narratives, big blocks of text, and difficult-to-browse container lists (3) poor access to item level content due to ineffective or nonexistent search functionalities (4) confusing hierarchical organization and display of content that result in users feeling “lost.”³⁵

Richard Cox declared that despite the fact that we have entered the “golden age of archival description, [...] EAD’s goal of easy access has been more dream than realization.”³⁶ Cox even went further with his critique, stating that archivists have been creating their online description “in violation of system analysis [...] and carrying out their descriptive work apart from and with little knowledge of how researchers find and use archival sources.”³⁷ This statement implies ignorance on the part of archivists engaging in online description and calls for a greater understanding of who archival users are and what information needs they bring to an online finding aid interface.

1.2 Online Finding Aid Users: Who Are They and What Do They Want?

Despite Cox’s accusation, since the advent of EAD several researchers employing usability and other types of studies have made a conscious and deliberate effort to understand who the target audience is for online archival content and, beyond this, what their information needs might be.

In 2004, at the University College London, Anna Sexton and the other members of the LEADERS Project asked the important question “who uses archival repositories’

online description?” in an effort to inform developers about user requirements for new online services. In their study, the LEADERS team recognized various types of end-users of online archival content including “personal leisure” users, “individuals using archives as part of their professional occupation,” and “those using archives to support an educational or training program.”³⁸ These types of users would be confirmed by other authors and usually grouped into “advanced” and “novice” categories in later writings about online finding aids. In addition to these findings, Sexton’s team also determined that a majority of archive users approach online finding aids through “an interest of individuals, families, or organizations,” and the remainder of searchers tend to frame their research topically.³⁹ Nearly all users represented in the study were interested in limiting their search to a certain time period. Most users also enter the online archival content already knowing what they are looking for and with some kind of knowledge of the subject area of research. However, less than half of users surveyed claimed to be familiar with using archival material on the internet.⁴⁰ These statistics can help predict what kind of search functions online finding aid users might need in order to successfully retrieve the information they are looking for.

Around the same time as the LEADERS project, Rosalie Lack of the California Digital Library (CDL) used focus, groups, questionnaires, interviews, and usability testing at her institution to determine what user wanted from online finding aids via the CDL. Lack discovered that, for most novice users, the concept of finding aids was extremely difficult to comprehend – there was no immediate understanding of the usefulness of a list of physical objects they had no direct access to via the digital interfaces.⁴¹ Similarly, in an earlier article Christopher Prom noted that novice searchers

expect finding aids to include digitized material and not just serve as a guide to collections.⁴² Wendy Scheir has also written about novice user experiences with online finding aids, confirming that online finding aids were sometimes “confounding and frustrating for novice users” as they are unfamiliar with key terms, subject content, and the inherent structure of archival description.⁴³

Gretchen Gueguen at East Carolina University investigated the typical users of digitized special collection materials in an attempt to support multiple access interfaces and suit the needs of two distinct user groups - undergraduate students and humanities researchers. Her results indicated that humanities scholars prefer to first search more broadly across archival materials, and, therefore, benefit from browsing a large and diverse set of resources.⁴⁴ Their searches often involve retrieving large sets of results, and then sifting through the items until they find one of interest. Gueguen goes on to explain that “this technique allows scholars to serendipitously retrieve records that meet their specific - though perhaps unarticulated - needs, while keeping the possibilities open for potentially overlooked or unconventional sources.”⁴⁵ In contrast, undergraduate students, even while having a relatively high knowledge of online library tools such as catalogs and databases, had little to no familiarity with how to use online finding aids. Therefore, the finding aid interface was not an effective searching platform for undergraduate students at ECU. Rather, students preferred to engage with an online exhibit interface especially designed to direct focus and provide item level descriptions for already digitized materials.⁴⁶

J. Gordon Daines and Cory Nimer (already mentioned above), after completing multiple rounds of usability testing at Brigham Young University, confirmed that there

was a clear difference between user groups accessing their online archival content and that these groups were reacting in very different ways to the interface they had designed. The primary user group - college students and casual researchers - reacted positively to the item-level display feature of the new interface and were able to find the information that they wanted more quickly.⁴⁷ However, the site's secondary audience - advanced researchers - tended to select the expandable tree menu feature of the new interface, due to their belief that it provided greater context for the materials being displayed.⁴⁸ Wendy Duff and Catherine Johnson also confirmed that historians represented a separate, distinct, and advanced group of archive users. They explained that while historians' research methods may seem "haphazard" and their discovery path almost "accidental," in actuality "historians are systematic and purposeful in the way they go about building contextual knowledge" and this process requires "broad searches through vast amounts of archival material."⁴⁹

In summation, most studies see at most three categories of users (casual researchers, college students, and professional researchers) and at least two levels of users (advanced and novice) for online archival content. In most cases, casual researchers and college students are classified as novice researchers with strong computer skills but little experience with online finding aids. In contrast, professional researchers are typically classified as advanced users who have far more expertise in using archival materials. Although these categories are somewhat problematic as they make assumptions about large populations of users and their skillsets, one can say that these groups represent divergent information needs and use different searching strategies to accomplish their research goals. Such discrepancies will be crucial to

remember when evaluating the effectiveness of faceted navigation for EAD finding aids.

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- ¹¹ Daniel V. Pitti, "Encoded Archival Description: The Development of an Encoding Standard for Archival Finding Aids," *American Archivist* 60, no. 3 (1997): 268-283.
- ¹² Technical Subcommittee on Encoded Archival Description. "EAD Revision." Society of American Archivists, 2014.
- ¹³ Kris Kiesling, "EAD as an Archival Descriptive Standard," *The American Archivist* 60, no. 3 (1997): 344-354.
- ¹⁴ Ruth, "Encoded Archival Description," 310-329.
- ¹⁵ DeRose, "Navigation, Access, and Control..." 298-309.
- ¹⁶ Ruth, "Encoded Archival Description," 329.
- ¹⁷ Elizabeth H. Dow, "EAD and the Small Repository," *American Archivist* 60, no. 4 (1997): 455.
- ¹⁸ Morris, "Developing a Cooperative Intra-Institutional Approach..." 388-407.
- ¹⁹ Dennis Meissner, "First Things First: Reengineering Finding Aids for Implementation of EAD," *The American Archivist* 60, no. 4, Special Issue on Encoded Archival Description: Part 2-Case Studies (1997): 372-387.
- ²⁰ *Ibid.*, 387.
- ²¹ Duff and Stoyanova, "Transforming the Crazy Quilt" 44-79.
- ²² *Ibid.*, 65.
- ²³ *Ibid.*, 66.
- ²⁴ Altman and Nemmers, "The Usability of Online Archival Resources," 126-127.
- ²⁵ *Ibid.*
- ²⁶ Yakel, "Encoded Archival Description," 63-77.
- ²⁷ *Ibid.*, 75.
- ²⁸ Kim, "EAD Encoding and Display," 41-55.
- ²⁹ *Ibid.*
- ³⁰ *Ibid.*, 54.
- ³¹ Zhou, "Examining Search Functions..." 99-118.
- ³² *Ibid.*, 117.
- ³³ Elizabeth Dow, "Encoded Archival Description as a Halfway Technology," *Journal of Archival Organization* 7, no. 3 (2009): 110).
- ³⁴ Nimer and Daines, "What do You Mean it Doesn't make Sense" 216-232.
- ³⁵ *Ibid.*
- ³⁶ Cox, "Revisiting the Archival Finding Aid," 9-10.
- ³⁷ *Ibid.*, 5.
- ³⁸ Sexton, Turner, Yeo, and Hockey, "Understanding Users," 43.
- ³⁹ *Ibid.*, 44.
- ⁴⁰ *Ibid.*
- ⁴¹ Lack, "The Importance of User-Centered Design," 68-86.
- ⁴² Prom, "User Interactions with Electronic Finding Aids..." 234- 268
- ⁴³ Scheir, "First Entry," 71.
- ⁴⁴ Gretchen Gueguen, "Digitized Special Collections and Multiple User Groups," *Journal of Archival Organization* 8, no. 2 (2010): 96-109.
- ⁴⁵ *Ibid.*, 97.
- ⁴⁶ *Ibid.*
- ⁴⁷ Nimer and Daines, "What do You Mean it Doesn't make Sense," 216-232.
- ⁴⁸ *Ibid.*
- ⁴⁹ Wendy M. Duff and Catherine A. Johnson, "Accidentally found on Purpose: Information-Seeking Behavior of Historians in Archives," *The Library Quarterly* 72, no. 4 (2002): 494.

Study Methodology

The specific goal of this usability study is to determine which kinds of navigational features are effective, efficient, and user-valued components in the context of an academic archive's online finding aid interface. To accomplish this, the researcher has chosen to focus exclusively on Princeton University's Finding Aid website.⁵⁰

Screenshots of Princeton University's Finding Aid website are available in Appendix 1.

This particular website was chosen for the following reasons:

- 1) The finding aids in this website can be navigated and searched in several distinct ways:
 - a. The tree-like menu of contents on the left can be browsed through by clicking on the nested tabs under "Contents and Arrangement"
 - b. The contents of a collection can be viewed at the item-level by clicking on the hyperlinks for each series, subseries, or item in the center of the page
 - c. The collection in question can be searched through for a specific term or phrase by using the search bar at the top of the page
 - d. The contents of a collection can be reordered by date or title using column header buttons
- 2) The finding aids on this website are offered in three different formats:
 - a. A multi-page view with labels, hyperlinks to items, nested menu hierarchies, and buttons

- b. A single text-based HTML document with a full DACS description⁵¹ and a comprehensive container list
 - c. A print-friendly text-based PDF document with a clickable table of contents
- 3) Unique Web 2.0 features provided throughout the interface in two places:
 - a. A “Comments” section allows user to leave notes as a “guest” or through existing networks including blog providers and social media accounts (e.g.: IntenseDebate, WordPress, Twitter, Facebook)
 - b. A discrete “Site Feedback” button in the top right portion of the webpage that allows site users to leave comments “of a general nature” as well as those that only pertain to particular page being viewed
- 4) The following three “help” features provide guidance on how to navigate collections or let confused patrons ask questions about particular collections:
 - a. A button for “Search Tips” provides instructions on how to do effective searching and narrow search results further
 - b. A “How to Browse this Collection” button explains various features and labels found on the website and provides a four minute video tutorial on how best to use Princeton University Library Finding Aids
 - c. The “Ask a Question” button lets patrons contact the rare books and special collections staff about a(ny) collection(s)
- 5) The logic, purpose, and process behind the creation of Princeton library’s finding aid interface is well documented and articulated in an article by Shaun Ellis (the User Interface Developer for Digital Initiatives at Princeton University

Library) and Maureen Callahan (the Public Policy Papers Project Archivist at Princeton's Mudd Library), "Prototyping as a Process for Improved User Experience with Library and Archives Websites."⁵² In addition, further context was provided by opening the lines of communication between the researcher and the team that built the website.

1.3 Test Participants

A website usability study represents an effort to evaluate a website's interface by testing it with a group of representative users⁵³ – in this case, the group of users chosen was undergraduate students at a large, state university. While this population of participants could be considered the result of convenience sampling – due to that fact that on college campus students are easy to contact and plentiful in numbers – undergraduate students also represent a critical population of users that archives and archivists attempt to reach with online archival finding aids, and therefore testing the usability of finding aid interfaces with this particular population was both appropriate and essential.

Ten volunteer participants were recruited through the university's undergraduate student listserv after proper IRB approval had been obtained.⁵⁴ All participants were registered undergraduate students at the university who confirmed to be native English speakers with no vision, speaking, or motor impairments. Participant compensation was a \$20 Amazon gift card for each student who volunteered a full hour of their time in the School of Information and Library Science Usability Lab with the researcher. The funding for this research cost was supported by a \$200 Carnegie Grant awarded to

support graduate research in the field of information and library science. All communication with study participants took place in the form of preformatted email templates to assure that the terms of participation were clear and all interested parties received the same study information. Study data was anonymized and stored securely in an effort to protect participant identities. See the study's recruitment letter and IRB issued consent form in Appendices 2 and 3 of this paper.

The demographics of this user group can be seen in below in Table 1. All participants were between the ages of 19 and 23 years old. Seventy percent of the participants self-identified as female with the remaining thirty percent self-identifying as male. These students expressed interests in a variety of different fields including social sciences, natural sciences, visual arts, and medical sciences. While the level of archival experience was split between beginner and intermediate competencies, all participants were either intermediate level or expert users of the Internet; ninety percent of participants reported spending more than five hours a week using the Internet and more than half claimed to spend at least double that time online.

TABLE 1: Participant Demographics

ID	Age	Sex	Field of Interest	Archival Experience	Internet Experience	(#) hrs/wk on the Internet
1	23	F	Education	Intermediate	Expert	>10
2	21	F	Biology	Beginner	Intermediate	>10
3	22	F	Psychology	Beginner	Intermediate	6-10
4	22	F	Geology	Intermediate	Expert	>10
5	20	M	Sports Science	Intermediate	Expert	>10
6	22	M	Graphic Design	Beginner	Expert	>10
7	22	F	Sports Science	Beginner	Intermediate	3-5
8	21	M	Political Science	Intermediate	Intermediate	>10
9	21	F	Sports Science	Beginner	Intermediate	6-10
10	19	F	Undeclared	Intermediate	Expert	>10

1.4 Study Overview

Like most usability studies, this finding aid usability study asked participants, in addition to answering demographic questions about themselves and their experiences, to complete typical tasks often attempted by finding aid users employing the existing navigation features on the Princeton University Library's website.⁵⁵ Each participant was given the same set of ten common tasks, with guiding questions corresponding to each, to be completed within the confines of the website in question within a period of thirty minutes. Table 2 below shows the generic (not collection specific) version of each task asked of test participants and explains what navigational decision that task required users to make in order to be successful.

TABLE 2: Mapping Finding Aid Tasks to Navigation Decisions Made by User

Common Finding Aid Task	Navigation Decision
1. Perform a search ...	Where to type search terms
2. Select a collection from the years ...	How to browse all search results and select the appropriate collection
3. Find the preferred citation ...	Where to go to get citation information
4. Find the creator's biography...	Where to go to get information about the creator
5. Find the subject terms...	Where to go to find similar items on the same subject
6. Find acquisition and processing information...	Where to go to get administrative information about the collection
7. Determine how the collection is organized...	How to browse within the collection
8. Find a subseries...	How to move down the collection hierarchy
9. Reorder the collection contents...	How to interact with collection contents
10. Find a particular box and folder...	How to go to a single item within the collection

As the above table reveals, each task required participants to make a decision about how to best engage with the website's navigational elements, and different

usability metrics were derived based on each participant's ability to complete each task. In addition to these tasks, the researcher also asked participants to comment on their experience with the finding aid interface in a pre- and post-test survey, a brief reflective interview, and finally in a Likert-scale user satisfaction survey called the System Usability Scale (SUS).⁵⁶

Therefore, this research study is informed by two sets of data:

- 1) Questionnaire Data: Qualitative and quantitative survey data collected from participants during different portions of each testing session
- 2) Usability Testing Data: Qualitative and quantitative user data collected by usability testing software and stimulated recall interviews using think-aloud protocols that focused on participants' interactions with the aforementioned website

Below is an explanation of what each of these data sets measure and why they are important to the research in question. All survey questions and tasks issued to participants can be found in the research study's testing materials located in Appendix 4 of this paper.

1.5 Questionnaire Data

Questionnaire Data was collected in the form of:

1. A demographic questionnaire
2. A pre-test questionnaire
3. A post-test questionnaire
4. A System Usability Scale (SUS) questionnaire

Survey data was collected in the form of multiple questionnaires, some of which generated quantitative data and some of which generated qualitative data. The initial demographic survey collected information about the participants' affiliation with the institution, their age, their primary field of work/study, and their relative experience with computers, the Internet, and archival finding aids. This questionnaire provided descriptive statistics about the overall population of test participants and these statistics can be viewed in Table 1 above.⁵⁷

The pre-test and post-test questionnaires asked open ended questions about each participant's experience with the finding aid interface. The pre-test aimed to get at the participant's first impressions of the website, while the post-test questionnaire attempted to capture the participant's formal preferences for certain site features. Open ended, free response style questions are useful for gaining insight into the subject's experiences with the system and can be useful for understanding the reasons behind particular attitudes and behaviors.⁵⁸ In the case of this usability study, the pre-test and post-test questionnaires allowed participants an opportunity to respond to a three-part question about the website's interface at two points in the testing session: (1) after an initial 2 minutes of site exploration, and (2) then again after the task-oriented portion of the testing was complete. In addition to getting immediate and pertinent responses from participants, the pre-test and post-test questionnaires were also designed to help participants articulate and organize their thoughts about the online finding aid before talking directly to the researcher about their experiences in the form of a brief reflective interview.

However, because qualitative data is difficult to measure and sometimes does not directly correspond to user satisfaction, participants were also issued a System Usability Scale (SUS) survey as their final exit questionnaire. This survey is a simple and quick-to complete form that helps to generate quantitative data about the relative success of the system's usability from the users' perspective.⁵⁹ In this way it avoids the potential impact of testing fatigue that is sometimes experienced at the end of testing sessions by participants, and also gives the researcher a statistical measure of whether the interface is meeting user's needs and expectations. The SUS survey consists of 10 statements for which participants rate their level of agreement on a 5 point scale. Then, the ordinal values for each question are summed and multiplied by a constant in order to produce an overall rating for the success of the system in question, with 100 representing a perfect score.⁶⁰

1.6 Usability Testing Data

Usability Testing Data was measured in the following ways:

1. "Time on task" averages for the participant group as a whole
2. Success measures based on average time benchmarks per task
3. Number of "clicks" used to complete each task
4. Stimulated recall think-aloud style interview

All task-related usability data, both screen-capture and audio, was recorded using the Morae Observer software provided by the SILS Usability Lab.⁶¹ The ISO standard 9241, which provides guidance on designing World Wide Web user interfaces, divides usability into three components: effectiveness, efficiency, and satisfaction.⁶²

The data collected from usability testing in this research study speaks to the former two components, while the questionnaires mentioned above and the data from the participant interviews can gauge the degree of satisfaction felt by users.

First, the amount of time each participant needs to successfully complete a given task was recorded and all participant times were combined to determine the group average “time on task.” Then, in order to gauge the effectiveness of the website’s navigational components, the researcher calculated a success value for each task using the average time for each task as a benchmark. Participants’ task completion times that fell at or below this benchmark were coded as “Completed with Ease,” and times that fell at or below twice the benchmark were coded “Completed with Difficulty.” Times that exceeded this second benchmark or tasks that were never accomplished were coded “Incomplete.” Time benchmarks can help to show varying degrees of task success across the entire population of testing participants and indicate the overall percentage of participants who effectively completed each task.⁶³

The efficiency of the website’s navigation was calculated by the number of mouse clicks used to complete a given task compared to the optimal number of mouse clicks required. For the former measure – mouse clicks – both left clicks, right clicks, and double clicks were included so as to consider all possible action steps users took when working towards a particular goal. The average number of mouse clicks for each task was calculated based on the results of the entire participant group. This value was then compared to the optimal number of mouse clicks, representing the ideal and most efficient number of steps to needed to complete that goal.⁶⁴ Such a comparison can determine the amount of unnecessary effort expended by the user and help quantify

navigational inefficiencies.⁶⁵ If a task shows a large discrepancy between the optimal and average number of mouse clicks, it could be an indication that the finding aid website's navigation features are not understood or noticed by end-users, and therefore are not utilized effectively or efficiently. In general, for efficiency data, the researcher used basic descriptive statistics to interpret usability results, focusing on measures of central tendency (mean, median, mode) as well as measures of dispersion (range, variance, and standard deviation).

After the user completed the task performance portion of the testing, and completed the pre- and post-test questionnaire, the researcher asked the testing subjects to – in the form of a stimulated recall think-aloud style interview – articulate their thinking and decision making processes at various stages in their exploration and test completion process.⁶⁶ This method is called “retrospective think-aloud protocol” and it is a way to try and understand the user's state of mind and rationale; these are aspects of the user experience which are not well recorded by other types of quantitative data.⁶⁷ The Morae Observer usability software records and allows transcriptions of each interview session. These recordings and transcriptions were frequently consulted by the researcher during the data analysis stage of the project in order to try and explain why participants made certain decisions and how they related to the website's navigation features. The result of these interviews are elaborated on in the following chapter, wherein the researcher explains the results of the study.

⁵⁰ Princeton University Library, “Princeton University Library Finding Aids,” accessed September 2014-April 2015, <http://findingaids.princeton.edu/>.

⁵¹ DACS (*Describing Archives: A Content Standard*) is the standard set of rules recognized the Society of American Archivists (SAA) for describing personal papers and manuscript in collections in archival finding aids.

⁵² Shaun Ellis and Maureen Callahan, "Prototyping as a Process for Improved User Experience with Library and Archives Websites," *Code4lib Journal* 18 (2012): <http://journal.code4lib.org/articles/7394>.

⁵³ "Usability Testing," last modified November 13, 2013, <http://www.usability.gov/how-to-and-tools/methods/usability-testing.html#>.

⁵⁴ In a 2012 article, Jakob Nielsen argued that for qualitative usability studies, more than five testing participants did not result in appreciably more usability insights. The researcher of this study chose to be conservative and double that number in recruiting her own testing participants, with the support of Carnegie Foundation funding, so that any statistical results would have better confidence. See Jakob Nielsen, "How Many Test Users in a Usability Study?" *Nielsen Norman Group: Evidenced-Based User Experience Research, Training, and Consulting* (June 4, 2012). <http://www.nngroup.com/articles/how-many-test-users/>.

⁵⁵ "Usability Testing," <http://www.usability.gov/how-to-and-tools/methods/usability-testing.html#>.

⁵⁶ Each part of the testing session mentioned here, is explained in further detail in the following sections of the paper.

⁵⁷ Diane Kelly, *Methods for Evaluating Interactive Information Retrieval Systems with Users* (Hanover, MA: now Publishers, 2009), 97.

⁵⁸ Ibid.

⁵⁹ Tom Tullis, and Bill (William) Albert. *Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics* (Boston: Elsevier/Morgan Kaufmann, 2008), 147.

⁶⁰ Ibid.

⁶¹ To learn more about this software see <http://www.techsmith.com/morae-features.html>.

⁶² International Standards Organization, "ISO 9241-151:2008 - Ergonomics of Human-System Interaction - Part 151: Guidance on World Wide Web User Interfaces," http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=37031.

⁶³ Jeffrey Rubin and Dana Chisnell, *Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests* (Indianapolis: Wiley, 2008), 250-251.

⁶⁴ The optimal number of mouse clicks for each task was calculated by determining the shortest possible pathway to in the desired search result and then counting the number of mouse clicks that specific pathway required.

⁶⁵ Tullis and Albert, *Measuring the User Experience*, 87-88.

⁶⁶ Kelly, *Methods for Evaluating...*, 88.

⁶⁷ Ibid.

Results

At this point in the paper the researcher will explain the results of the usability study in three parts. First, by reviewing participant responses to the pre- and post-test questionnaires and looking at the System Usability Scale (SUS) survey results, the researcher will reveal (1) what participants generally liked about the website interface; (2) what they disliked; (3) how they felt about its design and organization; (4) what, if anything, about the interface was confusing to them; and (5) how successful the finding aid website was as a whole. Second, the researcher will present a range of usability data related to the effectiveness and efficiency of the finding aid website's navigational components including (1) the average amount of time spent on each task; (2) the overall task completion rate for the group of test participants; (3) mouse click efficiency for each task – that is, how the average number of clicks compares to the optimal number clicks. Finally, the researcher will relay trends in user feedback collected from the stimulated recall think-aloud style interviews with study participants. After the results of the study have been thoroughly reviewed, the researcher will end by discussing the implications of these outcomes, not just for the particular finding aid website in question, but also for the broader community of archival institutions with online archival description.

1.7 Survey Results

Before being asked to complete tasks within a specific collection on Princeton's Finding Aid website, participants were given two minutes to explore the website on their own. Starting the browser at a simple and small collection's finding aid, the researcher explained what was on the screen and encouraged the participant to navigate around the collection and the website however he or she wished. Afterwards, the participant was asked to write about the experience for a full five minutes with particular attention to good features, bad features, aesthetics, and obfuscations. [Go to Appendix 5 to see the researcher's study procedures and script]. Table 3 below collocates and synthesizes participants' initial responses to the website.

TABLE 3: Pre-Test Questionnaire Results (the number of participants who commented on a topic is given in parentheses)

Initial Likes	Initial Dislikes	Initial Impressions of Aesthetics	Initial Points of Confusion
Concise text (9)	Contents not immediately viewable in summary (3)	Uncluttered layout (9)	The point of the comments section is unclear (5)
Easy-to-find search bar for the collection (4)	Must take several steps in order to view an individual item (3)	Nice color scheme (6)	Faceted sorting by subject was not always successful (2)
Citation information given (3)		Not enough pictures or icons used (4)	
Breadcrumb menu and content hyperlinks available in central contents box (3)		Orange highlight on current tab is helpful (3)	
Quick tips button (1)			

After participants were asked to complete a series of tasks within a specific collection on the finding aid website, they were once again given a full five minutes to respond about their experiences. Table 4 below shows additional comments provided by participants once they had become more familiar with the website and its functions.

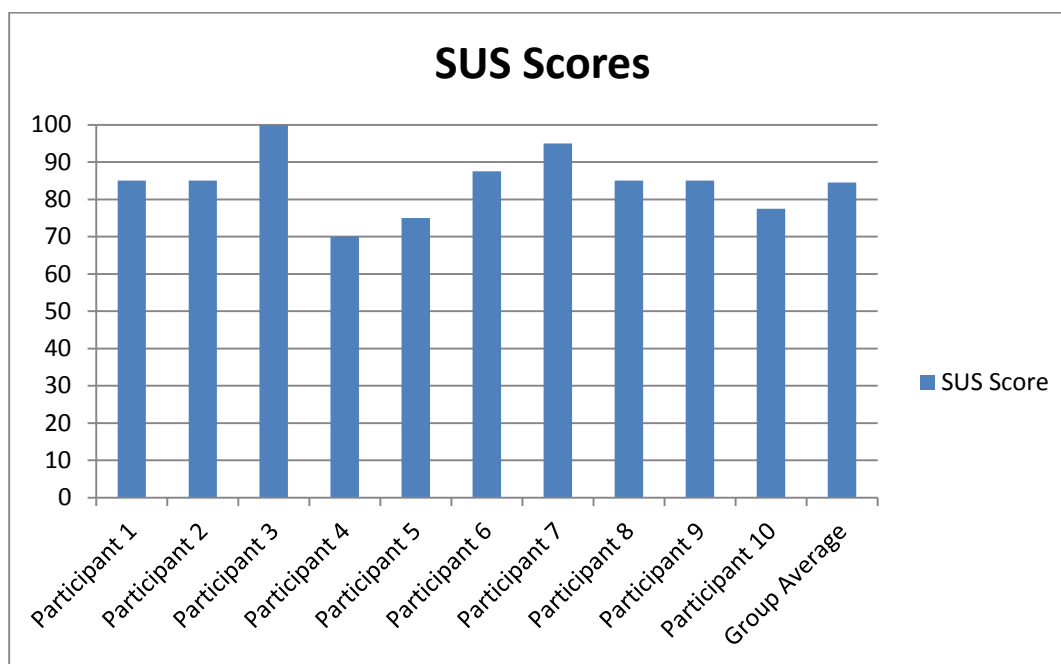
TABLE 4: Post-test Questionnaire Results (with the number of participants who commented on a topic is given in parentheses)

Final Likes	Final Dislikes	Final Impression of Aesthetics	Final Points of Confusion
Hierarchical arrangement of contents (5)	Unintuitive labeling of tabs (4)	Images of the actual archival materials preferred (2)	Subject terms were very vague (4)
Ability to sort contents (3)	Titles of items were repetitive and unhelpful (2)		Unsure the difference between “storage” and “location” (1)
Ability to request access to items (2)			Not clear who can access the physical materials (1)

As the above tables make clear, half or more of study participants enjoyed the conciseness of the website’s text, its simple and uncluttered layout, and the color scheme used in its display. In addition, the same number of participants praised the site’s hierarchical arrangement of archival content, stressing that such organization afforded easy “drilling down” through the collection’s various “layers.” However, equal numbers of respondents indicated that the Comments box at the bottom of every page was confusing and they were unsure how they should interact with it. Furthermore, nearly half of all participants expressed appreciation for an easy to find search box that allows collection level keyword searching. Yet, the same numbers of participants were disappointed in the lack of visual icons or images on the website. In addition, they

found the labels attached to the left-hand tabs – “Summary,” “Description,” “Collection History,” “Access and Use,” and “Find More” – unintuitive and the subject terms applied to each collection were reported to be overly vague. Details about participants’ verbal feedback will be revealed later in this chapter in the discussion about the data collected from stimulated recall think-aloud style interviews with study participants, but the comments mentioned above are good indicators of major interface strengths and weaknesses.

While some of the above questionnaire comments are undeniably negative in nature, a look at the results of the SUS survey in Figure 1, on whole, reveals a high level of successful interaction with the website. Since a combined SUS score of over 70 is considered to be above average,⁶⁸ it seems that all participants rated the website “above average” in terms of usability. The lowest score assigned was 70, the highest score was perfect (100), and the group average was determined to 84.5. All of these scores seem to imply, despite the above comments about undesirable site features or points of confusion in the interface, that users are generally satisfied with the current interface.

FIGURE 1:

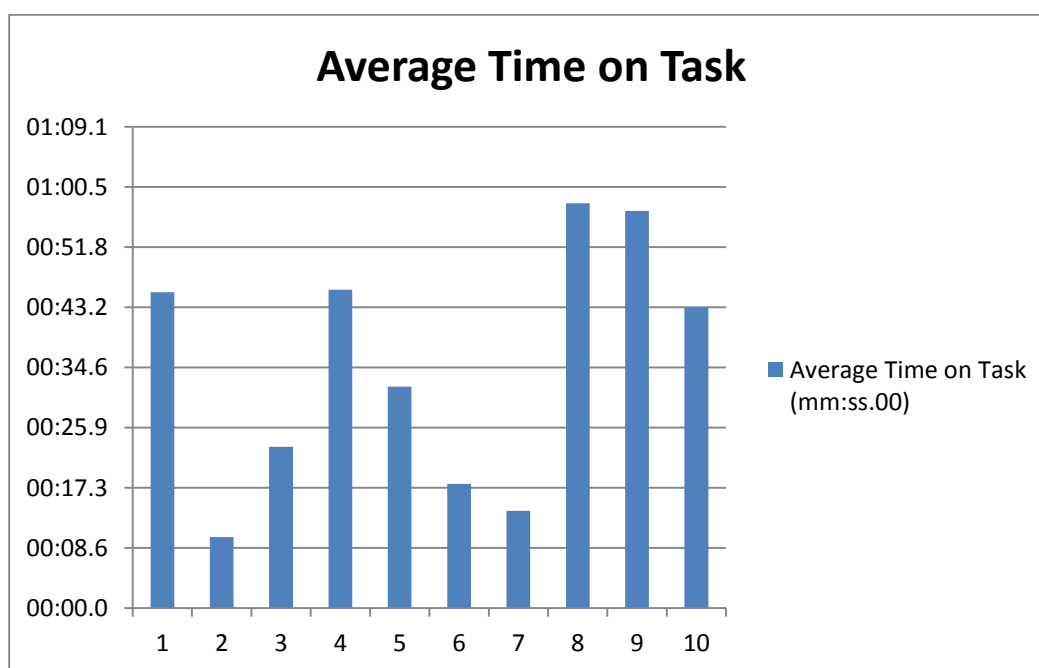
While this average SUS score is a good indication that participants were able to successfully complete their tasks within the given finding aid interface, a closer look at participants' individual and average task completion rates can yield more fruitful data about how users navigated the archival description presented to them on Princeton's Finding Aid website. Therefore, this chapter will now transition to a discussion of task-specific effectiveness and efficiency measures collected by the researcher using specialized usability software.

1.8 Usability Results

One of the most basic ways of determining which tasks might be more difficult to navigate than others is considering "time on task" data; that is, the amount of time a participant needs to successfully complete a given task. The average "time on task" data

for each of the 10 tasks presented to participants in this study is shown in the Figure 2 below. These averages indicate that while tasks 8 and 9 were the most time consuming for participants – each requiring an average of almost one full minute to complete – tasks 2, 3, 6, and 7 were typically accomplished more quickly; that is, they were completed, on average, in less than 30 seconds. Such statistics help to give an indication of what kinds of tasks are easier to navigate on the website (and therefore faster to accomplish) than others.

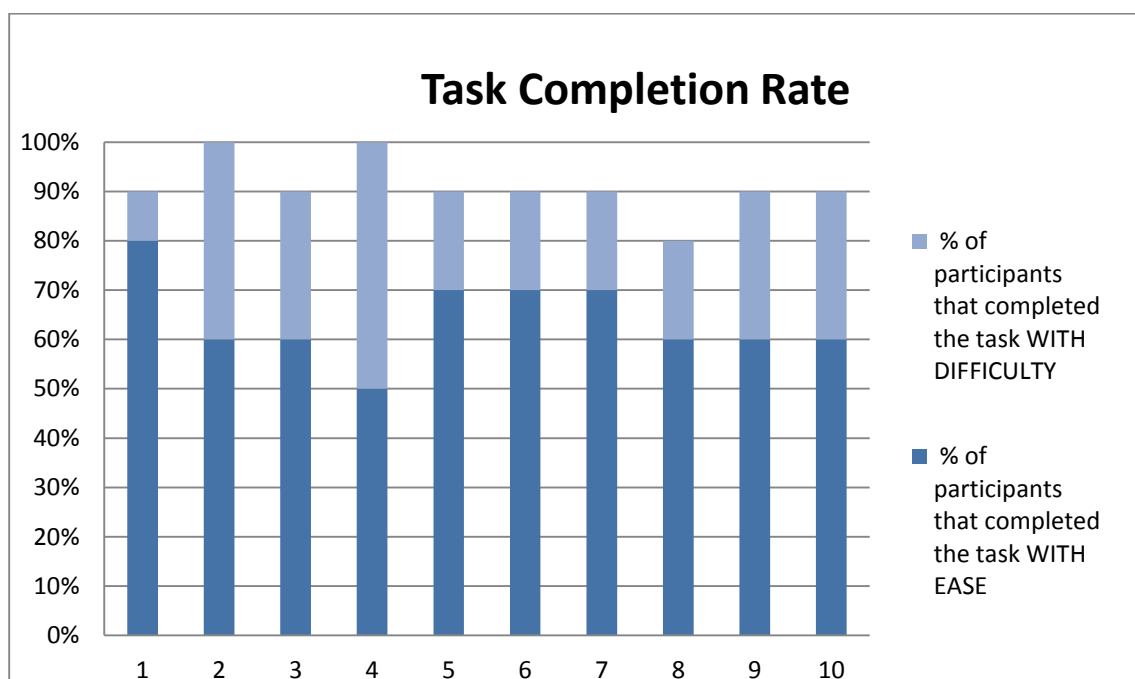
FIGURE 2:



Another way to help determine the level of success for each task is to compare each participant's completion time to a set of benchmark completion times. In this case the benchmarks selected by the researcher were (1) the larger group's average completion time for each task, and (2) twice that value. Any participant who completed a task at or before the first benchmark is classified in the below chart in Figure 3 as

completing that task “with ease.” Similarly, any participant who took longer to complete their task than the first benchmark, but was successful at or before the second benchmark is classified in the below chart at completing that task “with difficulty.” Any participant who took longer to complete the task than the second benchmark was not considered successful in that task.

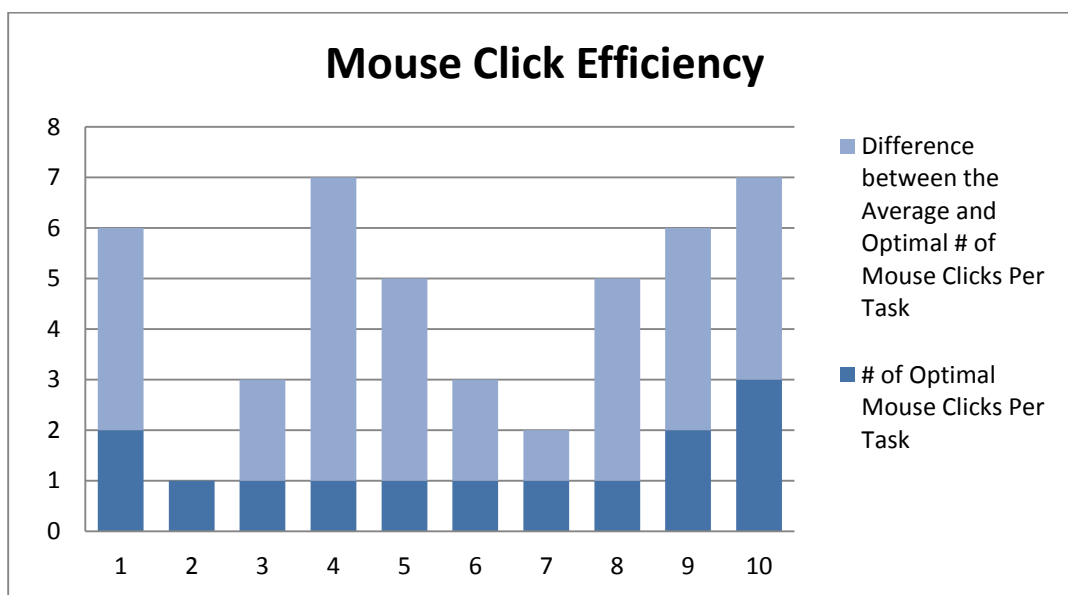
FIGURE 3:



By classifying the data in this way we can see that at least 50% of participants were able to complete all tasks “with ease,” and in most cases, only 1 in 10 participants were not able to complete a given task (at least not within the required amount of time to be classified that way); this data, on whole, represents an overwhelming positive group success rate. However, there are also less than ideal results presented here. Half of the 10 tasks issued to participants – Tasks 3, 4, 8, 9, and 10 – were not completed “with ease” by a large percentage (40-50%) of participants. The navigation decisions relating

to each of these include: where to find citation information, where to locate the creator's biographical information, how to find a subseries in the collection hierarchy, how to reorder collection contents, and how to find a single item within the collection. The fact that a large percentage of participants only completed these tasks "with difficulty" forces the researcher to consider why these tasks were typically more time consuming and difficult than the others, and whether or not navigational inefficiencies are to blame. Efficiency measures like the total number of mouse clicks per task can be helpful indicators for whether or not participants typically made more navigational errors during the above mentioned tasks.

FIGURE 4:



The above chart presented in Figure 4 shows two sets of data: (1) the optimal number of mouse clicks for each task – that is, the number of necessary mouse clicks need to complete a task in the most efficient possible way – and (2) the average number

of mouse clicks used by all participants for each task in the study. These data are overlaid here to show the difference between the two values in an effort to communicate which tasks were performed most efficiently by the participant group and which typically were performed inefficiently, that is with far more than the necessary mouse clicks. These results indicate that the least efficiently executed task, by far, was Task 4 – finding the creator’s biography within the collection’s finding aid. Users seemed to make navigational errors frequently when trying to complete this task, and this could be an indication to the researcher that the preferred or intended navigational path to the creator’s biography is confusing, unintuitive, or simply unapparent to end-users. Other tasks that revealed high inefficiencies (those that averaged double or greater mouse clicks than optimal) included Tasks 1, 5, 8, 9, and 10. These tasks included the following navigational choices: performing a global search across all collections, looking for similar items on the same subject as the current collection using subject terms, finding subseries information within the collection hierarchy, determining how to reorder collection contents, and finding a single item of interest within the collection. In the context of Princeton’s Finding Aid website, navigation choices related to these tasks tended to result in “extra” mouse clicks by task-oriented users. This is critical information because it implies that the most efficient pathway for completing common tasks on the website is not apparent to end-users. Click inefficiencies can be the result of “lostness” on the part of the user – this is when a user makes navigation errors by going down inefficient paths during their task-oriented movements because they are experiencing some degree of disorientation.⁶⁹

1.9 User Feedback

During the stimulated recall think-aloud interviews with participants, the researcher also collected verbally-issued information about how “lost” or confused the user felt during their experience with the website. In addition, participants were asked which kind of navigational features they preferred to use to complete their tasks and why. The following data from Table 5 and Table 6 represent common responses from the participant group during these brief stimulated recall think-aloud style interviews. Interestingly, participant feedback was consistent across both beginner and intermediate level archival finding aid users from the study.

TABLE 5: Participant Feedback about Navigation Difficulties

Navigation Feature Failures	Participant Comments
Ambiguous and/or unintuitive labeling	<p>“Some of the major tabs are labeled ambiguously... for example, Collection History, Description, and Access and Use.”</p> <p>“More descriptive titles on each of the tabs would have made it easier for me to navigate.”</p> <p>“It was confusing to me that the Collection Creator Biography was in the description tab... I didn’t feel that was intuitive.”</p>
Unclear relationship between “Contents and Arrangement” tab and series tabs below	<p>“I think that the connection between the Contents and Arrangement tab and the lower series level tabs would be clearer if the series list were hidden, and then revealed only when the Contents and Arrangement tab was selected.”</p> <p>“I was unsure at first how the lower level series tabs were related to the Contents and Arrangement Tab.”</p>

Insufficient cues for using sorting feature	<p>“It took me a long time to figure out how to sort items by date because I didn’t couldn’t see the arrow that was a clue for the feature...It was hidden.”</p> <p>“Clicking on the column header to reorder the items was tricky...It seems like you’d have to know about the button already in order to use it in that way.”</p>
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The usability results and survey responses previously reviewed in this chapter seemed to correlate with some of the navigational breakdowns (in Table 5) expressed by participants during the interview portion of testing. For example, four participants specifically mentioned labeling as a “dislike” in their post-test questionnaire and the issue came up again as a major navigational failure during the think-aloud interview protocol. Furthermore, Task 4, wherein users had to locate the Content Creator’s Biography within the interface by finding the correct label, was found to be the least efficiently executed task of out any. Similarly, the task completion rate for Task 4, as well as Task 3, which required users to locate the preferred citation for the collection using tab labels, showed that 50% of users could not complete the task “with ease.” The user comments in the first row of Table 5 imply that these statistics can be explained by the fact that users did not understand or anticipate why the desired information would be located in that particular tab. In other words, the label obfuscated rather than clarified the proper navigation path for end-users.

One potential solution to this vocabulary dilemma is to keep label titles as they are and just provide guidance and context for them by inserting hover captions over each label which would pop-up anytime the mouse moved over them. These hover captions could give a brief explanatory note of what kinds of information each tab

housed and therefore prevent confusion. Joyce Chapman's usability experiment with hover captions at the University of North Carolina's Southern Historical Collection was met with positive results from test participants, most of whom agreed that the hover captions were a useful and unobtrusive way to present important navigation information.⁷⁰

The other navigation failure expressed by many study participants was that the series level tabs located in the left hand menu bar under Contents and Arrangement were not clearly related to that tab in any visual way except by proximity. This confusion may help to explain why 50% of users did not complete tasks which required interacting with collection contents – Tasks 9 and 10 – “with ease”, and why these same tasks were characterized by high levels of click inefficiency. Finally, as the last few comments from Table 5 hint, the task which required users to interact with the collection contents by reordering items – Task 8 – showed equally high levels of click inefficiency and was also only completed with ease by half of all study participants. According to the participant feedback given in the think-aloud interviews, these navigation failures were not the result of inappropriate navigational components, but rather the product of a lack of user-friendly visual cues. The re-orderable item columns show no visual indication of “clickability” until a mouse scrolled over the column header. In the same way, the Contents and Arrangement tab and lower level series tabs shared no visual indicators that might signal to users that they relate to the same content.

Connecting users to specific interface features, especially inexperienced or first-time users, requires clear and ostensible visual cues. Responding to this very issue, one

study participant made a suggestion that could help clarify the aforementioned relationship between Contents and Arrangement and the lower level series tabs. The participant suggested the very simple visual cue of displaying both sets of tabs together and only together; in other words, hiding the series tabs unless the Contents and Arrangement tab is selected, making it clear that all the information is related. In the case of the overly subtle reordering feature which participant's complained about, rather than hiding the "sort by" feature (a small up or down arrow in the column header) it might be clearer and more obvious to present the component in an explicit button labeled "Reorder Contents by Date/Title." This would serve to highlight the feature's functionality more and draw attention to its usefulness on the webpages with container lists that could be reordered by title or date as needed for the end-user.

Table 6: Participant Feedback about Navigation Aids

User Valued Navigation Features	Participant Comments
Centralized, hyperlinked content	<p>"I preferred to use the hyperlinks from the Contents and Arrangement box to find sub-series and item level information."</p> <p>"I liked using the hyperlinked content in the center of the page. It helped me see all the series at once..."</p>
Nested, hierarchical content tabs on the left-hand menu	<p>"The visible series tabs on the left of the page were very useful for me to see the path I took, even at the lowest stratum of the collection."</p> <p>"I really liked being able to see the local navigation on the left side of the page because I found that I could scroll down and look for titles on my own easily."</p>
Collection-level keyword search bar	<p>"If I was looking for a specific name or piece of information, I used the search bar to do a keyword search within the collection."</p>

	“I used the keyword search function to find items in the subseries level of the collection.”
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It may seem surprising that most participants in the study, instead of working within only one of the three navigation systems offered within the finding aid website, tended to split their efforts between several navigation systems, depending on the task they needed to perform. Several participants explained their use of the two collection navigation systems as cooperative. One participant noted, “I navigated by going into the series level tabs on the left side and then moved over into the central contents box to find the specific item I was looking for ...I didn’t use either system exclusively, but rather used them in tandem for deferent purposes.” Another participant elaborated on this same navigational tendency, saying, “At the highest level of the collection, the nested tabs on the left were useful, but to explore sub-series and items I preferred to work directly in the central contents box with the hyperlinks.”

This, of course, is in line with data collected from the Post-test Questionnaire wherein half of all study participants mentioned the benefit of having a hierarchical contents list in the menu. Also in the Pre-test Questionnaire, four participants commented on the value of having a readily accessible search box at the collection level and nearly as many noted the content hyperlinks and associated breadcrumb trail as a significant navigational affordances. Usability data collected from video screen capture during testing shows that nine out of ten participants chose to complete Task 10 – locating a particular item within a box and folder from the collection – by conducting a keyword search in the collection search bar.

Having exhausted the usability data collected for the study, the researcher has tried to indicate where navigational components on Princeton University's Finding Aid website broke down and what potential solutions could remedy those issues. In addition, the researcher has explained how users, in general, preferred to navigate the online archival collections presented to them in this interface and why they tended to interact with the website's navigation systems in this way. The next and final chapter of this paper offers a broader discussion about what these results mean for the larger archival profession and suggests a possible model for online finding aid navigation which incorporates several of the lessons learned in this usability study.

⁶⁸ "System Usability Scale," last modified September 6, 2013, <http://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html>; Rubin and Chisnell, *Handbook of Usability Testing*, 42-43.

⁶⁹ Tullis and Albert, *Measuring the User Experience*, 89.

⁷⁰ Chapman, "Observing Users," 13-14.

Conclusion: The Model

This usability study of Princeton University's Finding Aid website offers archivists critical information about how end-users of online archival content interact with and navigate around the online finding aids of academic archives. In an effort to translate these results into practical guidelines for archivists, the major findings from this paper have been synthesized into a cohesive (though perhaps not complete) model for online finding aid navigation. The recommendations presented below represent ten major pieces of the not yet solved usability puzzle for online archival content. It is the researcher's hope that these puzzle pieces can be put together for any archival institution that values the quality of its user experience and is committed to making iterative, if small, steps towards improving its online finding aid interface.

1. Use words and select titles that make sense to users, that is, make labels inclusive and intuitive.
2. Provide context for end-users by maintaining collection hierarchy in the presentation of archival contents such as series, sub-series, and container lists.
3. Give users a way to visually explore and browse through collection contents without "losing their place."
4. Provide easy and quick access to individual items within a collection by minimizing the number of clicks needed to view item-level content.

5. Implement a navigation system that can present content at varying degrees of granularity to avoid information overload for users; in other words, be able to hide lower-level detail to users when they don't want to see it.
6. Allow for keyword searching at the collection level as well as the global level
7. Provide sufficient visual cues for special navigation features such as drop down menus, sorting buttons, clickable lists, etc.
8. When possible, supply the user with collection specific visual content in the form of related images, icons, or graphics.
9. Keep the interface uncluttered and concise to support clarity and ease of use.
10. Don't add Web 2.0 features without cause or a consideration of user preferences.

Of course, there are many aspects of finding aid usability that still remain unexplored. For example, in this study very little data was uncovered about how to best facilitate global, repository-wide searching. Princeton's Finding Aid website utilized faceted search categories for site-level queries so that searchers could narrow their result slowly by date, subject, language, etc. However, it remains to be seen if faceted search within online archival finding aids is a user-valued feature. In addition, this study focused on participants who self-identified as either beginner or intermediate archival finding aid users. It would be logical to consider if more experienced finding aid users – professional researchers, historians, and genealogists – revealed the same navigational preferences as participants in the current study. Finally, though the Comments feature in Princeton's Finding Aid website seemed to generate more confusion than praise from study participants, recent studies have pointed to moderate amounts of user interest in

several other kinds of Web 2.0 features including tagging, word clouds, and saving and starring favorite finding aids.⁷¹ Yet little is known about the effectiveness and efficiency of these kinds of potentially user-valued Web 2.0 features in the context of the online finding aid, even today. Future research should explore these new opportunities with the same verve that the past two decades of researchers exhibited in their pursuit and refinement of EAD.

⁷¹ Chapman, "Observing Users," 25-26.

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Appendix 1

Princeton University Library Finding Aid Website – Main Search Page

PRINCETON UNIVERSITY

Library Website | Create an Account | Site Feedback

Princeton University Library Finding Aids
Topics Names Collections Locations

Finding Aids

Use this site to explore descriptions of our unique holdings at the Princeton University Libraries, which include manuscripts, archival collections, images, ephemera, and much more one-of-a-kind material.

Before or during
optional date

[Show Advanced Search](#) | [Search Tips](#)

Search
Clear

Topics

This is a great place to start if you would like to know what we have in a given subject area. We have broken down our collection strengths based on topic.

[Browse Topics »](#)

Names

Doing research on a particular person or organization? Click here for historical information and links to collections about individuals, families and corporate bodies.

[Browse Names »](#)

Collections

The library is composed of many different sets of archives and collections. This is the list of every collection we have described in finding aids.

[Browse Collections »](#)

Princeton University Library Finding Aid Website – Example Collection, Summary

PRINCETON UNIVERSITY

Library Website | Create an Account | Site Feedback

Princeton University Library Finding Aids
Topics Names Collections Locations

Fuller Collection of Aaron Burr 1771-1851 (mostly 1778-1834)

[Search Tips](#) | [How to Browse this Collection](#)

Summary

Description
Collection History
Access and Use
Find More
Contents and Arrangement

- Correspondence, 1778-1834
- Legal Papers, 1787-1833
- Other Documents, 1786-1816
- Papers of Others, 1771-1851
- Miscellaneous Material, undated

Summary

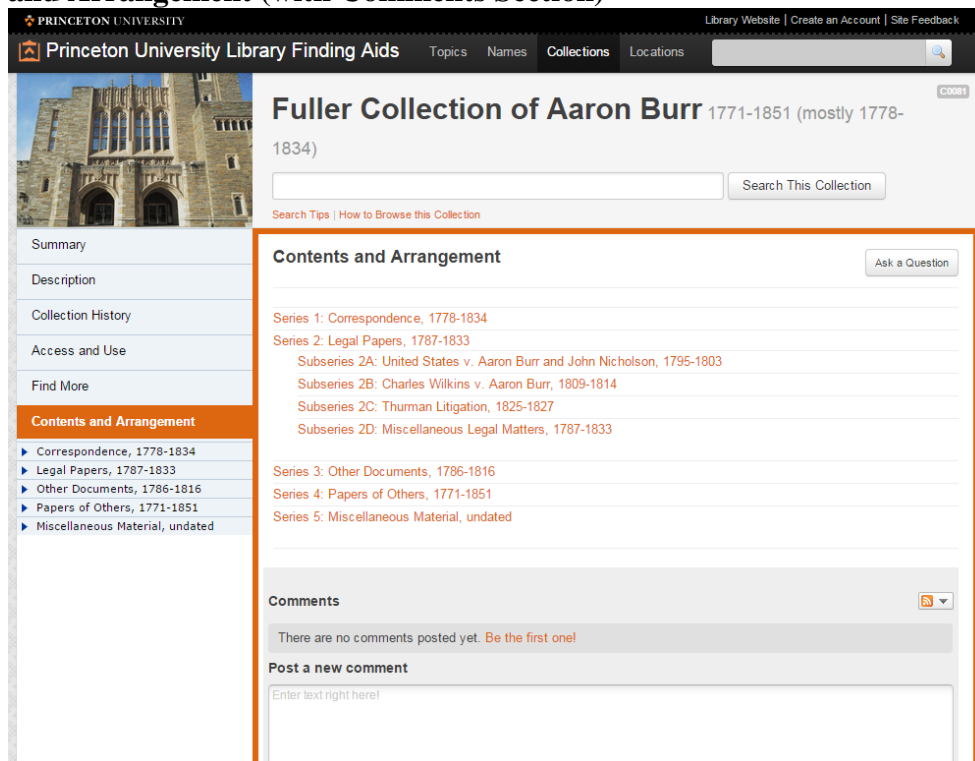
Overview

Creator: Burr, Aaron, 1756-1836.
Title: Fuller Collection of Aaron Burr
Dates: 1771-1851 (mostly 1778-1834)
Size: 1 linear feet, 2 archival boxes, 1 half-size archival box
Call number: C0081
Storage note: This collection is stored at Firestone Library.
Requests will be delivered to **Manuscripts Division, RBSC Reading Room** .
Location: Princeton University. Library. Dept. of Rare Books and Special Collections
Manuscripts Division
One Washington Road
Princeton, New Jersey 08544 USA
Language(s) of material: English.

Abstract

The collection consists of correspondence and documents collected by C. P. G. Fuller relating to Aaron Burr (1756-1836), vice president of the United States under Jefferson.

Princeton University Library Finding Aid Website – Example Collection, Contents and Arrangement (with Comments Section)



PRINCETON UNIVERSITY Library Website | Create an Account | Site Feedback

Princeton University Library Finding Aids Topics Names Collections Locations

Fuller Collection of Aaron Burr 1771-1851 (mostly 1778-1834) C0081

Search This Collection

Search Tips | How to Browse this Collection

Contents and Arrangement Ask a Question

Series 1: Correspondence, 1778-1834
 Series 2: Legal Papers, 1787-1833
 Subseries 2A: United States v. Aaron Burr and John Nicholson, 1795-1803
 Subseries 2B: Charles Wilkins v. Aaron Burr, 1809-1814
 Subseries 2C: Thurman Litigation, 1825-1827
 Subseries 2D: Miscellaneous Legal Matters, 1787-1833
 Series 3: Other Documents, 1786-1816
 Series 4: Papers of Others, 1771-1851
 Series 5: Miscellaneous Material, undated

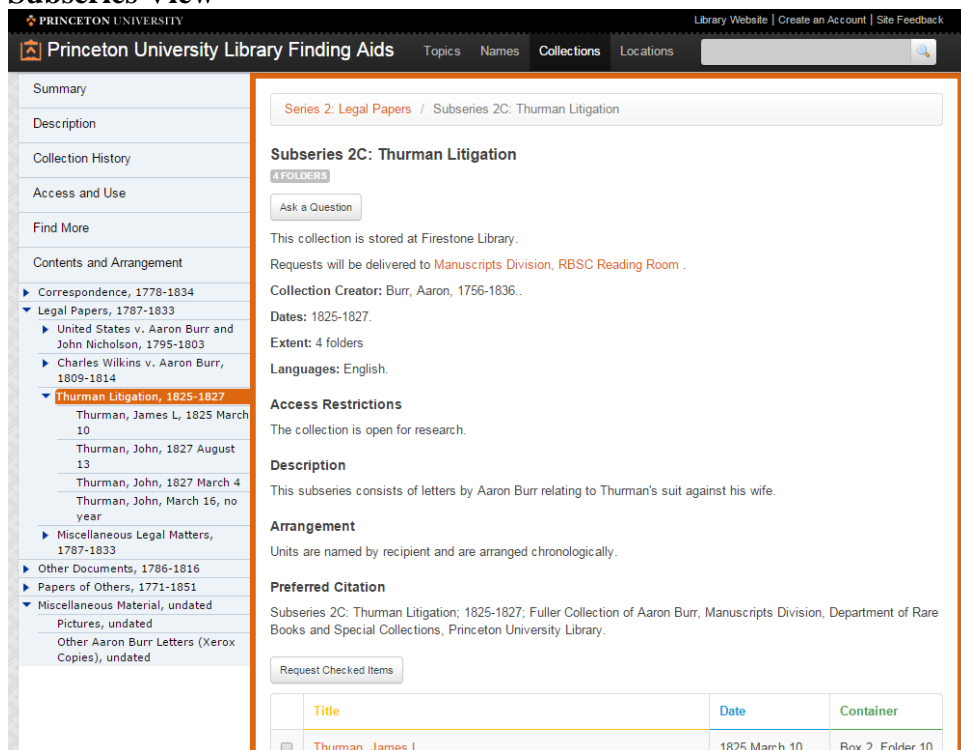
Comments

There are no comments posted yet. [Be the first one!](#)

Post a new comment

Enter text right here!

Princeton University Library Finding Aid Website – Example Collection, Series and Subseries View



PRINCETON UNIVERSITY Library Website | Create an Account | Site Feedback

Princeton University Library Finding Aids Topics Names Collections Locations

Series 2: Legal Papers / Subseries 2C: Thurman Litigation

Subseries 2C: Thurman Litigation 4 FOLDERS

Ask a Question

This collection is stored at Firestone Library.

Requests will be delivered to [Manuscripts Division, RBSC Reading Room](#).

Collection Creator: Burr, Aaron, 1756-1836.

Dates: 1825-1827.

Extent: 4 folders

Languages: English.

Access Restrictions

The collection is open for research.

Description

This subseries consists of letters by Aaron Burr relating to Thurman's suit against his wife.

Arrangement

Units are named by recipient and are arranged chronologically.

Preferred Citation

Subseries 2C: Thurman Litigation; 1825-1827; Fuller Collection of Aaron Burr, Manuscripts Division, Department of Rare Books and Special Collections, Princeton University Library.

Request Checked Items

	Title	Date	Container
<input type="checkbox"/>	Thurman, James L.	1825 March 10	Box 2, Folder 10

Princeton University Library Finding Aid Website –Example Collection, Container List

PRINCETON UNIVERSITY Library Website | Create an Account | Site Feedback

Princeton University Library Finding Aids Topics Names Collections Locations

Thurman Litigation, 1825-1827

- Thurman, James L, 1825 March 10
- Thurman, John, 1827 August 13
- Thurman, John, 1827 March 4
- Thurman, John, March 16, no year
- Miscellaneous Legal Matters, 1787-1833
- Other Documents, 1786-1816
- Papers of Others, 1771-1851
- Miscellaneous Material, undated
 - Pictures, undated
 - Other Aaron Burr Letters (Xerox Copies), undated

Access Restrictions
The collection is open for research.


Description
This subseries consists of letters by Aaron Burr relating to Thurman's suit against his wife.

Arrangement
Units are named by recipient and are arranged chronologically.

Preferred Citation
Subseries 2C: Thurman Litigation; 1825-1827; Fuller Collection of Aaron Burr, Manuscripts Division, Department of Rare Books and Special Collections, Princeton University Library.

Request Checked Items

	Title	Date	Container
<input type="checkbox"/>	Thurman, James L	1825 March 10	Box 2, Folder 10
<input type="checkbox"/>	Thurman, John	1827 August 13	Box 2, Folder 11
<input type="checkbox"/>	Thurman, John	1827 March 4	Box 2, Folder 12
<input type="checkbox"/>	Thurman, John	March 16, no year	Box 2, Folder 13

Comments 

There are no comments posted yet. [Be the first one!](#)


Post a new comment

Enter text right here!

Princeton University Library Finding Aid Website – Example Collection, Item View

PRINCETON UNIVERSITY Library Website | Create an Account | Site Feedback

Princeton University Library Finding Aids Topics Names Collections Locations

 **Fuller Collection of Aaron Burr** 1771-1851 (mostly 1778-1834) C0081

[Search Tips](#) | [How to Browse this Collection](#)

Series 2: Legal Papers / Subseries 2C: Thurman Litigation / Thurman, James L

Thurman, James L

1 ITEM

This collection is stored at Firestone Library.

Requests will be delivered to [Manuscripts Division, RBSC Reading Room](#).

Collection Creator: Burr, Aaron, 1756-1836..

Dates: 1825 March 10.

Located In: Box 2, Folder 10

Extent: 1 item

Languages: English.

Access Restrictions
The collection is open for research.

Description
ALS, 1 p.: concerning a release from the heirs under a will, and asking for biographical information about Thurman and various members of his family.

Preferred Citation
Thurman, James L; 1825 March 10; Fuller Collection of Aaron Burr, Box 2, Folder 10; Manuscripts Division, Department

Summary

Description

Collection History

Access and Use

Find More

Contents and Arrangement

- Correspondence, 1778-1834
- Legal Papers, 1787-1833
 - United States v. Aaron Burr and John Nicholson, 1795-1803
 - Charles Wilkins v. Aaron Burr, 1809-1814
 - Thurman Litigation, 1825-1827
 - Thurman, James L, 1825 March 10
 - Thurman, John, 1827 August 13
 - Thurman, John, 1827 March 4
 - Thurman, John, March 16, no year
 - Miscellaneous Legal Matters, 1787-1833
 - Other Documents, 1786-1816
 - Papers of Others, 1771-1851
 - Miscellaneous Material, undated

Appendix 2

Listserv Recruitment Letter

Title: **\$20 Amazon Gift Card for Website Usability Study Research Participants**

Hello,

I am a master's student from the School of Information and Library Science at UNC-Chapel Hill. I'm writing to invite you to participate in my **research study about improving the usability of academic archives' websites**. The goal of my research is to make navigating online content about archival collections more effective, efficient, and user-friendly.

All undergraduate students at UNC-Chapel Hill are eligible to participate in this study, regardless of their technological or archival experience.

This study will involve a **one-time, on campus testing session** (lasting up to one hour) during which participants will be asked to interact with the website of an archival institution and answer questions about their experience. Upon completion of the testing session each participant will receive compensation in the form of a **\$20.00 Amazon gift card**.

Participation in this study is completely voluntary and all responses will remain anonymous and confidential. This study has been approved by the UNC Institutional Review Board (Study #15-0292).

If you would like to participate or have any questions about this study, please contact me at rwalton@live.unc.edu.

Thank you,

-Rachel Walton

MSLS Candidate 2015

School of Information and Library Science

University of North Carolina Chapel Hill

Appendix 3

University of North Carolina at Chapel Hill Consent to Participate in a Research Study Adult Participants

Consent Form Version Date: _____

IRB Study # 15-0292

Title of Study: Usability of Online Finding Aids with Faceted Navigation

Principal Investigator: Rachel Walton

Principal Investigator Department: School of Information and Library Science

Principal Investigator Phone number: 904-294-2261

Principal Investigator Email Address: rwalton@live.unc.edu

Faculty Advisor: Helen Tibbo

Faculty Advisor Contact Information: (919) 962-8063

Funding Source and/or Sponsor: Carnegie Foundation

What are some general things you should know about research studies?

You are being asked to take part in a research study. To join the study is voluntary.

You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. You should ask the researchers named above, or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?

The purpose of this research study is to evaluate the usability of an archive's website which presents collection description for online researchers. Specifically, this usability study is interested in the efficiency and effectiveness of the website's navigational components. In an effort to better support online research of archival collections, this study aims at determining if current navigational elements on the website in question are, or are not, user-valued features.

You are being asked to be in the study because you are an undergraduate student at a university with an archive that supports online collection description.

Are there any reasons you should not be in this study?

You should not be in this study if you have a vision, hearing, or speaking impairment. You should also not be in this study if you do not speak English.

How many people will take part in this study?

There will be approximately 10 people in this research study.

How long will your part in this study last?

Your participation in this study will required one hour of active involvement.

What will happen if you take part in the study?

During this study you will be asked to complete:

- A demographic questionnaire
- A pre-test questionnaire and brief interview about an archive's website
- A series of online search tasks related to the same archive's website
- A post-test questionnaire and brief interview about the same archive's website
- A System Usability Scale (SUS) questionnaire about the same archive's website

You may choose not to answer a question on any of the above questionnaires for any reason at any time. However, if you choose not to fully participate in all of the above mentioned steps of the study you will not be compensated.

What are the possible benefits from being in this study?

Research is designed to benefit society by gaining new knowledge. The benefits to you from being in this study may be when you encounter archives' websites in the future that provide user-friendly navigation.

What are the possible risks or discomforts involved from being in this study?

While there are currently no known risks associated with this study, there may be uncommon or previously unknown risks including psychological and/or social discomfort. You should report any problems to the researcher immediately.

What if we learn about new findings or information during the study?

You will be given any new information gained during the course of the study that might affect your willingness to continue your participation.

How will information about you be protected?

Your privacy and confidentiality will be protected throughout this research study. The researcher will take all necessary procedures to protect the privacy and confidentiality of the data you provide. These procedures include:

- Securely storing records in a single, password-protected location, only accessible by the researcher.
- Not sharing any potentially personally identifiable data with any other individual besides the researcher.

- Only reporting of data captured about you during this study anonymously by assigning a random number between 1 and 10 to your dataset
- Destroying all personally identifiable participant information – including contact information, voice recordings, and correspondence – at the completion of the study.

Participants will not be identified in any report or publication about this study. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies (for example, the FDA) for purposes such as quality control or safety.

During this study your mouse movements and voice will be recorded. The information on these recordings will be protected by the same steps mentioned above.

With this knowledge, please check the line that best matches your choice:

_____ OK to record my mouse movements and voice during the study.

_____ NOT OK to record my mouse movements and voice during the

study.

What if you want to stop before your part in the study is complete?

You can withdraw from this study at any time, without penalty or compensation. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

Will you receive anything for being in this study?

In exchange for fully participating in the study, participants will receive a \$20.00 Amazon gift card. The participant will not receive this compensation in the event of withdrawal from the study prior to completion.

You will be receiving a \$20 Amazon gift card for fully participating in this study. If you agree to the terms of compensation stated above please initial here.

Will it cost you anything to be in this study?

It will not cost you anything to be in this study.

What if you are a UNC student?

You may choose not to be in the study or to stop being in the study before it is over at

any time. This will not affect your class standing or grades at UNC-Chapel Hill. You will not be offered or receive any special consideration if you take part in this research.

Who is sponsoring this study?

This research is funded by The Carnegie Foundation. This means that the costs of the study are being paid by The Carnegie Foundation. The researcher does not, however, have a direct financial interest with the sponsor or in the final results of the study.

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions about the study (including payments), complaints, concerns, or if a research-related injury occurs, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Participant's Agreement:

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

Signature of Research Participant

Date

Printed Name of Research Participant

Signature of Research Team Member Obtaining Consent

Date

Printed Name of Research Team Member Obtaining Consent

Appendix 4

Testing Materials

Demographics Questionnaire

Please answer the following questions by selecting or writing the correct response.

1.) Mark your affiliation (mark all that apply):

____ Undergraduate student at UNC

____ Graduate student at UNC

____ SILS Student at UNC

____ UNC faculty/staff/post-doctoral member

____ Other

2.) Please indicate the year you were born: _____

3.) About how many hours per week do you spend on the Internet?

_____ 0-2

_____ 3-5

_____ 6-10

_____ More than 10

4.) What is your major or field of work or study?

5.) How would you rate your level of experience using computers and the Internet?

____ Expert

____ Intermediate

____ Beginner

____ None

6.) How would you rate your level of experience using archival material for research?

____ Advanced

____ Intermediate

____ Beginner

____ None

7.) Have you ever used online collection guides for archival material?

____ Yes (if yes, roughly how many times? _____)

____ No

These survey questions were guided by those from a similar usability study conducted by Joyce Chapman and her work with NCSU finding aids in 2010.

[<http://www.lib.ncsu.edu/userstudies/studies/2010collectionguidesnovice>]

Pre-Test Questionnaire

The browser has been opened to <http://findingaids.princeton.edu/collections/C0614/>.

- What you are seeing is an example of an online collection guide for a university's archive.
- Please take a couple of minutes to familiarize yourself with this page. You may scroll up and down and click on tabs and explore the website in any way you wish.

[You will be prompted by the researcher to move on after exactly 2 minutes.]

- Now, to the best of your ability, answer the below questions about this collection guide. Please provide as much detail as possible in your response. You may use the front and back of this sheet of paper.

[You will be prompted by the researcher to move on after exactly 5 minutes.]

- After you have collected and written your thoughts down, the researcher will ask you to explain and elaborate on your response verbally.

QUESTION: What are your initial impression of this web page? Include (1) aspects of the page that you do and do not like, (2) your thoughts on the design and organization, (3) and any potential points of confusion you came across.

Usability Study Search Tasks

The browser has been navigated to <http://findingaids.princeton.edu/> before beginning tasks.

1.) TASK: Perform a search for “Aaron Burr”.

How many results are there? _____

2.) TASK: Select the Aaron Burr collection from the years 1771-1851.

What is the official title of this collection? _____

How big is the physical size of this collection? _____

Where is the collection physically stored? _____

3) TASK: Find the preferred citation for the collection as if you were writing a research paper.

What is the photocopy policy for this collection? _____

Under what tab and heading can you find that information?

4) TASK: Find Aaron Burr's biography.

What college did Aaron Burr attend? _____

How did you find that information? _____

5) TASK: Find all the "Subject Terms" associated with the collection.

Where did you find the "Subject Terms"? _____

How would you use these "Subject Terms" if you were a researcher?

On the same page is a section called "Related Material." What do you think this is

referring to? _____

6) TASK: Find information that explains how and when the collection was acquired and processed.

When was the collection purchased? _____

When was the collection processed? _____

Under what tab and heading can you find that information?

7) TASK: Find the place on the web page that shows how the collection is organized.

How did you find this? _____

There are two ways to view the contents of each series of this collection.

What are they? _____

What is the smallest (in size) series found within the collection? _____

How can you tell? _____

What is the title of "Series 2"? _____

How many folders are in Series 2? _____

How many subseries are contained within Series 2? _____

How is this series arranged? _____

8) TASK: Find the subseries “Charles Wilkins v. Aaron Burr, 1809-1814.”

List the names of the other individuals referenced in this subseries.

List the most common years found in this subseries _____

Within this series, what is the box and folder number containing the letter from Henry

Clay to Aaron Burr written February 13, 1812? _____

How many “layers” down in the collection hierarchy is this folder? _____

9) TASK: Reorganize the contents of the above subseries mentioned in Task 8 from earliest to latest date. Then reorganize it again from latest to earliest date.

What action did you take to achieve this? _____

10) TASK: Find the only box and folder in the whole collection with correspondence between Aaron Burr and William Denning.

What is the box number? _____ What is the folder number? _____

How did you find this? _____

If you were a researcher who wanted to view these items, how would you request access to this box or folder? _____

Post-Test Questionnaire

The browser is still opened to <http://findingaids.princeton.edu/collections/C0081>

- You have now had a chance to use an online collection guide for a university's archive to complete several tasks.
- Now, to the best of your ability, answer the below questions about your own experiences with this collection guide. Please provide as much detail as possible in your response. You may use the front and back of this sheet of paper.

[You will be prompted by the researcher to move on after exactly 5 minutes.]

- After you have collected and written your thoughts down, the researcher will ask you to explain and elaborate on your response verbally.

QUESTION: Now that you have been able to familiarize yourself with the webpage more thoroughly, please give any additional thoughts you have about (1) aspects of the page that you do and do not like, (2) your thoughts on the design and organization, (3) and any potential points of confusion you came across.

System Usability Scale Survey

(© Digital Equipment Corporation, 1986)

1. I think that I would like to use this
website frequently

Strongly
disagree

Strongly
agree

1	2	3	4	5

2. I found the website unnecessarily
complex

Strongly
disagree

Strongly
agree

1	2	3	4	5

3. I thought the website was easy to use

Strongly
disagree

Strongly
agree

1	2	3	4	5

4. I think that I would need the support of a
technical person to be able to use this
website

Strongly
disagree

Strongly
agree

1	2	3	4	5

5. I found the various functions in this
website were well integrated

Strongly
disagree

Strongly
agree

1	2	3	4	5

6. I thought there was too much
inconsistency in this website

Strongly
disagree

Strongly
agree

1	2	3	4	5

7. I would imagine that most people would
learn to use this website very quickly

Strongly
disagree

Strongly
agree

1	2	3	4	5

8. I found the website very cumbersome to
use

Strongly
disagree

Strongly
agree

1	2	3	4	5

9. I felt very confident using the website

Strongly
disagree

Strongly
agree

1	2	3	4	5

10. I needed to learn a lot of things before I
could get going with this website

Strongly
disagree

Strongly
agree

1	2	3	4	5

Appendix 5

Usability Study Procedures

BEFORE STUDY

1. Get keys
2. Open room
3. Return keys
4. Set up hardware (monitor, computer, speakers)
5. Set up software and screen (Custom Setting in Morae Recorder)
6. Check recorder with test run
7. Put up testing location signs
8. Bring –
 - a. two pencils and two pens
 - b. Amazon gift card
 - c. copy of survey materials and consent form for each participant with
 - i. date on consent form
 - ii. participant numbers specified on each page of survey
 - d. research folder with copy of survey, consent form, procedures, and participant grid
 - e. necessary personal items (water, sweater/jacket, writing pad and laptop, timer)

DURING STUDY

1. Greet the participant at the door and introduce yourself, invite them to sit in front of the testing computer
2. Go over consent form
 - a. Read out the highlighted portions of the text and ask for marks or signatures at appropriate places
 - b. Ask if they have any questions at this point
3. Begin the Study
 - a. *“Now we will be beginning the research study. Are you ready? [Pause]”*
 - b. *“So that I am sure to say the exact same thing to each participant, I will be reading a script from for much of the study session. In addition several portions of the study are timed and I will be using a stop watch to monitor these.”*
4. Demographics questionnaire –
 - a. Read italics on page
 - b. *“Please let me know when you have finished and we will move on.”*
5. Pre-test Questionnaire –
 - a. Select the proper URL and turn on Morae Recorder software
 - b. *“Now that I have set up your viewing window and set up the voice recorder, we are ready to move on to the free-response, written portion of the test session.”*
 - c. Read the first two bullet points on the Pre-test Questionnaire
 - d. Start the timer (2:00)

- e. Read the third and fourth bullet point on the Pre-test Questionnaire
- f. Start the timer (5:00)
- g. When timer goes off ask them to complete their written response.
- h. *“Ok, so tell me about your initial impression of this web page. Feel free to interact with the webpage as you explain yourself. [Listen]. What aspects of the page do you like? [Listen]. What aspects do you not like? [Listen]. How do you feel about the design and organization of the webpage? [Listen]. Was there anything that was confusing to you? [Listen].”*
- i. Ask any needed follow up questions

6. Search Tasks –

- a. Switch webpage to the basic search window.
- b. *“We will now begin the search task portion of the study. This is when I will give you a series of tasks to try and complete using the website now on your screen. You will have up to 30 min to complete these tasks and then the researcher will prompt you to move on. Don’t worry if you can’t complete a task or if some of them seem challenging, just do your best to complete all of the tasks in the best way you know how in the time allotted. If you finish before the 30 minute mark please let me know and we will move on. [Pause] Any Questions? [Pause] You may begin.”*
- c. Start timer (30:00)

7. Post-test Questionnaire –

- a. Read all the bullet points on the Post-test Questionnaire

- b. Start the timer (5:00)
- c. When timer goes off ask them to complete their written response.
- d. *“Ok, so now that you have become a little more familiar with the website, tell me about your final impressions of this web page. Feel free to interact with the webpage as you explain yourself. [Listen]. Were there any additional aspects of the page that you liked and didn’t mention before? [Listen]. What about additional aspect you did not like? [Listen]. What are your final thoughts about the design and organization of the webpage? [Listen]. Did your feelings about the webpage significantly change after you tried to perform the tasks assigned to you? If so, why? [Listen].”*
- e. Ask any needed follow up questions

8. SUS Scale Survey –

- a. *“This is the final portion of our session today. Please fill out this survey keeping in mind the interactions you have had with the website and be as truthful as possible in answering about your experience. Please let me know when you have finished and we will move on.”*
- b. When they have finished – *“We have now reached the end of our research session.”*

9. Acknowledgment of Compensation Form –

- a. *“I will now ask you to sign here in confirmation that you received a \$20 Amazon Gift card in compensation for your participation in this study.”*
- b. Give participant \$20 Amazon gift card

10. Thank the participant –

- a. *“Thank you so much for your willingness to participate in this study! I will be sure to email you with information about where you can find the published results of this study once all my research is complete.”*

11. Dismiss participant

AFTER STUDY

1. Manually end Morae Recorder
2. Save file with participant number and date as identifier in secure storage
3. Open file in Morae Observer to check if file is usable.
4. File participant's responses to surveys and consent form in research folder and gather materials and log off computer.
5. Take down testing location signs.
6. Close door and check to make sure it's locked.