

Anna Pederson  
Practicum Research Paper

### *Introduction*

The IMLS Digital Collections and Content portal is an ongoing project that began its first phase in 2003 and has just received funding to continue development through 2010. Prior usability tests have been conducted on the original user interface but a new interface is scheduled for development within the next few years of the project. It was deemed desirable to conduct pilot tests before development begins in order to decide what features should be changed, what features should be kept, and so on. Through my testing I was able to ascertain features of the DCC portal that are successful and identify other facets that may need to be changed. The suggestions I provide in my conclusion will help guide the redesign of the portal interface.

### *Literature Review*

The first step of the process was to conduct a literature review on different methods of usability testing. This literature review was intended in part to inform formulation of user tasks, development of usability test script, etc. Since the scope of my usability testing would be fairly small, I tried to find literature that focused on testing small groups of users, but my efforts failed to find anything so specific. I was able to find several papers that gave useful information, albeit focusing on work with larger test groups.

According to an article written by Jenny Craven and Helen Booth, formerly research associates at the Center for Research in Library and Information Management (CERLIM), the first step to developing a usability test is deciding "...on the objectives of

the study as this will influence the size and type of participants, the methods chosen for the study, and the presentation of the findings.” With the help of Tim Cole and Amy Jackson, both involved in the development of the DCC portal, I decided to focus my testing on how users interact with the DCC interface to conduct research using search and browsing tools. As stated before, the user group had to be relatively small due to lack of time and resources, but my review of the literature suggested that initial usability testing is best done with three to five users. More advanced usability testing should be done when there is a nearly completed product to test, which was not the case for my study.

In discussing lessons learned from usability testing done at Indiana University, Mark Notess, et al., suggests: “Tasks that are too simple misrepresent the complexity of real-world work, but tasks that are too complex may frustrate the test participant, who is already under pressure from the perceived evaluative flavor of participating in a ‘test’” (3). Other sources consulted also suggest that it is important to develop the tasks to produce the most relevant results for the study objectives. These findings complemented well my intuitive desire to mimic tasks that users might have to complete for a class or in other real life situations. Following then from the results of my literature search and my own preliminary analysis, I chose to develop open-ended tasks with fairly broad topics. Several studies noted that users bring previous experience and knowledge to a study, so it helped to have a broad subject base to keep results as even as possible. An important observation in Notess’s article is that “[a]sking users to explore the software may help reveal patterns of learning and use of rarely activated features” (5). Since it was not my objective to test any specific search and browse features, I decided to develop tasks that

would give the users freedom to “explore” the portal. This would also help simulate a real life scenario.

In addition to a general understanding of usability testing methodology, I also needed a clearer picture of different audiences that use digital libraries. For this and as a reality check on planned approach to testing, I consulted two librarians, the head archivist at the Urbana Free Library (UFL) and an assistant librarian in the History, Philosophy, and Newspaper Library on the UIUC campus. According to the archivist, the most frequent users of online digital collections public libraries are family historians and genealogists. They use the collections to find pictures or scanned records relevant to their family genealogy. K-12 teachers and students also use digital collections quite often for school history projects. College students and professors are a smaller audience than I had expected; I had originally thought that they would be the largest group of users. The UFL archivist explained that most college professors are slow to adapt to newer technology and are most likely to continue to use resources that they used in college.

The archivist had a number of things to say regarding the problems that digital collections currently face. She stated that it was important that online collections have obvious academic branding, since many academics are drawn to resources that have legitimacy. It is also important for digital collections to look well developed and intelligent, even for general audiences. Another, often unaddressed, problem is the need for clarification on many digital collection sites. Users are often confused by how to search an online digital collection; there is a strong need for simple instructions and research guides to help the users.

The academic librarian gave me much of the same information as the archivist but he was able to add a few important details. His sense is that the majority of undergraduate students don't understand the concept of a controlled vocabulary, and so they often have a hard time finding results in digital collections because they use incorrect wording. It might be helpful to have a built-in spellchecker or thesaurus to aid users who are having a hard time with vocabulary. He said it was also important for librarians to hold demonstrations on the different resources available for students and put together research guides for class assignments. This is a key way to boost the awareness of digital collections on academic campuses.

### *Methodology*

The next step was to fine tune and elaborate study objectives. This required several meetings with Tim Cole and Amy Jackson, two people closely involved with the development of the DCC portal. We finally agreed that the objective was to test the DCC portal interface to see how people use the different features available on the site. We also decided that it would be wise to have the users perform tasks on a similar portal site, so we could later compare the results from the two different portals. Keeping the objective in mind, I developed two tasks (attached at the end of the paper) for the users to complete on each site. I decided to keep the tasks general and open-ended to compensate for any prior knowledge or experience the users might bring to the study and to replicate a realistic research task.

As suggested in my literature review, I formulated pre and post test questions. The pretest questions would inform me of any previous experience that the users might

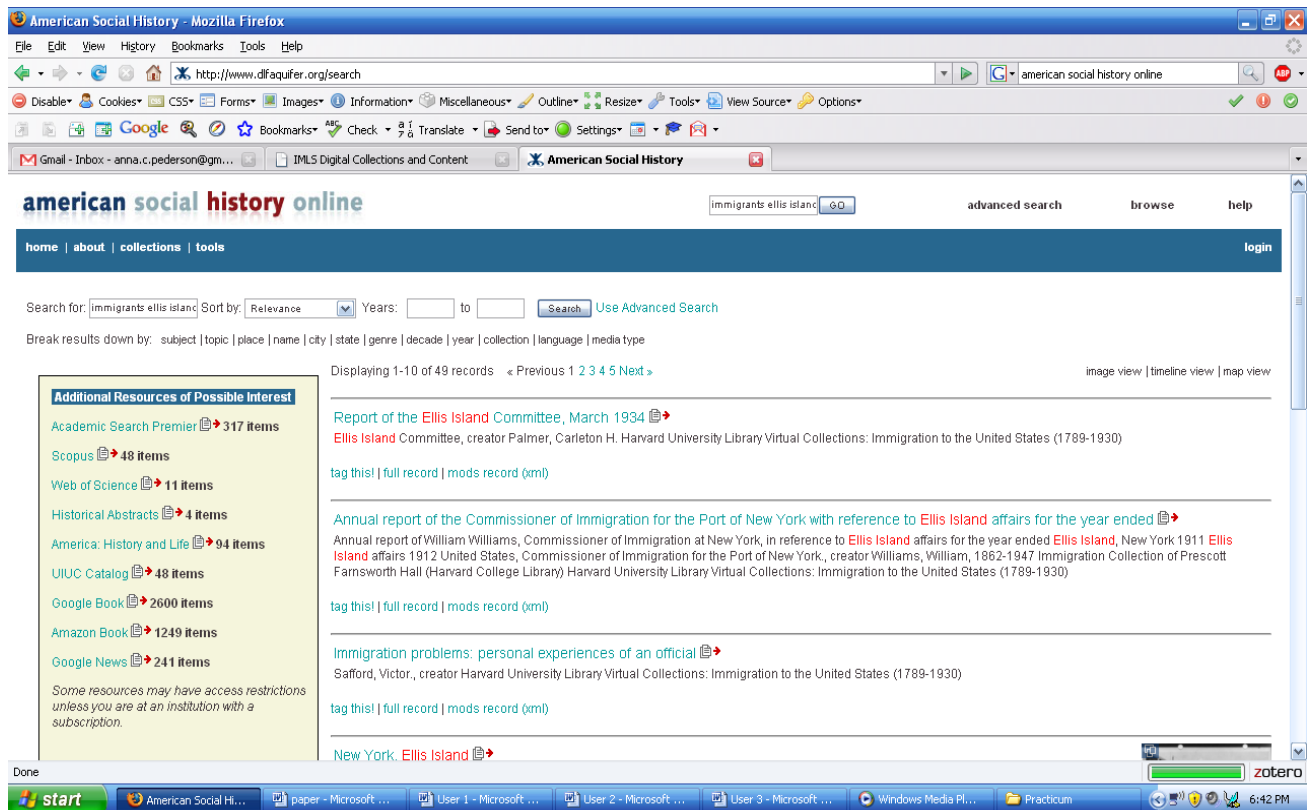
have with digital collections and allow me to report on the background of each user. The posttest questions, meant to take place in the form of a discussion, would help wrap up the session and allow the users to provide any feedback they didn't vocalize while performing the tasks. At this time, I also had to select another digital collections portal to use in my study. I chose American Social History Online ([www.dlfaquifer.org](http://www.dlfaquifer.org)) because the collections contain historical material, like the majority of the DCC collections material, and the collections in the ASHO portal are contained in the DCC portal. Also, American Social History Online contains browse features (a tag cloud and browsing shortcuts) that I wanted to test.

I was able to find three graduate students for the study, two of which I recruited from a library science archives class and other from a graduate history program. I was able to find a private room with a computer that was set up with Camtasia and a microphone for the testing. I asked each of the users to allot an hour for the testing, although the tasks themselves would likely take much less time. During each test, I gave each user an introduction to the test and allowed them to ask any questions. I also informed of their right to privacy and asked them to sign an IRB-mandated consent form. After the introduction was finished, each user answered the pretest questions and was asked to review the tasks before the recording began. Once the user was ready, I started the screen capture and audio recording. The user was instructed to first complete a task on the American Social History Online portal, followed by the DCC portal. Once the first task was completed, I asked the user to complete the second task in the same order. After both tasks were completed, the user and I had a discussion during which the posttest questions were answered. The tests were completed mostly without incident, except for

the short time that the DCC portal stopped working during the first usability test. This had some effect on the test results since the user became frustrated with the portal and ceased that part of the task.

## Discussion

For the first task, I asked the users to search for resources on immigrants and Ellis Island, first using the American Social History Online site and then followed by the DCC portal. During the first task, two of the three users mistakenly thought that the Additional Resources box on the left side of the American Social History Online results screen was the list of items retrieved from the local metadata portal (rather than links to other databases and indexes of possible interest). See Figure 1.



American Social History Online 1

The third user received no results the first time he searched for resources on immigrants due to a typo; once he became aware of his mistake, he realized that that the Additional Resources box was not the actual results list. However, the second user received a results list, but was still under the impression that the box was the results list. The first user had no trouble with this because she used advanced search instead of the basic search like the other two users, and so did not receive the Additional Resources Box (the reason for this is unclear). This created a problem when she attempted to find journal articles on immigrants and Ellis Island. She attempted to find articles by limiting the resource type to text on the advanced search, but didn't receive any relevant results. Next, she used abstract as a search field figuring that an item with an abstract would most likely be a journal article, but she didn't receive any relevant articles with this method either. She tried searching using several combinations of different subject fields, but was displeased with the results. The third user was the only one who eventually found journal articles via the Additional Resources Box.

The results for the first task completed on the DCC portal were comparatively positive. Two of the users commented that they liked the layout of the results page on the DCC portal better than the results page on American Social History Online. Both users appreciated that the DCC portal provided relevant databases and collections along with the results. They were potentially able to complete the entire first task just by performing one search. The second user expressed dislike for the DCC portal because she was unable to find any results for her search. This was caused by a misspelling of one of her search terms rather than any fault with the portal.

After the first task was completed, the users went back to American Social History online to begin the second task. The results for this task were mixed. Two users clicked on the browse link on the homepage, but once they reached the tag cloud, they took completely separate paths. The first user opened the subjects tag cloud and found a tag for the Civil War (which she noticed was a LOC subject heading). Unfortunately there was an error with the site and the page was unable to load. From there, the user went to the subject tag cloud and clicked on the “history” tag because she was unable to find anything more specific. She was not pleased with the long results list that this produced, so she skimmed through the different tag clouds until she eventually gave up on that and clicked on the Browse Collections link. One of the first results is a collection on Abe Lincoln and the Civil War. Clicking on this result led to a tag cloud related to the collection. Many of the tags were specific aspects of the Civil War, such as the Battle of Gettysburg. Clicking on this tag eventually led to a collection related to the Civil War, but the user expressed frustration at how long it took her to figure out how to narrow the search down.

The second user who clicked on the browse link didn't spend much time browsing the topics tag cloud. Instead he clicked on the View All Collections link, which provided him with a link to a collection on Abe Lincoln and the Civil War. This led him to the same tag cloud as the previous user but he didn't click on any of the tags. He went back to the list of collections and browsed the list until he reached the bottom of the screen. Once he noticed that there were nineteen pages of collections, he quickly gave up on this part of the task. Only one user noticed the browsing shortcuts on the homepage. She used the time option to narrow the results down to the 1860s. On the results page, she had the

option to break down the results by subject and was pleased to find that the Civil War was one of the subjects. This led her to a list of relevant results.

All of the users were dissatisfied with the browsing features on the DCC portal. They all eventually clicked on the View All Subjects link and clicked on United States History, which led them to a long list of collections related to United States History. There were relevant results on this page, but they had to scroll through the entire list to find them. They expressed frustration that the collections list had no apparent organization. In their posttest interview, all three users suggested that the collections list be changed so that it is easier to browse. One user suggested that the site should give people more options to narrow down the collections list. Two users also complained about how the collections were categorized. One user complained that the categories were too broad, while the other complained that the categories were too subjective.

During the final interview, two users stated that they would use the American Social History Online portal versus the DCC portal because they were pleased with the results they found. They did admit that they were frustrated with the features on both sites, but the browse feature on the DCC portal is what swayed their opinion over the ASHO portal. The other user expressed ambivalence towards both portals; there were things he liked and disliked about each site. Neither site impressed him enough to make him want to use them again.

### *Conclusion*

There are features on each site that could use improvement. It appears that the users had more success searching on the DCC portal, provided that they didn't misspell

any search terms. The boxes for relevant collections and databases are useful features and should be kept for any future interface development. It might be useful to have some sort of spell check or thesaurus on the site that will correct any incorrect spelling or search terms. At the end of the test, one user stated that the site should have helpful suggestions for spelling or keywords like Google or the UIUC library database. During the test, one user, a library science student, was displeased with the advanced search because there were not enough options to limit the search. For example, she did not like how Topic and Subject were in the same field. The advanced search should be further developed to address these issues. The feature most obviously in need of change is the browsing options on the DCC portal. There needs to be some way to narrow down the results list more, either by changing the categories or branching the broader categories into progressively more specific subjects. There also needs to be some kind of organization to the collections lists, especially for the longer ones. It would be helpful to give users the option to break down the lists by time period, location, etc.

The tag clouds in ASHO caused much confusion among the test subjects. It was not clear how the tags were assigned and how they helped to limit search results. The users felt like they were being led around in a circle and only came upon the needed results by chance. The browse sidebar on the main page of ASHO seemed to have more success than the tag cloud, so it would be advisable that the tag cloud be abandoned and additional effort be put into making the sidebar more noticeable. ASHO also had problems with layout, especially in the results page. In more than one instance, the Additional Sources box was mistaken for the actual search results. This may be due to the poor delineation between the different elements on the page. The DCC portal had the

advantage over ASHO in layout because each element on the page were clearly marked as “different” from the rest of the page content. Despite the layout issues, there were several instances in which users preferred the results given by ASHO over the DCC portal. Perhaps the users felt that ASHO provided more pertinent results to their search. This leads me to believe that the content of the site is more important to users than the layout or flashy tools.

In hindsight, there are several things that I would change about my study if given the chance. I would have made my script more detailed and rigid; the script I used was very informal and I believe that this attitude of casualness was detrimental to the sessions. A more professional script might have made the users feel more serious about the tasks and thus be inclined to try harder and produce better results. I also think that I left the tasks too open-ended because there was almost no consistency to any of the results. Granted, this might have been eliminated with a larger group of users, but I did not have the resources at my disposal. However I believe that the results of my study will be beneficial for the initial redesign of the portal interface. At the very least, this will provide the designers with a springboard for the next round of usability testing.

## **Bibliography**

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## **Pretest Questions**

What is your area of study?

How often do you conduct research for academic purposes?

What various types of resources do you usually use for your research?

How often do you use online resources for research?

What online resources do you commonly use? How did you become aware of these resources?

How and why do you use online resources for research?

How often do you use online digital collections?

How do you determine the validity of a resource? What is it about a resource that gives you confidence in its validity?

## Usability Script

Hi, my name is Anna and I'm going to be walking you through this session. You probably already know, but let me explain to you why I've asked you to come here today: I'm testing a new interface for the Digital Collections and Content project to see what it is like for actual people to use it. I'll be having you perform tasks on the Digital History Collections website and the American Social History Online website. Both web sites are gateways to online collections of digital history material. I want to make clear right away that we're testing the sites, not you. You can't do anything wrong here. I want to hear exactly what you think, so please don't worry that you're going to hurt anyone's feelings. I want to improve the Digital History Collections website, so I need to know honestly what you think.

I want to record today's session, so that I can analyze the data in depth at a later stage. The recording will not be used for any other purpose. Please read and sign this consent form, which states that you give us permission to record the session.

[Go over consent form. Questions?]

There are a total of 2 tasks. I'll be asking you to 'think aloud' as you work. For example, if you don't know what something is for, please say 'I don't know what this is for', or something similar. I may also prompt you from time to time to ask you what you are thinking. [What are you thinking about now? Where did you think that link would take you? Can you tell me where you went there/clicked on that? What were you looking for on this page?]

[Go over tasks on task list.]

Do you have any questions before we begin?

[Complete tasks.]

Thank you. That completes the tasks. I will now stop the recording. I have a brief questionnaire here that I'd like you to complete. The information you provide is for my use only.

[Fills out questionnaire.]

Once again, I'd like to say thanks for coming today. Do you have any comments or questions about today's session?

### **Task list**

- 1) Please use the search tools to find resources related to immigrants who came to America via Ellis Island. Now locate related online collections. Lastly, find journal articles on the topic. Please complete this task first on American Social History Online, followed by the Digital History Collections interface.
- 2) Using the browse tools, please find resources about the American Civil War. Complete this first on American Social History Online, followed by the Digital History Collections Interface.

### **Posttest Prompts**

- 1) What resources would you compare these sites to (American Memory, Google, etc.)
- 2) What features do you like/dislike on these sites compared to the sites you usually use.
- 3) How do you think the portal can be improved?
- 4) What did you find confusing about it?
- 5) Would you use it again?