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This paper presents the findings from a usability study on the redesign of the finding aid Web display at the Southern Historical Collection at UNC-Chapel Hill. The study focused on how users interact with help and navigational features, stumbling blocks presented by finding aid structure and archival terminology, how users seek information, and what users want for the future of finding aids. Findings show that Internet proficiency is slightly more important than archival expertise when navigating online finding aids; novice users are able to attain a fairly high level of archival intelligence without the help of mediators; archival terminology proves a significant barrier only when presented without context; and users rely heavily on the browser function *ctrl + F* and series titles when searching. Interest in Web 2.0 was low for features involving modification of the finding aid or requiring trust in other users, but relatively high for features helping users to organize information.

Headings:

Archival description

Finding aids

Usability

User needs

WHAT WOULD USERS DO? AN EMPIRICAL ANALYSIS OF USER
INTERACTION WITH ONLINE FINDING AIDS

by
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1. Introduction

Although finding aids have been displayed on the Web for over fifteen years, for much of that time little direct usability testing was done to evaluate how users interact with online finding aids. Though major research into usability was occurring in the world of Web design, the archival profession was slow to implement even basic user-design principles in online displays (Howard 8). However, it is essential that an archival Web presence adhere to the general rules of Web design. As Rosalie Lack points out in her 2006 usability study, "Even archives...can benefit from the same methods used by other types of sites" (84). If one of the main goals of archivists is to serve users, a priority must be to quantify how well the tools created are serving that goal. This can only be achieved through controlled testing and direct interaction with users.

In 2001, Altman and Nemmers conducted a usability study of online finding aids and found scant evidence of others conducting similar usability testing (122). When researching finding aid usability several years later, Elizabeth Yakel came to a similar conclusion that, "user evaluation has rarely been mentioned as an integral aspect of implementation" (2004, 65). An immense amount of time and energy have been put into developing an excellent archival descriptive standard, but the display of Encoded Archival Description (EAD) has long been forgotten as a secondary part of the job. In recent years, the archival community has gained momentum in user testing, recognizing

that it is time to turn attention to understanding how users will interact with the standard in display form. In the past two years alone, a number of archival institutions and consortia have conducted testing on user interaction with online finding aids, including the Archives of American Art (AAA), the North West Digital Archives (NWDA), and the Online Archives of California (OAC). As archivists work to refine finding aid Web displays, it is important to remember that the goals of descriptive standards should not and do not include display. User needs and the principles of Web design, rather than the structure of the EAD XML standard, should dictate how finding aids are displayed.

According to Web usability expert Jakob Nielsen, the ideal number of users to test in one round of usability with multiple groups of participants is three to four. Nielsen's studies show that a test of five users will uncover 85% of usability issues, with a full third of issues being uncovered by the first user alone. What Nielsen stresses, however, is that second and third rounds of testing must be conducted. While a first round of testing can easily identify weaknesses, cannot evaluate the improvement of a design (2000). The results of the current study report only on a first round of usability testing. While one round alone cannot evaluate improvement for the Southern Historical Collection (SHC) finding aid redesign, the findings are significant in that they add to the small body of data currently available surrounding user interaction with online finding aids, and provide a further stepping stone for future research.

The current study tested twelve participants with varying levels of Internet proficiency, divided into two groups: advanced archival researchers and novice finding aid users who had no previous exposure to finding aids. The goal of this study was to better understand

how these distinct user populations interact with online finding aids and what aspects of online display help or hinder them in that process; how quickly novice users learn without the help of mediators; and what capabilities users want finding aids to have in the future. In order to realize these goals, the study observed user interaction with help and navigational features, finding aid structure, terminology, and search. User habits were examined at the finding aid level only.

2. Literature Review

While the body of literature is increasing, there are still very few published studies examining data from usability studies conducted on finding aid Web displays. Though usability studies have most often been institution-specific, findings can often be extrapolated to apply to the entire field (Yakel 2004, 68). Usability studies to date have provided the field with some broad and basic conclusions from which to work in modeling concepts of redesigned display: users have trouble determining where they are in the hierarchy of the finding aid and need dynamic Web navigation options, archival terminology is a barrier to information discovery, and search capabilities are important to users.

Online finding aid usability studies have found that users are confused as to where they are at any given moment in the hierarchy of a finding aid. According to usability expert Steve Krug, no matter the Website, a user should be able to look at a page at any given moment and determine the answer to four questions, one of which is: "where am I in the scheme of things?" (20). Burt Altman and John Nemmers found that users became lost in

finding aids, and recommended that online finding aid displays help users to know where they are at all times (2001, 126). The hierarchy employed in archival description may be both unintuitive and unappealing to users when reproduced in the visual display. Yakel also found that users became lost in the hierarchy of the finding aid (2004, 68). The need for navigational assistance in the container list when there are multiple levels of hierarchy involved is especially important. The OAC's 2009 round of usability testing reported users feeling lost and unsure of where they were in the collection after jumping to detailed parts of the container list from the table of contents (15). The AAA's participants also had issues navigating the collection via the finding aid (1), and Wendy Scheir's findings showed that one of the major issues identified by novice users was frustration as they became lost in the container list, with endless scrolling required to find the container, series, or sub-series in which they were currently situated (74). Most usability studies have shown that users are desperately in need of dynamic Web navigation options when dealing with online finding aids.

Users are in need of other kinds of navigational assistance as well. Lack reports that users want common, useful links such as "Home" and "Contact" to be available at all times on the screen (79) and the executive summaries of the third round of the NWDA's five-round usability tests conducted in 2007-2008 recommended that the addition of "Contact" and "Help" links to each finding aid (4). The NWDA's fourth round of testing found that users wanted more basic orientation information, as well as tutorials on how to conduct research (1). Lack, on the other hand, found that users admit that they tend not to use help pages even when they are provided (80).

Certain sections of the finding aid are less useful to users than others. In their third round of usability testing, the NWDA's participants found subject headings "confusing and distracting," after which the NWDA chose to move subject headings to the bottom of the finding aid Web display (3). In the fourth round of testing, NWDA's participants commented that they would like subject headings to be linked to catalog searches (7). The Minnesota Historical Society (MHS) reference staff and SHC reference staff have similarly reported that users are confused by subject headings, often requesting a subject heading as if it represented a discrete set of material. The MHS has considered suppressing subject headings all together in the Web display, though it has not been done to date (Ralston).

Usability studies have reported on the success of navigation menus like tables of contents with links leading to different sections of the finding aid Web display (OAC 2009, 15; Scheir 2005, 74). Christopher Prom's usability study of the EAD Cookbook endorsed the left-hand navigation menu (2002, 264), as did Yakel's 2004 usability findings (75). At the same time, the NWDA's fourth round of testing found that some users failed to use side navigation bars at all, reasons for which included that it was "too busy" (5). The AAA users also commented that the sidebar was "busy," giving the impression of advertisements instead of useful links (1). Some users may simply not be familiar enough with the Web to feel comfortable using navigational aids such as sidebars; however archivists can take precautions to use basic principles of Web design in the sidebars presented to users, in order to assume maximum visibility and clarity. Studies show that frames should be placed left or top to improve both accuracy and speed measures with use of navigational links, and background contrast should be increased in order to draw

attention to the navigational area (Van Schalk and Ling 2001, 513-525).

Another of Krug's four questions that must be answerable for every Web page is: "what is this page?" One possible way to answer this question for online archives users was suggested by the NWDA. In the findings of their second round of usability testing, they recommended adding a simple statement to each finding aid explaining the nature of a finding aid (2). One of the most potentially confusing aspects of a finding aid is that it discusses material that may or may not be accessible from the Web page. In the succinct words of one of the OAC's usability participants, "my first question is, where is it?" (2009, 16). In Wendy Duff and Penka Stoyanova's usability focus groups, users stressed a need for online finding aid pages to tell them how to actually access materials (61). Similarly, in 2006 the California Digital Library found that in the current digital age, users expect resources to be available online. If resources are not available on the Web, users want that plainly indicated (77). The AAA's 2008 study also found that users had difficulty determining whether or not materials were available online in digital form, and the OAC's users also emphasized the need for information about the availability of materials (2008, 16).

The use of archival jargon in finding aids has proved consistently confusing to users (AAA 2008; Lack 2006; Nimer 2008; NWDA 2007, 2008; Prom 2004; Scheir 2005; Yakel 2002, 2004). As Dennis Meissner put it, "we express a great deal of fairly standardized information about the content of our collections in what is essentially coded form...and we are not providing our users with anything resembling a codebook" (379). Lack found that a number of terms easily understood by archivists — such as

“repository,” “EAD,” “description summary,” and “folder list” — could not be interpreted easily by most users (81, 84). Many have noted that users do not even understand the concept of “finding aid” (AAA 2008; Lack 2006; NWDA 2009; Prom 2004), leading to potential confusion when the word was used in menu options elsewhere on the site.

Scheir found that unclear section labels and series titles are especially problematic and that participants wanted archival terminology to be hyperlinked to definitions (72). In 2001, Andrea Rosenbusch also found that section labels were confusing (50), and over a decade ago, Duff and Stoyanova determined that users wanted more widely understood and consistent terminology to be used to label finding aid sections (52). In the fourth round of testing at the NWDA, users considered sectional labels such as, “Administrative Information” opaque, commenting that it gave the impression that the information was not for users, but rather for administrators (7). In 2008, Cory Nimer's findings corroborated that users would prefer more intelligible labels for finding aid sections. However, while Nimer, like others, found that archival terminology was unintelligible to users, he also found that when put in context, most jargon became understandable for his participants (229).

When using online finding aids, users prefer to find information quickly via search, rather than navigate the finding aid's hierarchy as archivists may have intended. Rosenbusch found that users have difficulty navigating because the finding aid display presupposes them to have a good understanding of the series system with which to navigate, but often they do not (50). In 2004, Prom conducted one of the larger online finding aid usability

studies to date, testing 84 users with both advanced and novice archival research and Internet proficiency levels. He found that if a search option was available, most users opted to use it immediately (257). Upon entering a finding aid, users behaved in one of two ways: conducting a search with the built-in browser function *ctrl + F*, or scrolling through the finding aid (258). Of particular note, Prom found that many advanced users opted to use *ctrl + F* to find information rather than navigate the archivist-imposed hierarchy (259). However, Prom also found that the most advanced researchers still tended to read the *Scope and Content Note* and make use of other detailed contextual information (260). In Scheir's 2005 study of novice finding aid users, she also discovered a preference among users for immediate answers: her users relied on search tools or went immediately to the container list to seek information (60). Nimer's 2008 study once again showed a strong preference on the part of participants to use the search functionality of the delivery system almost exclusively to locate materials (228). Indeed, Nielsen has stressed searchability as a fundamental aspect of what users want from Web sites. Studies conducted by Nielsen show that over half the people on the Web are "search-dominant users," meaning the first thing that they do upon entering any given site is look for a search box (1997). The majority of the OAC's 2008 usability participants admitted that they wanted to begin an information-finding task with a search (9).

Scheir found that when users did not opt to use a search, the preferred method of navigation was a narrative overview accompanied by a list of series linked to more detailed information below. Novice users shied away from blocks of text, finding them "visually annoying," and preferred bulleted lists (60). The NWDA's fourth round of usability testing also found that users dislike long blocks of text, preferring searching the

page to find information rather than take the time to read them (1).

A number of archivists have emphasized the need for Web 2.0 technologies to be incorporated into finding aid displays, such as the ability to comment or tag. Though archivists are stressing such additions to online finding aids, are researchers really interested? Lack's study touched on the subject, with some users reporting that they wanted "top ten" lists of most used finding aids, as well as a finding aid recommendation system similar to Amazon's recommendation system with products (79). With regard to a commenting feature, the OAC's first round of usability testing reported that while users expressed interest in the idea of comments from archivists or advanced researchers, they were not interested in the average Internet user having the ability to comment (Lee 2008, 8-9). A small, unpublished usability study of five graduate and undergraduate students at Duke University found that none of the five participants were interested in either commentable or taggable finding aids (Huffman). At a 2008 symposium of prominent southern scholars at UNC-Chapel Hill, those scholars who discussed the issue were skeptical of commentable or taggable finding aids (Brown 1). Some were strongly opposed to the idea, listing libel and blasphemy as possible results of an open commenting feature. Others supported the feature but with caution, and with certain requirements. A two-tiered system was one such requirement: in such a system, trusted scholars and their graduate students would have login access with the ability to make comments without moderation, but the general public's comments would be heavily monitored by archivists. If comments were to be allowed, there was a desire for comments not to clutter finding aids, instead appearing only when specifically requested (Brown 1). The Polar Bear Expedition digital collection is one example of a finding aid

already incorporating the ability for users to comment. In their article discussing the collections' interactive features, Yakel and Krause report low user-commenting statistics for the commenting feature. While logs showed that thousands had viewed the collection, only seventeen user-produced comments were left after six full months (298).

Though archivists have a long history of serving users, they have not yet adjusted to rapidly changing roles in service, nor to the changing channels of access users have to finding aids. In a recent OCLC report, Jennifer Schaffner observes that users increasingly reach finding aids via Google searches or Wikipedia instead of via online catalogs or special collection homepages (5). Schaffner discusses how the archivist's role as mediator between the finding aid, the user, and the collection is quickly waning: users now prefer less mediation on the part of archivists and prefer to interact with finding aids online, without mediation (5). Prom's 2004 study found that both prior experience with archival research and higher levels of Internet proficiency increase users' chances of success in interacting with online finding aids; however, he does not believe it likely that online finding aids will ever be so transparent that the archivist's role as mediator will cease to exist (265). Richard Cox warns, however, that if users require archivists as mediators, finding aids may not be doing the job they were meant to do (11). Yakel and Torres believe that users require "archival intelligence," including an understanding of archival representation and descriptive practices, in order to become experts in using finding aids and collections. Yakel and Torres came to the conclusion that archival intelligence is not attainable in a single session, but rather is something that must be learned over time (51-78). On the other hand, while conducting a study on novice finding aid users, Scheir found that despite barriers presented in the form of a presupposition of users' knowledge

of archival principles, “participants went through a rapid self-education process” (49, 78). Though the majority of those who have not previously interacted with finding aids may at first encounter great difficulty, can they develop archival intelligence on their own by interacting with finding aids and online help resources, or do they ultimately require mediation on the part of archivists?

3. Methodology

3.1. Finding aid redesign

The online finding aid Web display for the Southern Historical Collection (SHC) at the University of North Carolina at Chapel Hill had not changed significantly since the institution’s EAD-encoded finding aids were first put on the Web in 1998. In 2008-2009, the SHC undertook a redesign of the finding aid Web display, and subsequently performed an initial round of usability testing. The goals of the redesign were to improve display, add useful navigation features, lower terminology barriers, and include new help features for both novice and advanced users. New navigational features include a fixed left navigation bar with hyperlinks to different sections of the finding aid and a top navigation bar with links to common resources such as *Contact* and *Duplication Policy* (see Figure 1), a hyperlinked set of *Series Quick Links* in the *Container List* (see Appendix E), and collapsible and expandable finding aid sections (see Figure 4). New help features include a *FAQ* page, a *How to View Materials* page, hover captions in the *Container List* giving users information on where they are in the finding aid hierarchy by listing the series and container information (see Figure 3), hover captions over the links on the side navigation bar explaining what a user will find in each of the linked sections

(see Figure 2), and a statement at the top of each Web page explaining the nature of a finding aid (see Figure 1).

3.2. Participant groups

The study tested two participant groups of six people each. The first group consisted of novice archival researchers who had never interacted with finding aids or archives and the second group was composed of advanced archival researchers. As finding aids are increasingly made available on the Web, a large percentage of the people accessing finding aids are doing so virtually and without any prior knowledge of archival theory (Scheir 49). Yakel and Torres have identified the concept of “archival intelligence” and posited the degree to which users need such knowledge in order to expertly use finding aids (51-78). The decision was made to test a group of novice participants in order to evaluate problems encountered specifically by this rapidly expanding user group and to assess the rate at which novice users can self-educate as they interact with online finding aids. Novice participants were not informed that the Web pages they would be testing were related to archival materials. Two-thirds of novice participants were graduate students from various schools at UNC-Chapel Hill, with no school represented more than once. One-third of the novice group was composed of members of the general public without advanced degrees. Novice participants ranged in age from 24 to 62, with 50% over 40 years old and 50% under 40 (see Table 1).

Advanced archival researchers were also tested. The study tested a group of advanced researchers in order to observe their general interaction with finding aids as well as their

information seeking behavior, to evaluate the greatest obstacles for these users in online finding aids, and to evaluate their interest in future finding aid Web 2.0 capabilities. The advanced participant group was composed of veteran researchers at the SHC, familiar with both archival material and with the SHC's finding aids, though none had previously seen the redesigned Web display. The advanced participants comprised a less varied demographic background due to the smaller pool available. These participants ranged in age from 24 to 35. Five of six participants were affiliated with UNC-Chapel Hill. The last participant was a visiting graduate researcher from out of state. The number of times these participants had used SHC finding aids prior to the redesign ranged from fifteen to hundreds (see Table 1).

An equal number of males and females were tested in the advanced group; four females and two males were tested in the novice group. 25% of total participants were 40 years old or older, 50% of participants were in their twenties, and 25% of participants were in their thirties. All participants were required to have basic computer literacy. Participants were asked to self-identify their level of Internet proficiency in order to assess the impact of Internet literacy on user interaction with online finding aids. However, the rating system provided by the demographics questionnaire was quite subjective. Based on observation of participants during the study, self-identified levels of Internet proficiency were inconsistent, and for this reason they have been disregarded. Instead, participants' level of Internet proficiency were retrospectively classified based on whether or not they displayed knowledge of certain Web functions over the course of the study. Participants were classified as "expert" Internet users if they both knew how to search a Web page using the built-in browser function *ctrl + F* and if they had prior knowledge of how to

collapse and expand sections of a Web page. Participants were classified as “intermediate” Internet users if they displayed knowledge of only one of the two above-mentioned functions, and participants were classified as “beginner” Internet users if they did not display knowledge of either function. Under this classification system, 42% of participants were “expert” Internet users, 42% were “intermediate” Internet users, and 16% were “beginner” Internet users.

58% of participants spent more than ten hours per week on the Internet, 25% spent six to ten hours a week on the Internet, and 17% spent between three to five hours per week on the Internet. High number of hours spent on the Internet was distributed evenly across advanced and novice participant groups and number of hours spent on the Internet did not correlate with level of Internet proficiency. Both participants with “beginner” Internet skills spent over eleven hours a week on the Internet.

Table 1. Participant demographics

ID	Age	Sex	Field	Archival experience	Internet level	Hr/wk
1	43	M	GS, Library Science	None	Intermediate	11+
2	53	M	GP, Banking	None	Expert	6-10
3	31	F	GS, History	Advanced	Intermediate	11+
4	24	F	GS, History	Intermediate	Expert	6-10
5	28	M	GS, History	Advanced	Intermediate	11+
6	26	F	GS, Social Work	None	Beginner	11+
7	24	F	GS, Political Science	None	Intermediate	3-5
8	58	F	GP, Administration	None	Beginner	11+
9	38	F	FS, Linguistics	None	Expert	11+
10	35	M	FS, History	Advanced	Expert	11+
11	25	M	GS, History	Advanced	Intermediate	3-5
12	27	F	GS, English	Beginner	Expert	6-10

GS = graduate student

FS = faculty and staff

GP = general public

Hr/wk = numbers of hours per week spent on the Internet

3.3. Conducting the study

Testing took place in the Usability Lab at the Davis Library at UNC-Chapel Hill, from April to May 2009. The study consisted of three parts: a demographics questionnaire (see Appendix A), a series of tasks to be completed by each participant by interaction with online finding aids (see Appendix B), and a post-test questionnaire (see Appendix C) and exit interview. Each test took approximately one hour, with roughly half the time spent on a post-test questionnaire and exit interview. The demographics questionnaire was identical for both participant groups. The tasks to be performed were identical for both groups, with the exception of an extra four-part question for novice participants. The post-test questionnaire asked all the same questions of advanced participants that it did of novices, but included a set of extra questions for advanced participants related to their research habits. The post-test questionnaire asked all participants to rate various aspects of their experiences completing the tasks using a Likert scale of one to six, with one being the most positive and six the least positive. The post-test questionnaire also included a seven-part question investigating participants' interest in a number of Web 2.0 features for finding aids.

Usability testing was conducted using Morae Usability Testing software. This software records participants' screen movements and audio; participants were therefore encouraged to discuss their thoughts aloud throughout the study. Participants were asked to complete between eight to nine tasks using four finding aids, which were opened in four separate tabs of a Firefox browser. The usability study did not address the larger departmental website or finding aid search system; each task was specific to a single finding aid's Web page. Due to technological malfunctions, the majority of one advanced

participant as well as one novice participant's interviews were lost. Many statistics for the later tasks and post-test questionnaire results are therefore calculated for 10 or 11 participants instead of 12.

4. Results

Findings show that novice participants were able to attain a fairly high level of archival intelligence without the help of mediators. Finding aid navigation and structure did not result in participants feeling lost in the finding aid, as has been reported in many other studies. Archival terminology proved the greatest barrier when presented without context, in hyperlinked menus or series titles, but did not hinder participants in information discovery in other contexts. Both novice and advanced participants preferred to find information within a page by keyword searching or by working within the *Container List* alone, and participants mostly used the *Series Quick Links* as their home base for known-item searching. Overall, participants were not enthusiastic about the addition of Web 2.0 capabilities to finding aids, though they showed more interest in some features than others.

4.1 Help features and navigation

A number of help features were tested, included a statement added to the top of every finding aid giving a brief explanation of the nature of a finding aid, and two new help pages called *How to View Materials* and *FAQ*. Features tested to improve navigation included a fixed left sidebar with hyperlinks to different sections of the finding aid, the hyperlinked *Series Quick Links* (see Appendix E), two sets of hover captions, and

collapsible sections. One set of hover captions occurred in the left navigation bar, providing users with more in-depth explanations of section contents (see Figure 2). The other appeared in the *Contents List*, showing users their current position in the finding aid hierarchy (see Figure 3).

The effectiveness of a the statement at the top of finding aids and the two new help pages in aiding users who have no prior experience with archival material were evaluated by task one. The task was performed by novice participants only, using the finding aid for the *Daniel Wallace Papers*. Results show that, if given the proper information, novice users can quickly and correctly identify what finding aids represent, as well as the non-digital nature of materials.

Figure 1. Help features: Top statement and help pages

The screenshot shows the top portion of a finding aid page. At the top left is the UNC University Libraries logo. To its right is the title 'The Southern Historical Collection at the LOUIS ROUND WILSON SPECIAL COLLECTIONS LIBRARY'. Below this is a navigation bar with links: SHC Home, Search Collections, How to View Materials, Contact, FAQ, and Duplication Policy. The main content area is titled 'Daniel Wallace Papers, 1977-2007'. It displays 'Collection Number: 5327' and 'Collection Title: Daniel Wallace Papers, 1977-2007'. A disclaimer states: 'This is a description of archival material held in the Wilson Library at the University of North Carolina at Chapel Hill. Unless otherwise noted, the materials described below are physically available in our reading room, and not digitally available through the World Wide Web. See the FAQ for more information.' Below this is a section titled 'Collection Overview' with two sub-sections: 'Size' (13.0 feet of linear shelf space (about 9,600 items)) and 'Abstract' (Daniel Wallace, author and illustrator, was born in 1959 in Birmingham, Ala. He attended first Emory University in Atlanta, Ga., and then the University of North Carolina at Chapel Hill. His first novel, Big Fish).

The first part of the task asked novices to explain the nature of the Webpage at hand. The question attempted to determine whether novice users understand that finding aids — when accessed instantaneously, for example via Google search results, instead of through a departmental website — are descriptions of archival material. Five of six participants

were able to understand and correctly answer the question. All participants answered in one minute or less, with time for correct completion of the task ranged from 15 to 60 seconds. Answers included, “description of archives at the Wilson Library,” “archival material,” “a collection of documents,” and “papers accumulated and authored by Daniel Wallace.” A full third of participants took their answers solely from the statement at the top of the finding aid (see Figure 1). Two participants who answered correctly also read the finding aid’s abstract, and three participants commented that it was obvious to them that this was archival material based on words that appeared on the opening screen such as, “collection” and “papers.” These findings suggest that novice users who are not knowingly seeking archival materials can be greatly aided by an informational statement providing contextual information on the opening screen of a finding aid. Results also show that novice users are capable of understanding some degree of information about the nature of archival material from context.

The second, third, and fourth parts of the task asked novice participants to identify the institutions to which the page was related, where the materials described were located, and what they would have to do if they wanted to see the materials. All participants answered all three questions correctly. Participants averaged 25 seconds to identify institutional branding. SHC users have frequently complained to staff that materials’ location and instructions on how to access materials are not readily apparent from the finding aid. Many inexperienced users expect materials to be available digitally and are confused by the inability to view items by clicking on folders in the finding aid. Lack also found that users often expect resources to be available online, and if they are not, users want that to be clearly indicated in finding aids (77). Without fail, participants in

the current study found the correct answer to the third part of task one, which asked them where the archival materials were physically located. Participants averaged 33 seconds to determine the correct answer. Two-thirds of novice participants answered using the new statement at the top of the finding aid. One participant followed the new *How to View Materials* link in the top navigation bar, and one participant did not see either the link or the top statement, but guessed that materials would be “in the Library” once she had read the abstract and determined that the materials in question were archival. Those who found their answer by reading the statement at the top of the finding aid answered over six times faster than the others, averaging 10 seconds for completion.

When asked what they would have to do to view materials in part four of task one, participants had to either read the top statement, follow the *How to View Materials* link in the top navigation bar, or follow the *FAQ* link to the statement at the top of the finding aid or top navigation bar. All six participants answered correctly, averaging 28 seconds for completion. Half of the participants answered by using only the top statement; one participant followed the *How to View Materials* link and two participants followed the *FAQ* link in the top statement to read the more detailed instructions on the external page.

When asked in the post-test questionnaire whether they use FAQs in general, 80% of respondents answered in the affirmative. While completing task one alone, 50% of novices were willing to navigate away from the current page in order to use one of the two help pages available. This diverges from previous findings that users will not use help pages or leave the current page to seek more information.

Navigation has been an important aspect in both Scheir and Yakel’s usability studies

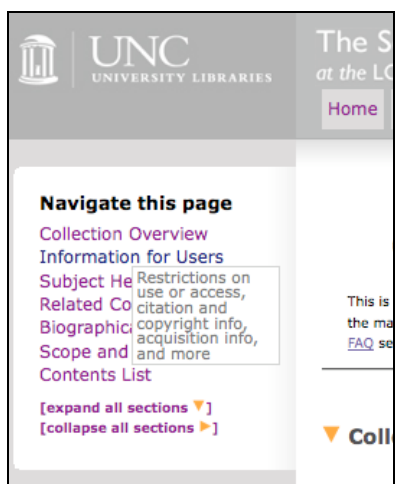
(2005; 2004). When asked whether the finding aids had been easy to navigate in the post-test questionnaire, all participants responded positively, with only two participants (both novice) rating the experience as slightly negative. The average rating for ease of navigation was 2.4 on a Likert scale of 1-6, with six representing the most difficulty. Many participants simply used the browser function *ctrl + F* to navigate the finding aid. When not using *ctrl + F*, most participants moved through the finding aid using a combination of links in the left navigation bar, hyperlinked series titles in the *Container List Series Quick Links* (see Appendix E), and scrolling. Oddly, no participants reported feeling lost in the *Container List* or complained about the need for endless scrolling, as subjects in so many other usability studies have. When asked to discuss the most frustrating aspects of navigating the finding aids in the post-test questionnaire, novice participants for the most part wanted to discuss terminological difficulties. When the researcher redirected them to discuss navigation specifically, participants rated the finding aids as fairly easy to navigate. Some commented that the pages were daunting because they were so large, but that with some practice, they believed one could quickly become more comfortable navigating.

Participants liked the fixed left hand navigation bar, and for the most part used it. This confirms Scheir's findings regarding fixed navigation menus, and Yakel and the OAC's findings regarding the success of hyperlinked navigation menus. Though there is no usability data from the previous SHC finding aid Web display, a number of advanced participants noted how much easier it was to navigate the new finding aid display compared to the old due to the new fixed navigation menu on the left. However, one of the two participants with an Internet proficiency level of "beginner" did not notice the

fixed left navigation at all. This participant was most comfortable scrolling through the entirety of finding aids. The other participant of “beginner” Internet proficiency also navigated purely via scroll until approximately one-third of the way through the study, when she began using the left navigation menu of her own accord. The first participant complained that she literally had not seen the side bar. She thought that there should be a statement at the top and center of the finding aid telling users to look to the left for a navigation bar. In contrast, most other participants in the study automatically saw and understood how to use the sidebar. This participant’s experience implies that users with low Internet proficiency may have difficulty taking advantage of some navigational features in online finding aids. A video tutorial demonstrating the use of different navigational features of online finding aids could possibly help such users.

Another navigational feature tested in the current study consisted of several sets of hover captions. Hover captions were added to the left navigation menu in order to help users understand the various sections of the finding aid. These captions appear when the cursor hovers over the hyperlink to any finding aid section in the left navigation bar, and contain a more in-depth description of what users will find if they navigate to the section in question.

Figure 2. Help features: Left navigation menu hover captions



Over the course of the study, three participants (all novices) made use of the left navigation hover captions. All three found the captions useful. Two used hover captions to answer task seven, which asked participants to explain the finding aid section *Contents List*. A third novice used the *Information for Users* hover caption during task four to determine which section contained restrictions. While he found it useful, he complained that the caption obscured the other choices on the navigation menu. Two advanced participants noticed the left navigation hover captions but did so very late in the study. Both thought the captions would be a useful feature for novices. Though the remaining 58% of participants triggered the left navigation hover captions at some point during the course of the study, they did not appear to notice the captions.

A second set of hover captions were added in the *Container List*. The captions appear on hover-over of any title within a container, and display information on a user's current position in the finding aid hierarchy by listing the collection number, series, and container information for the current location. It was hoped that these captions would be

particularly useful in long box lists where the container information is lost from view on the page.

Figure 3. Help features: *Contents List* hover captions.



This help feature was added in light of previous study findings that users become easily lost in container lists (Altman and Nemmers 126; Scheir 74). They were tested most specifically in task five, which asked users to find series and container information for a folder of material located in a long list of administrative files. This task reproduced the onerous situation in which a user must scroll endlessly to determine either the container or series in which the material is located. Since there was nothing on the Webpage indicating the presence of this help feature, only participants who happened to move their cursor over the title had the opportunity to trigger the hover captions, and only one-third of participants did so. However, of those four participants who triggered the caption, 75% gave the container and series information for task five by reading the caption, while those who did not trigger the caption were forced to resort to scrolling. Interestingly, one participant used the feature completely subconsciously. When, mere moments later, this advanced participant was asked to explain how she had located series and container

information, she hesitated and then said that she had scrolled up to the beginning of the series, when in reality she had not scrolled at all.

In the exit interview, advanced participants were asked whether they thought the new *Container List* hover captions would be useful, regardless of whether or not they had triggered the captions during the study. All responded that they would find it useful, though one identified a potential point of confusion, explaining that her own expectation upon seeing the hover caption appear was that it contained more detailed information on the contents of the folder in question. More research should be done on the proper presentation of the information found in these hover captions, and to determine whether the majority of users are helped or annoyed by the feature after interacting with it for a significant period of time.

Though hover captions are a useful method of imparting information for navigating online finding aids, their presence could be an obstacle if captions block other critical information from view, and hover captions used as a navigational device in the *Contents List* may initially confuse some users. The usefulness of hover captions may be limited, as it seems a large percentage of users have a learned habit of disregarding pop-up text. This is demonstrated by the fact that 58% of participants did not notice the hover captions in the left hand navigation menu when activated, and one participant who used hover captions in the *Container List* did so entirely subconsciously.

The study analyzed the transparency and perceived usefulness of collapsible finding aid sections in task two, using the finding aid for the *Daniel Wallace Papers*. Every section

of the finding aid (including each series and sub-series) was collapsible and expandable via an arrow image next to the section's title that changed direction when collapsed or expanded. The new fixed left side bar also featured *expand all* and *collapse all* buttons with the same miniature arrow images demonstrating the meaning of the arrows' directions. The task asked participants to navigate to the *Contents List* and collapse the first series.

Figure 4. Task two: collapsible sections

The screenshot shows a web interface for the Daniel Wallace Papers, 1977-2007. The top left corner features the UNC University Libraries logo. The main content area is titled "Contents list" and includes a "Series quick links" section with five numbered links: 1. Correspondence and Related Materials, 1977-2006 and undated.; 2. Books, 1997-2007 and undated.; 2.1. Big Fish, 1997-2004 and undated.; 2.2. Ray in Reverse, 1999-2000 and undated.; 2.3. The Watermelon King, 2001-2003 and undated.; 2.4. O Great Rosenfeld, 2004.; 2.5. Mr. Sebastian and the Negro Magician, 2006.; 3. Other Writings and Related Materials, 1980-2007 and undated. Below these links is a "Back to Top" link. The main content area also features a section titled "Series 1. Correspondence and Related Materials, 1977-2006 and undated." with subtext: "About 3600 items. Arrangement: alphabetical by correspondent. Processing Note: For Wallace's correspondence with publishers, agents, and bookstore owners, see Series 2. Books." The left sidebar contains a "Navigate this page" section with links: Collection Overview, Information for Users, Subject Headings, Biographical Info, Scope and Content, and Contents List. At the bottom of the sidebar are buttons for "[expand all sections ▼]" and "[collapse all sections ▶]".

Based on prior experience using the Internet, 67% of total participants already understood what was meant by “collapsing” a section on a Web page, as well as what a sideways or down-pointing arrow signified in these circumstances. Of the four participants who did not already understand collapsible sections, half failed to determine how to collapse anything at all. The other two participants who did not understand collapsible sections managed to collapse all the sections at once with the help of the *collapse all* button in the fixed left navigation bar.

When asked about the utility of the collapsing feature, 78% of participants who used the feature successfully responded favorably. Some of the ways in which they imagined the feature being useful included the ability to navigate a long, unwieldy page, the ability to better view all the section headers at once, and the ability to eliminate certain sections once it was determined that they were not necessary for the research at hand. Only 50% of the advanced respondents who understood the collapse feature deemed it useful, whereas 100% of novices who succeeded in collapsing the section said that it would be a useful feature. In their fourth round of usability testing, the NWDA found that collapsible and expandable feature in their sidebar produced only a “lukewarm response” from participants (2). Advanced participants in the current study reacted in a similar way. Those who did not think the feature would be useful indicated that they could not envision themselves having the need to use it. However, whereas some participants in the NWDA’s study found the feature distracting when used in the sidebar (5), none of the current study’s participants were bothered by the feature, which occurred only in the body of the finding aid. Participants did not interact with the feature during the study other than to determine how it functioned. It is likely that users in a non-controlled research setting would attain a more concrete view of the feature’s utility or lack thereof. Data should be gathered from users regarding their real-life interaction with the feature after the redesigned finding aids have been live on the Web for a period of time.

Finally, in the exit interview, two-thirds of advanced participants requested the addition of navigational capabilities within the *Subject Headings* in the form of hyperlinks either to a search in the main library catalog or to a search limited to archival materials. One novice participant also requested the feature. Three of four advanced participants

preferred linking to a search limited to archival resources. Though advanced participants all claimed that they did not use subject headings in finding aids, each of the four asserted that that they would find subject headings useful if they were hyperlinked to a search.

The utility of several navigational features was tested in the study. Participants found the finding aids fairly easy to navigate, and did not complain about feeling lost in the *Container List*. Participants liked and made good use of the fixed left navigation bar, though participants with low Internet proficiency had difficulty taking advantage of the feature and were forced to scroll through long pages. Collapsing finding aid sections, while intuitive to most and well received by many, may not be a much-used feature of online finding aids. Further observation of user interaction with this feature in a real-life setting is necessary. Advanced researchers feel that navigational capacities would be increased if subject headings were linked to a search of all archival materials or of the entire library catalog.

4.2. Structure

The post-test questionnaire asked several questions aimed at understanding user perception of the structure of online finding aids, including a survey of which sections of the finding aid advanced participants use while conducting research, whether or not they find the order of sections within the finding aid to be logical, and how easily novice participants can infer the nature of a given section.

When asked what sections of the finding aid they use during research, five of six

advanced participants reported that they used the *Contents List* and *Series Quick Links* as the home base for the majority of their work within a finding aid. Their actions during task completion confirm this. Two claimed that they almost never refer to the collection-level *Scope and Content* unless forced by a lack of clarity on the part of series' titles in the *Series Quick Links*. No advanced participants claimed to use *Subject Headings* in finding aids, though three had used subject headings while completing the tasks. Three participants explained that they use subject headings in the main library catalog when they are first beginning a project, but have no further need to use them once they arrive at a finding aid. All but one participant explicitly mentioned using the *Collection Overview*, where the abstract is found. Two advanced participants discussed the abstract as an integral part of the decision-making process for whether or not to use a collection for research.

An interesting observation during the study was advanced participant attitudes towards their own research practices. Many advanced participants acted guilty or self-conscious about their heavy reliance on the *Contents List* and on the search function *ctrl + F*, demonstrating a general belief on the part of participants that they are not using finding aids the way that archivists designed them to be used. Two participants cited their own impatience as the reason that they do not use sections of the finding aid other than the *Contents List*. One participant thought that he should be using sections of the finding aid other than the *Contents List*, but never did, despite that fact that when he checks the *Scope and Content* he is always stunned to see that, “look, someone has already done all the work for me!” Only one advanced participant reported first gathering contextual information from the finding aid by reading sections such as the *Scope and Content* and

Biographical Note before moving into the *Contents List*.

Advanced participants also discussed the sections of the finding aid that they use for corroborating evidence after they have found information in what they consider to be the most important places. Two said that while they first look for information in the *Contents List*, they then may then return to the collection-level *Scope and Content* to substantiate the information. Another did the same with *Biographical Information*, returning to corroborate findings or obtain dates. A fourth said he always scans the *Biographical Note* at some point during his research.

When asked whether the order of the sections within the finding aids was logical, some advanced participants said it was not, but none found that the order of sections was problematic since they could easily navigate between sections from the left navigation bar, which suggests that increased navigational capabilities enhance usability. Four advanced participants made suggestions for the most logical ordering of sections. Two suggested moving the *Subject Headings* section to the end of the finding aid, because they felt subject headings were not important or useful. This confirms the NWDA's findings that users do not generally perceive subject headings to be useful. One suggested that the *Scope and Content* and *Biographical Information* be grouped at the top of the finding aid just below *Information for Users*, because these categories were all "specific" information, while *Subject Headings* and the *Contents List* should be grouped at the bottom because they were "general" information. Another suggested that *Scope and Content* and *Information for Users* be subsumed into the *Collection Overview* as subsections, and indented in the sidebar.

Task seven tested whether the structural breakdown of information in finding aids makes sense to users, as well as how quickly novice users can grasp meaning behind the structure of archival description. It asked participants to look at the various *Contents List* section of the four finding aids they had used for the study, and to explain what archivists were trying to convey by grouping the information as they did in the *Container List*. Interestingly, novice participants' answers to this question were just as accurate as advanced participants' answers, demonstrating evidence that some aspects of archival intelligence may be acquired fairly quickly, without the help for formal training. Novice answers included, "Generally speaking, it looks like an inventory of the materials," and "This tells me what the contents are, and breaks them down." The most common misconception among novice and advanced participants alike was that the *Contents List* grouped collection materials by format instead of by intellectual grouping. Only one advanced participant reported that materials in the *Contents List* were grouped by "subject/theme" instead of by format. Though problems stemming from this false impression did not arise in the current study, one can easily imagine how search patterns could be affected by such a misconception. Further research should be conducted to determine the extent of this misconception and its causes.

Regarding finding aid structure, advanced users perceive the *Contents List*, *Series Quick Links*, and the abstract in the *Collection Overview* to be the most essential components of the finding aid. Advanced participants disagreed with some structural decisions made by archivists concerning the order of sections in finding aids, but at the same time confirmed that increased navigational capabilities in the form of fixed tables of contents with

hyperlinks to sections of the finding aid enhance usability by overcoming possible confusion that may be caused by the structure of the finding aid itself. Novice participants showed a reasonably high level of understanding of the purpose and structure of the *Contents List* after very brief interaction with finding aids, suggesting again that some archival intelligence may be acquired fairly quickly without the help of archivists.

4.3. Archival terminology and labeling

As discussed in the literature review, the majority of finding aid usability studies have identified archival terminology as a stumbling block for users. The current study attempted not only to identify what terminology presents difficulty for users, but also to identify qualities specific to the terminology that impedes users in information discovery. The study did so by comparing the location of unknown terminology that did not hinder participants versus that which did. Findings indicate that users' success with finding aids is hindered most by unfamiliar terminology appearing without context: for example, in menus such as the *Series Quick Links* and left hand navigation bar. In particular, participant searches were greatly impeded by unclear labeling practices and unknown terminology found in series' titles. Participants were better able to either circumnavigate terminology or intuit its general meaning when terms were placed in context. The wording of collection restrictions also confused participants.

In the post-test questionnaire, participants were asked to rate whether or not the finding aids were written in language that was easy to understand, using a Likert scale of 1-6 with six being the most difficult. Participants generally rated the finding aids as written in

language that was not too difficult to understand; with novice participants averaging 2.8 in their response and advanced participants averaging 1.8. In contrast, complaints about terminology were one of the largest issues that arose during the exit interview. In particular, participants cited labeling practices in series titles used in tasks eight and nine as well as the wording of restriction statements as problematic. Other terminology that many participants complained about but which did not impede research included “series” and “container,” both of which they were required to interact with when identifying the location of materials in tasks five, eight, and nine.

Over the course of the study, participants relied heavily on series titles in search and expressed intense frustration with those series titles that were not descriptive of the subject matter of material. The most problematic terms were “volumes” and “additions.” Three-fourths of participants actively complained about the series title, *Volumes, 1860-1965* and *Additions received after 1989*, and five of six advanced participants complained specifically about how addition series are named in the exit interview.

Task eight asked participants to locate a diary, which was found in series 6. *Volumes, 1860-1965*. Participants, who for the most part searched by scanning the *Series Quick Link* titles and navigating back and forth to series from there, did not choose 6. *Volumes* as a logical place to find a diary because they did not understand the term “volume.” The meaning of the term was unclear to all but one participant. Participant frustration can be summed up by one novice who commented, “volumes... volumes of WHAT?!” Two participants said that they expected only published materials to appear in a section with this label. Another participant complained, “As I was looking for a diary, I didn’t find [a

series title] that led me to a diary. The heading ‘volumes’ didn’t provide much information for me.”

Similarly, task nine also used the *Thomas E. Watson* finding aid, and asked participants to locate an oral history. The oral history was located in the series *8. Additions received after 1989*. The task forced participants to navigate via the finding aid’s hierarchy, as the phrase “oral history” did not occur in the finding aid (it was labeled “tape recorded interview”). Once again navigating from the *Series Quick Links*, 75% of participants chose *Additions received after 1989* as the first logical series in which the oral history would be located. However, all of these participants (which included 67% of all advanced participants) did so because they falsely assumed that the term “additions” implied material created at a later date than the bulk of the original deposit, instead of material added to a collection at a date later than the original accession. Only one of six advanced participants clearly expressed an understanding of archival additions.

The SHC traditionally does not integrate addition materials into collections. Addition series are named according to accession number and date of accession, sometimes with the date range of the materials in the addition included as well. No participant was satisfied with the way addition series were labeled in the finding aid. Advanced participants were not opposed to the non-integration of additions, but complained along with novices that there was no way of knowing what materials were in the additions based on the series naming practices. Comments from advanced participants regarding the term “additions” in series titles ranged from the rather scathing, “The additions thing, that just made me roll my eyes. Like, well *great*, that tells you *one thing* about everything

that's in there, not *what* the objects are," to the more restrained, "the additions don't provide any useful information from the titles," and, "it doesn't seem like 'additions' as a category was useful." Some advanced participants commented that if additions were going to be named this way, they needed the contents of each addition to be expressly stated in the abstract.

Participant comments on both tasks eight and nine underscore user interest in the subject matter of collections. Schaffner analyzes the split between archivist and user interest in describing collections in her article, "The Metadata Is the Interface," in which she discusses data from various studies proving that users are interested in the "aboutness" of collections, whereas archivists often focus on the "ofness" (6). The participants in the current study showed a strong desire to obtain subject information, or "aboutness," in series titles.

Participants found unfamiliar terminology in restriction statements to be a pitfall. Tasks four and six were aimed at assessing the transparency of restriction statements, in particular restrictions involving listening copy production, as well as the new *Sensitive Materials Statement*. The tasks used the finding aids for the *Southerners For Economic Justice Papers* and the *Mark Aduini Papers* respectively. None of the restrictions encoded in the two tasks barred users from accessing the collections, but both finding aids included the same restriction warning users that a listening copy of audiovisual materials would need to be produced before they could view or listen to the materials.

Figure 5. Task six: understanding restrictions. *Mark Arduini Collection*.

The screenshot displays the 'Mark Arduini Collection, 2002-2003' page from UNC University Libraries. The page is divided into several sections:

- UNC UNIVERSITY LIBRARIES** logo at the top left.
- Mark Arduini Collection, 2002-2003** title.
- Navigate this page** section with links: [Collection Overview](#), [Information for Users](#), [Subject Headings](#), [Biographical Info](#), [Scope and Content](#), and [Contents List](#). Below these are expand/collapse controls: [\[expand all sections ▼\]](#) and [\[collapse all sections ▶\]](#).
- Information for Users** section, which is expanded to show:
 - Restrictions to Access**: *Use of audio recordings may require production of listening copies.*
 - Sensitive Materials Statement**: A detailed paragraph explaining that manuscript and archival collections may contain sensitive or confidential information protected by federal or state privacy laws (N.C.G.S. § 132-1 et seq., Article 7 of the North Carolina State Personnel Act, and the North Carolina Identity Theft Protection Act). It states that researchers are advised that disclosure of certain information without consent may have legal ramifications.
 - Copyright Notice**: Copyright is retained by the authors of items in these papers, or their descendants, as stipulated by United States copyright law.

Three-fourths of participants were able to determine (albeit some with a good deal of hesitation) that they were probably allowed to use the materials. One fourth of participants incorrectly believed that they would not be able to access the materials for either task four or six, due to the restriction statements. One advanced participant thought she would not be able to view the paper materials in the collection based on the presence of the *Sensitive Materials Statement*, which she did not interpret to be generic. Roughly half of participants, 54%, did not fully understand the meaning of the restriction regarding listening copies, including all but one novice participant and a third of advanced participants. When asked if they had any idea what the restriction might mean, novice answers ranged from a simple, “no” and “I have no idea” to, “It seems like something *really* special has to happen. ‘Production’; something has to be produced.” Two participants thought that they themselves might have to make a copy of the audio and return it to the repository; one thought that the audio was not yet recorded in any form, and one advanced participant who already understood the concept of listening copies suffered under the false assumption that the restriction would only apply to “older” audio formats, and not to audiocassettes. Though the page *How to View Materials*

included an explanation of the term "listening copy," the information was not available when and where participants needed it.

Regarding the new *Sensitive Materials Statement*, 50% of participants did not see it at all, many of them novices. Half of the advanced participants were confused by the statement. Specifically, they were unsure of whether it was a generic statement or particular to the collection at hand. Two complained about the "legalese" of the statement. By the end of the study, one advanced participant still incorrectly believed that she was not able to access materials at all due to the statement. Another advanced participant said that if she had not gone back to compare the multiple finding aids and realized the same statement occurred on each, she would have been thoroughly confused about whether the statement was restricting that particular collection. This participant strongly recommended that the statement be moved to fine print, or at least not grouped together with collection-specific restrictions at the top of *Information for Users*.

The failures of tasks four and six highlight the fact that archivists must remain vigilant to the language used in finding aids. What seems obvious to professionals in the field may be obscure not only to novice users, but to experienced users as well. In the words of one novice participant in regards to restriction statements, "I think I understand, but, I shouldn't need to think. You should have it there in black and white."

Tasks five, eight and nine all asked participants to identify container and series information in the finding aid. In general, participants did not have much trouble identifying container information, despite the fact that the term "container" appears

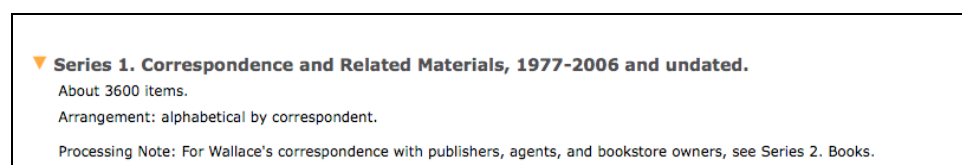
nowhere in the finding aid (the SHC does not use column headers in the *Container List*). While the term “container” was not clear to any novice participant and also not clear to a few advanced participants, they were all able to use process of elimination to identify the element that must be the “container” in question. In the words of one novice participant as she stared at container “V-755/1” on task nine, “well I don’t know what a container is but I’m assuming it’s this. I feel like that’s an important number to go take to someone.” In the post-test questionnaire, only two participants specifically complained about the term, one saying that he did not like the word because it “doesn’t mean anything,” neither saying that it actually stopped them from using the finding aid.

“Series” and “sub-series” are terms that are relevant in archival description, but which may be unclear to users. Participants were also asked whether the phrase “series” made sense. Almost all participants agreed that it did not, including advanced participants; however, terminology did not impede participants in information discovery, as it had in series titles. One advanced participant commented, “‘Series’? I just look at the title after ‘series,’ I don’t know what you mean by ‘series’ there actually, to be honest.” When the unknown vocabulary term was placed in an understandable context, participants did not need to understand it.

One novice participant suggested that series should be called “sections” instead, and a third novice brought up the issue of overlapping jargons, saying that “series” meant something completely different in his professional field. However, similar to “container,” most participants were able to determine that “series” was the label being used to define sections into which content was split. What is important to note is that the SHC’s finding

aids prefix the term “series” or “subseries” to the series title in the *Contents List* (see Figure 6) and also reinforce the conceptual connection by including the term in the section label *Series Quick Links*. It would be interesting to study whether users make the intellectual leap involved in cross-referencing materials in narrative descriptions (i.e., “see Series 10.1. for other videotapes”) when the term “series” does not appear anywhere else in the finding aid.

Figure 6. Series title in the *Container List*



In the exit interview, participants were asked whether the labeling of sections in the finding aids had been clear. Participants agreed that section labels were intuitive to a large degree, with the exception of *Scope and Content* and *Subject Headings*. Novice participants were mostly unsure of what they would find when they navigated to either of these sections, and significantly, few of them did so purposefully over the course of the study. When asked about *Scope and Content* one novice participant replied, “I don’t know, that’s really just not obvious, because ‘scope’... of *what?* Scope of who he was, or how many types of material are here, or what?” Novice participants reported that they would not have expected the *Scope and Content* section to be a narrative block of text. Some thought *Scope and Content* would be a bulleted list of information, or a summary of the different formats of material found in the collection. Regarding *Subject Headings*, even the single novice participant who completed one of the tasks purely through use of subject headings remained unsure of what subject headings were, though she guessed

they were “related to cataloging.” More testing should be conducted to examine the correlation between user understanding of sections labels appearing in navigation menus and frequency of users’ use of sections. From the results of the current study, it seemed plausible that a number of participants chose to ignore the sections of the finding aid whose labels included unfamiliar terminology.

Problems arising from confusion regarding subject headings had a significant impact on some participants’ information seeking behavior. One advanced participant and one novice participant thought that the subject headings could be tracked as discrete units throughout the finding aid *Container List*, despite the presence of a statement at the top of each finding aid’s *Subject Headings* section, explaining that subject headings do not represent discrete portions of a collection.

This confirms the MHS and SHC reference staff perceptions that users are confused about how to effectively use subject headings in finding aids. The advanced participant who believed the headings could be tracked as discrete units suffered from the misconception throughout the entire study, and during the exit interview recommended that subject headings be hyperlinked to the spot in the *Contents List* to which they referred. The novice participant believed that the *Contents List* was arranged in order of the subjects listed in the *Subject Headings* section when she first began interacting with the finding aid. However, mid-way through task five this participant noticed the *Series Quick Links*, compared them to the *Subject Headings*, read the statement at the top of the *Subject Headings* section, and realized the *Contents List* was instead arranged according to series. Thereafter this novice participant interacted with *Subject Headings* in a quite

sophisticated manner, using them in combination with the *Series Quick Links* and collection abstract to complete task nine. This once again points to the ability of novice users to rapidly self-educate with the help of only an explanatory statement at the top of *Subject Headings*, and without the need for live mediators.

The issue of overlapping jargon arose again, as it had with the term “series,” this time in respect to *Subject Headings*. One novice participant commented that, “the distinction between *Subject Headings* and *Contents List* [is unclear]...as a naïve user, the ‘table of contents’ of a book and the ‘subject headings’ of a book are more or less synonymous.” Another novice participant mentioned having no idea what was meant by the word “creator” used in the *Collection Overview*, and did not understand it to imply origination, saying, “They are... the creator of what? Is there a creator and therefore the originator is... who is the originator of this [collection]?”

Most advanced participants knew what the *Scope and Content* section was, but several admitted to lingering confusion. One professed ignorance about the difference between the *Scope and Content* and *Collection Overview*, where the abstract is found. Some confusion could be the result of institutional practice: the SHC often repeats much of the collection level *Scope and Content* verbatim in the collection abstract, whereas other repositories may limit themselves to brief abstracts. In this study, such a practice proved to be problematic on several levels. One advanced participant incorrectly believed that the collection abstract and the collection-level *Scope and Content* were always identical, and reported that she therefore never reads the *Scope and Content* when conducting her own research. A novice participant who had a background in publishing critiqued the

abstracts harshly, saying, "would be nice if the abstract weren't more than 150 words...I'm losing the will to live, reading [this], I'm afraid! An abstract needs to be brief."

Lastly, an interesting point can be made about the labeling of help links. The SHC labeled the help page "FAQ" instead of "Help" with the idea that "FAQ" sounded easier to navigate. One advanced participant confirmed this idea during the exit interview, commented that she might not use a page labeled, "Help" but she would use a page labeled, "FAQ" because, "you never know what's going to happen if you click on 'Help,' but 'FAQ' is manageable." In fact, 80% of participants said that they use FAQ pages. Though Lack's subjects admitted that they would not use help pages (80), it is possible that there is a difference in user response to pages labeled "help" versus pages labeled, "FAQ."

Though much terminology used in finding aids is illogical to users, the current study found that terms that did not require participants to leave the current context in order to determine their meaning (such as "series" and "container" when used in the *Container List*), did not hinder participants in information discovery. This corroborates Nimer's 2008 findings that most jargon is intelligible to users when presented in context (229). In evaluating the significance of more intuitive section labels and series titles, on the other hand, it seems that unfamiliar terminology that requires the user to investigate further by movement away from the current context does impede information discovery. The most frequent result of such terms as seen in the current study is that participants did not follow links in order to discover meaning, which greatly impeded searches based from

the *Series Quick Links*. This study found that series titles that lacked information as to the “aboutness” of the materials seriously hindered participants in information discovery. Restriction statements should be worded clearly and precisely, or links should be provided to definitions of terminology (though participants generally felt comfortable with the idea of contacting the repository if they required an explanation of the restrictions). If a generic warning statement putting the onus of illegal use of information found in collections is added to a finding aid should be clearly identifiable as a generic statement. Some novice participants once again proved to be able to quickly deepen their knowledge of archival practices by interacting with the finding aid alone.

4.4. How users search

Four tasks were designed to observe how users search for specific information within a finding aid. The results of the current study confirm prior findings (Prom 2004, 257-258; Nimer 2008, 228; Lee 2009, 9; Scheir 2005, 60) that many users prefer to find information immediately by using a search function rather than by navigating the finding aid’s hierarchy. Due to the lack of a search box on SHC finding aid pages, the only participants able to conduct searches were those who knew how to use the built-in browser search function *ctrl + F*. Similar to Scheir, the current study found that users prefer to begin directly at the *Container List* before going back to look at any other section of the finding aid, such as the *Scope and Content*. When participants did not use a search function, Like Scheir’s subjects (60), they preferred to navigate the *Contents List* via the *Series Quick Links*: or a list of series linked to more detailed information lower in the page. The majority of participants in this study who did not use the *ctrl + F* function

to search used the *Series Quick Links* (see Appendix E) as a home base for information seeking.

Only 58% of participants (33% of novice participants and 83% of advanced participants) knew how to search a Web page using the *ctrl + F* function. Results challenge the commonly held assumption that most users will be able to fall back on the built-in browser search if the rest of the finding aid fails to guide them to their goal. Four of five participants who did not know how to search the browser page were novice archival researchers. Four spent more than 10 hours a week on the Internet, signaling that Internet proficiency does not necessarily correlate to heavy use. Since the SHC does not provide a search box on the finding aid page, this left 42% of participants with no means of keyword searching.

When they were asked in the exit interview to discuss how they search for information in finding aids, most advanced participants specifically discussed the browser function *ctrl + F*. Five of six knew how to use the search function, and all participants who knew how to use it relied on it heavily when using finding aids. Three advanced participants specifically discussed using the function as the primary manner of finding information within a finding aid. Prom found a similar dependency — 63% of study participants used *ctrl + F* as their first search tactic upon entering a finding aid (2004, 261-262). Each advanced participant in the current study commented that it was not easy to find anything within a finding aid without this function. A fourth discussed reliance on the function to find specific phrases but said that when searching for material based on dates, she instead used the date ranges in series titles.

Advanced participants and novice participants both wanted answers immediately. Like Scheir and the NWDA's users (2005; 2009), the current study's participants were turned off by large blocks of text. Rather than read blocks of text to acquire contextual information, all participants preferred to be taken straight to the materials desired via a keyword search of the page, or, if they were forced to determine the information on their own, for the most part worked on information finding tasks from the *Series Quick Links* and ignoring the rest of the finding aid.

In the post-test questionnaire, most novice participants thought it was difficult to find information in the finding aids, averaging 4.1 in their responses, whereas advanced participants thought it had been easier, averaging 2.8 in theirs. Most participants cited tasks five and nine as the most problematic information finding experiences. Of the four information-seeking tasks, three asked participants to identify the usefulness of a collection based on known-item searches (tasks five, eight, and nine) and a fourth was a subjective search that asked participants to determine the research value of a collection related to a particular research subject (task three).

Task five, which used the finding aid for the *Southerners For Economic Justice Papers*, asked participants to find container and series information on the folder for the "Carolina Community Project." The phrase in question occurred in only one place in the collection, buried in a long alphabetical list of administrative files within box 42. There was nothing indicative of its existence anywhere in the finding aid, and no way even with domain knowledge to know where it would be located within the collection. Of those who knew

how to search using the *ctrl + F* function, 71% began this task by immediately doing so. This represented 42% of all participants. All but one advanced participant who knew how to use the function did so immediately. The other participants, most of whom were novices, began the task by navigating to a variety of places in the finding aid. Such behavior is not surprising, given that this was the first search task of this nature and they had not yet learned what most of the sections of the finding aid contained. One novice began at the *Contents List*, and two began at the *Subject Headings*. One novice and one advanced participant each began by scrolling through the finding aid, and another novice and advanced participant each began by reading the abstract in the *Collection Overview*.

Only 67% of participants completed the task successfully, and only one person who did not use the search function *ctrl + F* was able to complete the task. Two novices who did not know how to use the built-in browser function *ctrl + F* complained about the absence of a search function. Two further novice participants on the prowl for a search box followed the *Search Collections* link in the top navigation bar, which lead them away from the finding aid to a custom Google search across all SHC collections. One of these participants failed to understand that he had left the finding aid; the other participant did so consciously, explaining afterwards that she thought she had more of a chance of finding the information if she searched the entire Website with the finding aid collection number in combination with the key word phrase in question. This behavior is similar to behavior observed by Prom in 2004 (259): when a search function is not available, rather than attempt to navigate in any other way some users would rather move up a level in the site's hierarchy to where there is a search, even though this takes them further from their known goal.

By the end of the task, every participant who knew how to use the built-in browser search function had done so. Novice participants completed or gave up on the task in an average of 3:00 minutes and advanced participants did the same in an average of 1:16 minutes. However, if participants are grouped by those who used the *ctrl + F* function versus those who did not, those who used the search function completed the task in an average of 1:00 minute, with the others completing it in an average of 3:52 minutes. If grouped by level of Internet proficiency, experts completed the task in an average of 0:56 seconds, intermediates in 2:15 minutes, and beginners in 4:27 minutes. The four participants who used the search function at the very beginning completed the task in an average of 0:41 seconds.

Even though the search function *ctrl + F* had proven successful for every participant who used it, only 57% of participants who knew how to use the function began tasks eight and task nine this way (33% of total participants). The lower percentages of participants using the search function in later tasks seems perplexing at first, but based on comments made during the study, it was clear that a number of participants believed searching via *ctrl + F* akin to “cheating” on the tasks. Several participants asked the researcher’s permission to use the function before doing so, and one advanced participant apologized, saying he knew he should not be researching that way. One novice participant began task eight by saying she knew she could find the information by using *ctrl + F*, but wanted to see if she could find it this time by using the finding aid alone (a task in which she succeeded). One possible explanation, therefore, is that after having used the function on task five, participants felt the need to exert themselves more intellectually on the following finding

task in order to display what they believed to be good study behavior.

Task eight asked participants to locate a diary from 1871-1872 using the finding aid for the *Thomas E. Watson Papers*. The diary was located in a series titled, *6. Volumes, 1860-1965*. Advanced participants averaged 1:37 minutes to successfully complete the task and novices averaged 3:19 minutes. Those who used the *ctrl + F* function immediately upon starting the task averaged 0:52 seconds and those who did not – including one participant who resorted to a *ctrl + F* search after logical deduction failed him – averaged 2:52 minutes. When comparing participants by level of Internet proficiency, experts took an average of 1:47 minutes to complete the task, intermediates averaged 2:47 minutes, and beginners 3:37 minutes. For task nine, advanced participants averaged 1:46 minutes for completion and novice participants averaged 2:17 minutes. No one was able to complete the task by using the *ctrl + F* function due to the fact that the search term “oral history” did not occur in the finding aid. When analyzed by Internet proficiency, experts completed task nine in an average of 2:27 minutes, intermediates in 2:24, and beginners in 1:50. In comparing different groups performance rates over the course of the three tasks, the groups that showed the most significant improvement over time were novice participants and Internet users with a beginning proficiency level. This is taking into consideration that a number of novices gave up on task five but successfully completed task eight. Advanced participants and those with intermediate level Internet proficiency remained steady over the three tasks, while those with expert Internet proficiency steadily declined. Part of the reason for this was the decision on the part of many to not use the *ctrl + F* function in the latter two tasks. For both tasks in which it was possible to find the answer via a *ctrl + F* search, those who chose to do so were able to complete the tasks at

least three times faster than those who did not.

Interestingly, by the time they reached tasks eight and nine, all participants who did not begin the task with a *ctrl + F* search (67% of total participants) began the tasks by going to the *Series Quick Links*. From there, they chose the most logical-sounding series title and navigated to that series via the hyperlink. If participants did not find what they were looking for, they returned to the *Series Quick Links* with the left navigation bar or by scrolling, and repeated the process. This stands in contrast with participant actions in the first of the three tasks (task five), in which only one participant who did not search with the *ctrl + F* function began her search from the *Series Quick Links*. Without being shown any example, multiple participants came to the conclusion that this was the most productive search method. One point of note is the clear tendency of participants, both novice and advanced, to rely not just on the series' titles but also the series' dates in the *Series Quick Links* to eliminate possible locations for the material in question. Previously, the SHC had not displayed series date spans in the *Arrangement* section of the finding aid. These dates were clearly of great use to participants in the current study.

Task three represented a more subjective information-seeking task, and resulted in fairly distinct participant search methods than did the three known-item searches. The task used the *Daniel Wallace Papers*, and asked participants whether or not they thought the collection could be useful to someone researching the study and teaching of Japanese. The finding aid included the following subject heading, “Japanese language--Study and teaching.” The *Collection Overview* and *Scope and Content* both mentioned that the collection contained “instructional materials from Japanese language classes he taught.”

However, the study and teaching of Japanese is not mentioned anywhere else in the finding aid. If a participant were to attempt to search solely within the *Container List*, he or she would find nothing.

Two-thirds of participants (83% of novices and 50% of advanced participants) began their search by reading the finding aid abstract, which appears on the opening screen of the Web display. Only one advanced participant began his search with a *ctrl + F* keyword search of the Web page, though by the end of the task 25% of participants had done so. 58% of participants (including all but one of the novice participants) answered after having found corroborative evidence in the first place they looked. Four advanced participants and one novice participant continued their search in a second place in order to verify the initial information. Seventy-five percent of the advanced participants who had continued to a second place continued to a third.

The two largest obstacles to searches were the lack of a system within each page and unclear series and sub-series titles. For known-item searches, participants tended to use *ctrl + F* or search via logical deduction from *Series Quick links*. However, 42% of participants did not know how to use the built-in browser function to search, leaving them at a severe disadvantage, and suggesting that it may be well worth the effort for repositories to add a search-within-this-page box to their finding aid Web displays. When asked to perform more subjective searches such as task three, participants did not begin searches in the *Container List*. Most began at the very top of the finding aid, by reading the abstract. For subjective searches, 42% of all participants (67% of advanced participants) looked for corroborative evidence in a secondary place within the finding

aid before answering the question. In regards to novice participants, it is interesting to note that without any example to follow, many of them came to the rapid conclusion that basing searches from the *Series Quick Links* was the most productive search method.

4.5. What users want: Web 2.0

A number of archivists have emphasized the need for Web 2.0 technologies to be incorporated into finding aid displays, such as the ability to comment or tag. Findings to date (as discussed in section 2.) suggest that researchers find the idea intriguing but are hesitant about unmoderated user additions to finding aids. In order to add to the available data on this topic, the current study included a seven-part question on the post-test questionnaire (see Appendix D) for all participants, asking their opinion of various Web-enabled features that could be added to finding aids in the future. Participants answered by giving a rating between one and six on a Likert scale, with one being the most positive and six the most negative. Results of the current study corroborate the 2008 findings of both Brown (1) and the OAC (8-9) that users are interested in the ability for advanced researchers to leave comments, but are concerned about the ability of the average Internet user to leave unmoderated content on finding aids. Participant enthusiasm for Web 2.0 features, in particular advanced participant interest, was surprisingly low (see Appendix E). Novice participants were not particularly engaged in this section of the questionnaire, as they found it difficult to hypothesize what would or would not be useful to them, having never interacted with finding aids in a real-life setting. Their answers, therefore, are not discussed to as great an extent as those of the advanced participants.

Ability to comment on finding aids

Advanced participants typically rated themselves as strongly unlikely to use commentable features if they existed on finding aids: four of six gave a score at the lowest possible value and the remaining two the highest possible, though even these two seemed hesitant when discussing the feature. In the words of one participant in favor of the feature, “It would be useful, but it would be hard to regulate. In the sense that you have people interpret things differently... I’d be skeptical.” The advanced participants who were not in favor of the feature did not think it would be useful, mostly because they would not trust the comments of other users. If finding aids were to become commentable, two advanced participants specifically requested that the comments appear on a separate page and did not “clutter” the main finding aid page. Another advanced participant would require users to leave their real names on comments so that he could read only those of trusted scholars. Others would want archivists to monitor all comments before they were accepted. Novice participants were not very interested in attempting to envision how this feature might be useful if they were conducting research.

Ability to tag finding aids

Advanced participants were slightly more open to taggable content. While 50% opposed the idea and 50% were in favor, upon closer inspection none of the three that rated the feature favorably planned on using the feature themselves. One who rated it favorably expressed fear that habitual taggers would attempt to “create what people think is reality.” Other issues of concern to advanced participants included the quality of tags and the ability of any Internet user to leave a tag, instead of trusted researchers only. As one advanced participant put it, “I’m of a mixed feeling about tags. I know tags are really

‘cool.’ The issue is people are writing garbage tags...if you just have any old Joe writing, you’d have tags that would confuse people.” Novice participants’ answers again ranged broadly. Whereas advanced participants worried about the quality and source of tags, the main issue novices had with taggable content was lack of experience with tags in any Internet context.

Ability to rate finding aids (1-5 stars)

This question asked participants if they would rate finding aids (not the collections described by finding aids) if given the ability to do so. Many participants, advanced and novice alike, would be willing to rate finding aids but only if it were made clear to them that it would be useful to the Library. For the most part participants did not think they themselves would ever make a decision to use a finding aid based on its rating. The single advanced participant that rated this feature favorably did not use finding aids to perform her own research: instead she used them exclusively to teach undergraduates. This participant welcomed the thought of any system that would help her choose high-quality finding aids for her students to use. Whereas advanced participants’ average rating of this feature was 4.7, novice participants gave it a much more positive rating of 2.7. One hypothesis for this discrepancy is that novice participants had an unclear understanding of the relationship between finding aids and the collections they describe. Advanced participant comments reflected an understanding that the quality of a finding aid did not necessarily reflect the quality of the material described therein, and visa versa. Though the current study did not produce any evidence to this point, it seems possible that novice participants assumed the value of the research material equivalent to the quality of the finding aid, and were therefore more interested in the ability to see ratings.

Ability to share finding aids with others

All but three participants (including 5 of 6 advanced participants) were in favor of the ability to share finding aids with others (for example, an “email this page” link). Two advanced participants said it would be just as easy for them to copy and paste the URL in an email, but still rated it favorably. One advanced participant who gave the feature the lowest possible score explained that she uses finding aids to teach classes and she cannot access her class listservs except from her own email. In their first round of usability testing, the OAC also found support among participants for the ability to email a finding aid to themselves (8).

Ability to save finding aids to an online “bookbag”

Seventy-five percent of participants (67% of advanced participants and 83% of novice participants) were strongly in favor of an “online bookbag” feature, whereby participants could save and retrieve their preferred finding aids. Of the two advanced participants who did not rate this feature favorably, one explained that he dislikes having to keep track of multiple logins, preferring instead to bookmark pages in his Web browser.

Ability to view a list of the most used finding aids

Only 50% of participants had a strong interest in the ability to view a list of the most used finding aids. One-third of advanced participants were interested. These two participants were the only two advanced participants that had experience using finding aids for something other than their own research: one used finding aids for teaching, and the other had experience working in archival reference. One novice participant who rated the

feature favorably also commented that, “just because they’re the most used doesn’t mean that they are going to be useful to you.” While another novice participant who rated the feature got straight to the crux of the matter for researchers, noting that the feature wouldn’t be helpful because, “I want my research to be different from everybody else’s.”

Ability to export collection citations to a citation manager

When asked about exportation of citations to a citation manager, participants were polarized. Two-thirds of both participant groups strongly favored the feature, and 1/3 strongly opposed. Those who were not in favor cited previous problems with citation managers (losing their citations via lost login information or access privileges), or had never used a citation manager before. Everyone that used a citation manager and had not had a bad experience was in favor of the feature. Participant interest in the feature, therefore, related almost entirely to citation managers and not to finding aids.

Participant overall enthusiasm for Web 2.0 features, in particular advanced participant interest, was surprisingly low. Issues that turned participants off to some of the above-mentioned features that did not relate directly to finding aids included having to keep track of yet another username and password and distrust of citation managers. Related to taggable and commentable finding aids, participant responses were lukewarm and advanced participants expressed worry about the ability of the average Internet user to leave unmoderated content on finding aids. Participants had the most interest in features that would help them personally organize and track information related to finding aids, such as the ability to save to an online “bookbag,” or export citations, or interactive features that did not change the finding aid, such as the ability to share the finding aid

with others, rather than those features that would result in user interaction in direct relation to the finding aid.

5. Summary and Discussion

This study observed user interaction with help features, finding aid navigation, structure, terminology, and search. Help features (such as explanatory statements at the tops of sections or help pages) were found to greatly help novice finding aid users to understand the nature of both materials and finding aids. Contrary to previous findings, the majority of participants claimed to be willing to use external FAQ pages in order to better understand finding aids or how to access materials described in finding aids. Neither advanced nor novice participants reported navigational difficulties, as they have in so many other usability studies. In particular, participants did not complain about feeling lost in the *Container List*. Though this could be due to some other factor (perhaps the finding aids used here were not long enough or the tasks not difficult enough), it could also signify that a certain combination of features in online finding aid displays can alleviate the confusion so often caused by the hierarchical nature of archival description. Such features may include a fixed navigation bar, hyperlinked *Series Quick Links*, users' own ability to search within the page using *ctrl + F*, or hover captions informing users of their current placement in the finding aid hierarchy. Further research should be conducted into the reasons that participants in the current study did not feel lost in the *Container List*.

Regarding the structure of finding aids, novice participants showed a reasonably high level of understanding of the purpose and structure of finding aid sections, though a majority remained confused as to how to use Library of Congress Subject Headings. Problems arising from confusion regarding subject headings had an impact on some participants' information seeking behavior. Advanced participants perceive the *Contents List*, *Series Quick Links*, and the collection-level abstract as the most essential components of the finding aid. Though advanced participants did not all agree that the structure of finding aids makes sense, they claimed that navigational features made the illogical structure irrelevant. This suggests that increased navigational capabilities enhance usability. However, iterative testing would be needed to prove this assumption.

When attempting to distinguish factors specific to terminology that impedes users in information discovery versus terminology that does not, it was found that participants were impeded to the greatest extent by terminology appearing without context. When jargon appeared in context, participants were better able to circumnavigate or intuit meaning. Participants focused on their interest in the "aboutness" of collections when discussing labels that hindered their search. Participants also found unfamiliar terminology in restriction statements to be a pitfall.

The two largest obstacles to successful searches were the lack of a system within each page and unclear series and sub-series titles. For known-item searches, both advanced and novice participants tended to use *ctrl + F* or search via logical deduction from *Series Quick links*. However, 42% of participants did not know how to use the built-in browser function to search, leaving them at a severe disadvantage. When performing more

subjective searches, participants began by reading contextual information at the top of the finding aid, rather than at the *Container List*. With subjective searches, some participants looked for corroborative evidence in a secondary or even tertiary location within the finding aid before answering the question. Neither of these behaviors was observed in known-item searching. The obvious explanation for this behavior is that participants were not asked to evaluate the research value of the material in question, nor did the researcher assure them that the material in question for known-item searches existed; for the subjective search, they were required to verify the existence of materials and evaluate the possible research value of the collection for a certain topic. Because users in uncontrolled environments do not usually approach a finding aid with the assurance that it contains what they need, participant behavior for the subjective search could be viewed as a more realistic replication of independent research behavior.

Participant overall enthusiasm for Web 2.0 features was low. Advanced participants in particular were concerned with the ability of the average Internet user to leave unmoderated content on finding aids. Participants had relatively high interest in features that would help them personally organize or track information related to finding aids, and less interest in those features that involved user modification of the finding aid or that would require them to trust other users.

What can this study tell us about ways in which online finding aids inhibit or facilitate use by different groups? Though measurements of speed are not always an accurate indicator of success, in the current study the results are interesting in relation to the two different criteria by which participants were grouped. Participants were grouped first by archival

expertise, and second by Internet proficiency. When the total time to complete all nine tasks was analyzed, it was found that participants who were both advanced archival researchers and expert Internet users were among the fastest to complete all tasks, and participants who were novice finding aid users and who also had lower levels of Internet proficiency (beginning or intermediate) were among the slowest to complete all tasks. Participants who ranked high in one of these two categories but low in the other completed the tasks at identical speeds (an average of 12:30 minutes for each group). This substantiates Prom's 2004 findings that both Internet proficiency and archival expertise "play significant and roughly comparable roles in efficient navigation through electronic finding aids" (248).

A closer analysis of speed in the current study, however, suggested that Internet expertise is a slightly greater factor in efficient navigation of online finding aids than archival expertise. Of four advanced archival researchers who appeared in the top fastest half of participants, three were the least experienced advanced participants, having used finding aids between 15-30 times, whereas other advanced participants had used finding aids hundreds of times. Two of these three represented the only two advanced archival researchers who were also expert Internet users. The fastest participant overall, who completed the entire study 7:24 minutes (twice as fast as the average speed for the entire study) was one of these two. The second fastest participant, who completed the entire study in 9:30, was an expert Internet user but a novice archival researcher who had never before encountered a finding aid. In comparison, the slowest participant, who was a novice archival researcher with beginner Internet proficiency, took 23 minutes to complete the tasks.

In regards to novice users in particular, the results of the current study imply that by interacting with the finding aid alone, these users can acquire a degree of archival intelligence high enough to complete a variety of tasks with online finding aids successfully. In a short period of time, most novice participants developed the same search patterns as advanced users for known-item searches; novices were willing to read explanations and follow links to help information in order to identify the nature of finding aid Web pages and to better understand how to access materials; in task seven they were able to rudimentarily identify processes of archival description behind the structure of the finding aid; they were able to either circumnavigate or intuit the meaning of unknown terminology involved in identifying requesting archival materials; and some novices showed evidence of learning how to differentiate the functions of different components of the finding aid – such as *Subject Headings* and *Series Quick Links* -- through a process of trial and error. While novice participants were greatly assisted by help features such as FAQs and explanatory statements, they were able to acquire a significant portion of this intelligence simply through iterative interaction with the finding aid. This does not mean that novice users can become archival experts without the help of structured training or mediators, but they may be able to acquire enough knowledge to meet their research needs, especially when using finding aids that include features aimed at helping novice users.

6. Conclusion

The study was conducted with the goal of contributing to an ever-growing understanding

of how users with varying degrees of expertise in both archival research and Internet proficiency interact with online finding aids, and what aspects of online display help or hinder them in that process. The study found that those who have low levels of Internet proficiency and no prior experience with archival research have the most difficulty using online finding aids. Proficiency in either of these areas increases users' ability to successfully navigate online finding aids, though Internet proficiency in the current study was a slightly more important factor. Usability of finding aids is enhanced by the presence of navigational features such as fixed and hyperlinked menus, a variety of help features, series titles conveying the "aboutness" of materials, and series titles including date spans for materials. Usability was hindered by the use of unknown terminology without context, for example when found in menu items, but participants were able to circumnavigate jargon when it appeared in context. The two largest obstacles to known-item searching were the lack of a search-this-page feature and series titles that did not reflect the "aboutness" of materials. Only 58% of participants knew how to use the built-in browser function *ctrl + F*, leaving 42% of all participants without the ability to keyword search the finding aid. The study also sought to evaluate how quickly novice users learn to use finding aids without the help of mediators, and found evidence that novice participants underwent a fairly quick and successful process of self-education regarding the nature and structure of finding aids. Lastly, the study asked participants what future capabilities finding aids should have, and found that enthusiasm for Web 2.0 features was low for features that involved user modification of the finding aid or that would require participants to trust other users (such as commenting or tagging). Participants were more interested in features that would help them organize or track information related to finding aids.

More testing is needed to better understand a number of issues that arose in the current study, including the correlation between unknown terminology in navigational menu items and the frequency of use of these items; the value of hover captions reporting hierarchical location information; the reasons that users in some studies feel “lost” in the finding aid hierarchy but participants in the current study did not; the degree to which known-item versus subjective searches influence participant search methods in controlled study environments; and the degree to which users with low Internet proficiency are unable to take advantage of features that assume Web familiarity (such as the standard convention by which page-internal navigation menus appear on the sides of Web pages). At present, it also remains unclear to what degree novice users can acquire archival intelligence without assistance, and how well they can be assisted by online tutorials or help features as opposed to direct mediation and training on the part of archivists. This study provides new data that will allow future researchers to work further towards answering such questions.

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Appendices

Appendix A: Demographics questionnaire

1. Mark your affiliation:

- Undergraduate student at UNC-CH
 Graduate student at UNC-CH
 UNC-CH faculty member/staff member/post-doctoral
 Member of the general public

2. Please indicate the year you were born:

3. What is your sex?

- Female
 Male

4. What is your area of work or major?

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

- None
 Beginner
 Intermediate
 Advanced

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

- None
 Beginner
 Intermediate
 Expert

7. How many hours per week do you spend on the Internet?

- 0-2
- 3-5
- 6-10
- More than 10

8. Have you ever used online finding aids for archival material?

- Yes (go to question 8a)
- No
- Don't know

a. If you answered "yes" to question 8, roughly how many times have you used the Southern Historical Collection at UNC-Chapel Hill's online archival finding aids?

Appendix B: Tasks

Task one (novice participants only)

Please use the Web page for the Daniel Wallace Papers, found in the first open tab of your browser. The test supervisor will help you locate the correct page.

1. Generally speaking, what kind of materials does this Web page describe?
2. To what organization(s) is the Web page related?
3. Where are the materials described on this Web page physically located?
4. If you wanted to view the materials described, what would you have to do?

Task two

Please use the same Web page you used for task one. The test supervisor will help you locate the correct page.

Can you determine how to collapse the first series in the Contents List, *Series I. Correspondence and Related Materials, 1977-2006 and undated*? Do you think this collapsing feature could be useful to researchers? Why?

Task three

Please use the same Web page you used for task one and two. The test supervisor will help you locate the correct page.

Do you think this collection would be useful to someone researching the study and teaching of Japanese? Why did you come to the conclusion you did?

Task four

Please use the Web page for the Southerners for Economic Justice Papers, found in the second open tab of your browser. The test supervisor will help you locate the correct page.

Are there restrictions on this collection? Will you be allowed to access all of the materials in this collection? Why or why not?

Task five

Please use the same Web page you used for task four. The test supervisor will help you locate the correct page.

If you wanted information on the *Carolina Community Project*, in what series, sub-series, and container would you find it?

Task six

Please use the Web page for the Marc Arduini Collection, found in the third open tab of your browser. The test supervisor will help you locate the correct page.

Are you allowed to view or listen to the material in this collection? Why or why not?

Task seven

In your own words, please summarize what information is contained in the *Contents List* of these Web pages. Feel free to look at any of the pages you worked with.

Task eight

Please use the Web page for Thomas E. Watson Papers, found in the fourth open tab of your browser. The test supervisor will help you locate the correct page.

Try to locate a diary from 1871-1872. In what series and sub-series is it located? What container would you need to see if you wanted to view the materials?

Task nine

Please use the same Web page you used for task eight. The test supervisor will help you locate the correct page.

Try to locate the oral history wherein one of Watson's descendants discusses her memories of Thomas E. Watson and the Watson family. In what series and sub-series is it located? What containers would you need to request if you wanted to listen to the oral history?

Appendix C: Post-test questionnaire

Part one: written answers

Please ask your test supervisor for clarification on any of the following questions.

1. How difficult was it to navigate the finding aids?

(Circle one) Easy 1 2 3 4 5 6 Difficult

2. Did you think it was easy to find specific information?

(Circle one) Easy 1 2 3 4 5 6 Difficult

3. The finding aids were written in language that is easy to understand.

(Circle one) Agree 1 2 3 4 5 6 Disagree

Were there particular parts of the finding aids or particular terms that were difficult to understand? Please explain.

4. In the rating chart below, please circle the number that most closely matches how you feel about the new finding aid Web display:

4.1 Well designed 1 2 3 4 5 6 Poorly designed

4.2 Easy to use 1 2 3 4 5 6 Confusing to use

4.3 User-friendly 1 2 3 4 5 6 Not user-friendly

4.4 I like it 1 2 3 4 5 6 I don't like it

5. **(advanced users only)** In your opinion, how does the new design compare to the old design?

(Circle one) I like it better 1 2 3 4 5 6 I don't like it as much

In what specific ways do you like or dislike the new finding aid design compared to the old finding aid design?

6. If the following features were available, how likely would you be to use them? Please circle a number for each feature listed.

6.1 The ability to leave your own comments on finding aids:

(Circle one) Likely 1 2 3 4 5 6 Unlikely

6.2 The ability to add subject tags/labels to finding aids or specific containers/series in finding aids:

(Circle one) Likely 1 2 3 4 5 6 Unlikely

6.3 The ability to rate finding aids (for example, 1-5 stars):

(Circle one) Likely 1 2 3 4 5 6 Unlikely

6.4 The ability to share finding aids with others:

(Circle one) Likely 1 2 3 4 5 6 Unlikely

6.5 The ability to be able to save finding aids to your own online “bookbag” in order to be able to find the ones you frequently use again:

(Circle one) Likely 1 2 3 4 5 6 Unlikely

6.6 The ability to view a list of the most used finding aids:

(Circle one) Likely 1 2 3 4 5 6 Unlikely

6.7 The ability to export collection citations to a citation manager such as RefWorks:

(Circle one) Likely 1 2 3 4 5 6 Unlikely

Part two: discussion

Please discuss your answers to the following questions out loud with your test supervisor.

7. Which tasks did you find the most difficult to complete, and why?
8. Did the layout of the finding aids make sense to you? If not, could you describe the parts you found confusing?


If you could reorder the information in the finding aids, how would you ideally have it organized?
9. **(Advanced users only)** In general, do you use the *Subject headings* portion of finding aids? Do you think the *Subject headings* section is easy to understand, or useful?

10. **(Advanced users only)** When conducting research, which sections of finding aid do you use the most?
11. **(Advanced users only)** When conducting research, do you ever use the sections of finding aid that occur above the detailed listing of containers and their contents? If so, which sections do you use? If not, why not?
12. Did you notice the FAQ page? If so, did you use it? If not, would you have used it if you had seen it?
13. How could the finding aids be further improved? Please explain.
14. Do you have any other comments, concerns, or suggestions?

Appendix D: Post-test questionnaire data results

Participant	Status	Q1	Q2	Q3	Q4.1	Q4.2	Q4.3	Q4.4	Q5	Q6.1	Q6.2	Q6.3	Q6.4	Q6.5	Q6.6	Q6.7
3	advanced	2	1	1	2	1	2	1	2	6	5	5	3	2	6	1
4	advanced	2	1	1	2	1	1	2	1	6	5	6	1	1	5	2
5	advanced	3	5	2	2	2	2	2	3	1	1	5	1	6	6	6
10	advanced	1	2	1	1	1	1	1	1	6	4	4	2	1	1	1
11	advanced	1	4	3	1	2	1	1	1	1	1	6	1	1	6	1
12	advanced	3	4	3	2	3	3	2	2	6	2	2	6	5	2	6
1	novice	2	3.5	3	4	3	3	3	N/A	4	4	3	1	1	2	1
2	novice	2	3	2	1	2	1	1	N/A	6	6	1	3	6	6	1
6	novice	2	5	4	1	4	3	2	N/A	1	1	3	1	1	3	1
7	novice	4	4	5	2	4	4	2	N/A	4	3	3	1	1	2	1
8	novice	4	5	2	4	3	4	3	N/A	3	3	2	5	2	2	5
9	novice	3	4	1	2	4	3	2	N/A	5	2	4	5	1	1	5
Average		2.4	3.4	2.3	2	2.5	2.3	1.8	1.6	4.1	3.1	3.6	2.5	2.3	3.5	2.6
Novice average		2.8	4.1	2.8	2.3	3.3	3	2.2		3.8	3.2	2.6	2.6	2	2.6	2.3
Advanced average		2	2.8	1.8	1.6	1.6	1.6	1.5	1.6	4.3	3	4.6	2.3	2.6	4.3	2.8
% 1-2		58%	25%	58%	83%	50%	50%	83%	83%	25%	42%	25%	58%	58%	50%	67%
% novice 1-2		50%	0%	50%	67%	67%	17%	67%	N/A	17%	34%	34%	50%	50%	83%	67%
% advanced 1-2		67%	50%	67%	100%	83%	83%	100%	83%	34%	50%	50%	67%	67%	34%	67%

Appendix E: Screenshot, *Series Quick Links*

	Contents list
<p>Thomas E. Watson Papers, 1863-1996</p>	<p>▼ Series quick links</p>
<p>Navigate this page</p> <ul style="list-style-type: none"> Collection Overview Information for Users Subject Headings Biographical Info Scope and Content Contents List <p>[expand all sections ▼] [collapse all sections ▶]</p>	<ul style="list-style-type: none"> 1. Correspondence, 1873-1937, 1983. <ul style="list-style-type: none"> 1.1. 1873-1892. 1.2. 1893-1897. 1.3. 1898-1903. 1.4. 1904-1908. 1.5. 1909-1920. 1.6. 1921-1937, 1983. 1.7. Undated Correspondence. 2. Speeches by Watson, 1872-1918. 3. Writings by Watson. <ul style="list-style-type: none"> 3.1. Book Manuscripts. 3.2. Other Writings. 4. Other Papers. <ul style="list-style-type: none"> 4.1. Legal and Financial Papers, 1877-1981. 4.2. Writings by Others, 1896, 1912-1913, 1917, and undated. 4.3. Miscellaneous Papers. 5. Printed Material. <ul style="list-style-type: none"> 5.1. Printed Writings by Thomas E. Watson, 1892-1921. 5.2. The People's Party Paper, 1891-1898. 5.3. Other Printed Material, 1863-1986. <ul style="list-style-type: none"> 5.3.1. Newspapers and Clippings, 1876-1987. 5.3.2. Pamphlets, Magazine Articles, and Other Items, 1863-1986. 6. Volumes, 1860-1965. 7. Pictures, circa 1875-1922. 8. Additions Received After 1989 <ul style="list-style-type: none"> 8.1. Addition of September 1990 (Acc. 90121), 1990. 8.2. Addition of February 1992 (Acc. 922026), 1914. 8.3. Addition of June 1993 (Acc. 93072), 1906-1923. 8.4. Addition of September 1994 (Acc. 94129), 1918.