Website Usability Study

Drexel University Libraries

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Introduction

Background Information
Since its inception, the Drexel University Libraries website has undergone several transformations. With increasing enrollment in distance learning courses and an emphasis on electronic resources, the library website’s role in the university community becomes increasingly important. Because the library website is instrumental for much of the campus community, Drexel University Libraries is committed to maintaining a website that is easy to use, appealing, and facilitates connections between people and information.

Purpose and Scope of Website Usability Project
In April, May, and June of 2013, I served as Website Usability Intern, designing and administering usability studies for the Drexel University Libraries Website. During the twelve-week period of the Spring 2013 term, I designed and administered six studies to gauge the site’s usability and make recommendations for improvement. Before administering the studies with participants, library staff members pre-tested the studies, to screen for mistakes and identify opportunities for improvements and clarification. Studies included in-person activities and online tests using Loop11 software. The overarching goal was to identify opportunities to improve information architecture on the site, making it easier for users to find the information they need.

Online Studies

Discussion of Loop11 Software
Drexel University Libraries currently subscribes to the Loop11 software for usability testing and survey distribution. For usability testing, the software runs as a frame around the website, allowing the user to interact freely with the site and complete tasks. The software records data about each user’s interactions, such as number of clicks and page views as well as the amount of time spent on each task. Loop11 allows a variety of tasks and question types to be integrated into the same study, and can be used to collect both quantitative and qualitative data.

Two compatibility issues between Loop11 and the Drexel University Libraries website came to light in the course of the Spring 2013 online user studies. There was a problem rendering the landing pages for About, Get Help, Research, and Services while Loop11 was running. The large banner image was displaced, moving up the page and covering the top-level navigation buttons. After being notified, Loop11 reported that they were working on a java patch that would prevent this from happening.
Online study participants’ comments exposed the second compatibility issue. Users were unable to sign into their library accounts while Loop11 was running. Loop11 has not yet been contacted regarding this problem.

Despite these compatibility issues, I recommend Loop11 for its ease of use, flexibility, and thorough data collection. Studies are archived for later review, allowing comparison and evaluation of study designs. Downloadable reports are created for each completed study, displaying data about the success/fail/abandon rate, most common first click, most common fail page, and participant comments. Unique and useful is the heat map feature, which provides a visualization of the most common click on a particular page; this can be very helpful for effective homepage design. Also helpful is the pop-up invitation to participate in the user study, the ability to set multiple success URLs, and the ability to direct the participant to a chosen URL upon completion of the study, a feature I used to direct participants to a Qualtrics survey collecting their contact information for recruitment into in-person studies.

Full reports of the raw data collected during each Loop11 study, as well as success and failure results, are available in Appendix 1.

**Loop11 Study 1 – Find the Research Skills 101 Tutorial**

**Purpose and Design**

The first Loop11 study was intended to determine if the organization of tutorials on the site makes sense to users. The study asked users to find a particular tutorial, titled Research Skills 101. After completing the task, the participants were asked to rate the difficulty of their experience on a scale from very easy to very difficult, then invited to share their comments. After thanking the participants, this study directed them to a Qualtrics survey they could use to express interest in taking part in an in-person study for an incentive, and submit their contact information.

Participants were invited to complete the Research Skills 101 Tutorial study via a rotating banner on the library homepage advertising the usability project and a pop-up invitation that appeared to 10% of visitors to the library website. The study was active for one week, and no incentive was offered to participants.

![Figure 1 - Find the Research Skills 101 Tutorial results snapshot – Image generated by Loop11](image-url)
Discussion of Results

Of the 78 participants who completed this study, only 31 found the Research Skills 101 Tutorial. This indicates disparity between where the majority of users would expect to find the tutorial and its actual location on the library website.

To better understand the reason for the low success rate of this study, it is useful to investigate where participants expected to find the Research Skills 101 tutorial. The most common first click on the library homepage was on the Research button, which does not link to the tutorials at all. Instead, the tutorials are found under Get Help. Participants also commented on their expectation for tutorials to be grouped under Research. One participant expected to find tutorials under the Services tab.

“...I started looking in the "Research Guides" section first because the tutorial had to do with research, and assumed that a tutorial would be included in ‘guides’. I was wrong—this was much harder to find than I anticipated.”
- Participant 11

Participants expressed frustration not only with the information architecture, but also with the number of links on the homepage. While the majority of website users are well-acquainted with Google and other search engines, participants’ comments revealed that when navigating the library website, users tend to click links to locate information before deciding to use the search bar. This tendency makes logical, predictable, transparent information architecture even more important to the overall usability of the site. Participants also commented on the efficiency of the search bar, expressing general satisfaction with its functionality.

Recommendations / Lessons

Study participants pointed to a semantic link between tutorials and research. Grouping tutorials with the research guides under the Research heading may make them easier to find. Some participants also indicated that they had found a page listing some tutorials, but not all of them, and did not see Research Skills 101 on that page. An accessible directory of tutorials, as an expandable menu and/or a list, may help students discover and utilize tutorials.
Loop11 Study 2 – How Many Times Can You Renew a Book?

Purpose and Design

The second Loop11 study aimed to determine users’ ease in finding information about borrowing policies on the library website. The instructions specified that the user should find the number of times a book could be renewed, and did not have to log into their account or actually renew a book. In an effort to control for participants who may click Task Complete without attempting to find the information, a question asked participants to fill in the blank space with their answer. This study employed the difficulty rating scale and allowed participants to share their comments. Comments from participants who tried to log in to their accounts revealed the compatibility issue between Loop11 and the authentication system.

A new graphic advertising the study was added to the rotating banner and a pop-up invitation was again presented to 10% of visitors to the library homepage. To increase participation, an incentive was offered for this study. Participants who completed the study had a chance to enter into a drawing for a $25 Amazon gift card. This significantly increased participation rates; 250 people completed this study. In an effort to protect the integrity of the results, a line in the instructions indicated that if the participant was unable to find the correct answer on the site, they could still have a chance to enter the drawing. This backfired, and 26% of participants clicked Task Complete on the homepage to enter the drawing, possibly without attempting to complete the study. This skewed results and inflated the failure rate.

Figure 3 – Perils of offering incentives for online studies may include dishonest participants - Image generated by Loop11
Discussion of Results

Loop11 reported a failure rate of 44% for this task. This failure rate is inflated by the number of participants who clicked Task Complete without attempting to complete the task. In total, 105 participants were successful, 110 failed, and 35 abandoned the task.

Task Complete was the first click on the homepage for 65 of the failing participants. However, some of these participants did actually try to complete the task, so retrospectively adjusting the failure rate to control for this presents a challenge.

For example, Participant 7 viewed only one page – the library homepage, and clicked only on Task Complete. As illustrated below, however, this participant found the correct answer and explained the search path that led to its discovery. Presumably, this participant used another tab or window to find the answer, instead of proceeding inside the Loop11 frame. While lengthy instructions may deter participants, it may be worthwhile to include a line requesting that participants complete their task within the Loop11 frame.
The fill-in-the blank question was intended to gauge the accuracy of the study results. The number of correct answers to the question was significantly higher than the task completion rate. Participants’ comments revealed that some already knew the answer, while others asked library staff in person or via chat. This is indicates that patrons find library staff approachable and feel comfortable asking for assistance in person and virtually.

Recommendations / Lessons

Participants’ comments provided useful insight into their opinions about the way this information is organized on the site and their ideas about how to make it more accessible. A few participants suggested that information about borrowing policies should be linked on the pages patrons use to access their accounts. Another suggested that renewal information should be included in the table with the other borrowing information. These are logical associations that should be implemented as soon as possible.

Of the 113 participant comments, nine specifically mentioned that they felt the website would benefit from an FAQ. Several also mentioned that they were able to successfully find the information using the site search feature. One participant explained that they did a Google search to find the answer.

Other recommendations concern the study’s structure. The incentive may have caused more harm than good in this study, with some participants taking a dishonest approach and skewing the results. In the future, I advise using a smaller incentive for online studies. While they may not be as compelling and may not dramatically increase participation, they may create a better balance of participants, giving honest people the extra nudge they may need to complete the survey, without attracting dishonest participants. Furthermore, the several discrepancies in the data may indicate that this task would be better conducted as an in-person task-completion activity than an online study.
Loop11 Study 3 – Reserve a Group Study Room

Purpose and Design

As indicated by the True Intent study conducted in January and participant comments from in-person usability studies conducted during this project, reserving a group study room is a popular reason to visit the library website. The third Loop11 activity asked users to find the reservation system used to reserve a group study room in the library. The instructions indicated that the user did not have to log in or actually reserve a room, and needed only to navigate to the page where this would be possible.

Questions

2. Have you ever reserved a group study room at the library before?

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>35.6%</td>
<td>89</td>
</tr>
<tr>
<td>No</td>
<td>64.4%</td>
<td>161</td>
</tr>
</tbody>
</table>

Figure 7 - Percentage of users who had previously reserved a group study room – Image generated by Loop11

Average Task Completion Rate

- Success: 59%
- Fail: 30%
- Abandon: 11%

Figure 8 - Reserve a Group Study Room - Results snapshot – Image generated by Loop11
Discussion of Results

Just over 35% of the participants in this study indicated that they had reserved a group study room before. Because almost 65% reported that they had not previously reserved a room, it is likely that the majority of the participants may have been locating the reservation system for the first time.

Because the group study rooms are in demand, it is useful to have evidence that the majority of participants were successful in completing this task and that the majority reported that finding the reservation system was not difficult. However, success and perceived ease of use was not universal, and there is room to improve usability for this feature of the library website.

3. Getting to that page was

<table>
<thead>
<tr>
<th>%</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>43.6%</td>
</tr>
<tr>
<td>Kind of easy</td>
<td>30.4%</td>
</tr>
<tr>
<td>Kind of difficult</td>
<td>13.2%</td>
</tr>
<tr>
<td>Difficult</td>
<td>3.6%</td>
</tr>
<tr>
<td>I didn't find it</td>
<td>9.2%</td>
</tr>
</tbody>
</table>

Answered Questions 250
Skipped Questions 0

Figure 9 - Perceived ease of reserving a group study room – Image generated by Loop11

A few participants suggested making the link to the room reservation system more noticeable on the homepage, using different colors, animation or flashing, or a highlighting feature. While these techniques may draw more attention to the link, they will increase the existing clutter and confusion on the homepage. A potential method for creating a more noticeable link without adding much visual clutter is to use a button. Jenny James Lee created three options of what a design featuring a button for reserving a group study room might look like. A second part of this usability study asked users to choose the design they preferred.
Figure 10 - Homepage with GSR button - Design 1 – Image created by Jenny James Lee

Figure 11 - Homepage with GSR button - Design 2 - Image created by Jenny James Lee

Figure 12 - Homepage with GSR button - Design 3 - Image created by Jenny James Lee
Participants clearly preferred Design 3. Comments mentioned that positioning the Book a Group Study Room button in proximity to the existing buttons on the website was logical and made it easier to find. While the preference for Design 3 was quite clear, several participants expressed that they would find the buttons easier to locate if they were nearer to the top of the page. Positioning the buttons just above the central tabbed search box may be a way to accommodate more patrons’ preferences. Another version of this study could ask participants to select between mockups with buttons below and buttons above the tabbed search box.

Other participants’ comments indicated that after they find the group study room reservation system, they want to view images of each room to help them decide which room to reserve. Minimal staff time would be required to take photographs and make them available through a tool tip that appears when a cursor hovers over the number of each study room.

Recommendations / Lessons

Several participants reported difficulty with the homogenous appearance of the library homepage. The dominance of blue and white on the page may serve to obfuscate information. Using color strategically may help to lead users’ eyes around the page, or to draw attention to important information the libraries would like to publicize. However, use of color, like links on the homepage, can be a slippery slope. This technique should be used conscientiously, avoiding the multihued cacophony of visual clutter that could result from too liberal an application of color.

The use of a group study room reservation button is an excellent idea, which study participants seemed to welcome. Buttons also should be used sparingly to avoid visual clutter. Additional surveys could provide a list of library functions and ask participants to select those which they use most frequently. These could be transformed into buttons to make common library website functions easily accessible on the homepage. These may be effective if collocated into a small region of screen real estate, perhaps grouped together in a box somewhat like the existing Quick Links.
In-Person Studies

Research Guide Terminology Study

Purpose and Design

Students may not know that they can use research guides prepared by librarians to help them determine where to look for resources and formulate strategies for effective research. Making the research guides easier to find may be one strategy to increase students’ awareness and use. This study, however, focuses on terminology, investigating whether or not the terminology currently used on the library website makes sense to students. An activity asked students to examine printouts of pages from the research guides section of the library website. These printouts had been expurgated of the “research guide” nomenclature. The relationship between the pages, as well as their function, was explained. Then the students were asked to examine the pages on their own and suggest a title.

Because students are the target audience for research guides, only students were asked to participate in this study. As an incentive, participants were offered a pair of sunglasses and a pen, both branded with the Drexel University Libraries logo. Because the activity was quite short, convenience sampling was used to recruit participants for this study. To encourage honesty, students were recruited outside of the library, while they were lounging or socializing in outdoor areas on campus. Five students participated in this study.

Discussion of Results

Surprisingly, no students used the term “research” to describe the research guides. While it is possible that students simply did not think of the word, this could also indicate that students may not associate the concept of finding information resources with research. Students seemed to feel that the subject that the research guides addressed was sufficient for the title of the page. Students indicated confusion about the resources grouped under the General Reference heading, pointing out that there did not seem to be a common thread linking the items on that page.

<table>
<thead>
<tr>
<th>Participant 1</th>
<th>Participant 2</th>
<th>Participant 3</th>
<th>Participant 4</th>
<th>Participant 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting Started</td>
<td>Select Subject to Get Started</td>
<td>Course of Study</td>
<td>Catalog</td>
<td>Directory or Catalog</td>
</tr>
<tr>
<td>Engineering Research Guides</td>
<td>Engineering</td>
<td>Engineering Topics</td>
<td>Engineering</td>
<td>Engineering</td>
</tr>
<tr>
<td>General Reference Guides</td>
<td>English &amp; Other Sources</td>
<td>General Reference Topics</td>
<td>Writing Resources (Only English 101 &amp; 102)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 14 - Participants’ suggested titles for pages in the research guides section
Recommendations / Lessons

Overall, students seemed reluctant or uninspired to suggest their own terminology. A likely method to improve this study would be to allow students to choose between two or three terminology options. In additional studies of this type, I would also recommended using sets of research guides from two clearly defined academic subject areas, such as Business and Engineering. The research guides under the General Reference heading are not directly related, and this information architecture issue further complicated the nomenclature issue.

Because no definitive conclusions can be drawn from this small sample, it is recommended that this study be revised and repeated. While a token incentive can be used for this study, it is likely that participants would be more apt to seriously consider their answers if a more desirable incentive were offered. Convenience sampling worked well for this study, and approaching students outside of the library did seem to produce honesty. Future studies should take care to approach only students who are alone at the time. Pairs of students had strong influence over each other’s answers in this study.

Card Sorting Activity

Purpose and Design

Using the traditional usability testing method of card sorting, this study aimed to gain insight into patrons’ concepts of logical information architecture to apply to the library website. Participants who had provided their contact information in the online studies were emailed an invitation to participate in a usability activity on campus. As an incentive, in-person participants were offered a printing card worth $10, for use at any library location. Additional recruitment methods included posting flyers advertising the activity and incentive in various academic and residence buildings on the University City and Center City campuses. Four students and one professor were recruited for this study, bringing the total to five participants. Because the activity was designed for participants to complete independently, arranging the appointments to accommodate each participant’s schedule proved somewhat challenging. It is recommended that the researcher be prepared to maintain a flexible schedule.

Participants came to Hagerty Library to complete this activity. After a brief greeting, the researcher read the orientation and activity scripts to the participant. The participant was given 40 cards, each bearing the title of a page on the library website on one side and a brief description of that page on the other.

First, the participants sorted the cards into three groups based on their familiarity with the page or service on that card. The cards which the participant placed in the ‘Don’t Know / Never Heard Of’ group were recorded and removed. Using photographs to record these groupings expedited the documentation process. The cards placed into the remaining groups, ‘Have Used Before’ and ‘Know What It Is But Have Not Used’, were also documented, and the participants reclaimed these cards.
Participants then used the familiar cards to form groups with pages they felt were related to each other. The groups could have as many or as few cards as the participant chose, and participants were free to create subgroups as well. If a participant felt that a page was missing from the library website, they were invited to create that page using a blank card. After creating their groupings, participants were asked to name each group, writing its title on a post-it note. Participants then had the opportunity to comment freely regarding the library website, and received their printing cards. The activities lasted between 20 and 35 minutes, with the participants largely in control of the duration.

Discussion of Results

Participants seemed to take this activity seriously, and most expressed enjoyment. Participants’ comments lent insight into their various interests in and uses for the library website, revealing common themes. Although this was not part of the activity, one user even sketched a paper prototype of what he thought an improved version of the library homepage might look like. This student included a customizable dashboard, which would allow him to influence how he would experience the library homepage, and make his personal library information readily accessible.
The results of the initial sort reveal participants’ familiarity with various library webpages and services. Because four of the participants were students, it is not surprising that the pages ‘Services for Faculty’ and ‘Services for Alumni/ae’ were generally unknown. Additionally, because the activity was held on campus, it is not surprising that ‘Services for Distance Learners’ was also unknown. Somewhat unexpectedly, ‘Copiers and Microfilm Readers’ also appeared in the unfamiliar category. More concerning is the apparent lack of familiarity with ‘Book a Reference Consultation,’ especially in light of the removal of the reference desk. This indicates that students may not be aware of the opportunity to get research assistance from a librarian. This presents an opportunity to strengthen outreach efforts to students, and perhaps to partner with faculty, asking them to remind their students that they can get personalized research help when they make an appointment with a librarian.

Figure 16 - Participant 4 suggested allowing patrons to log in to view a customized version of the page, displaying their account information, favorite resources, and what the individual feels is most important.
Participants’ groupings can lead to inferences about how patrons may expect information to be organized on the library website. Each participant created a category or subcategory for pages with information about the library as a physical space – shown in Figure 18 as About / Visiting. Hours and locations were usually collocated in a group such as this. Four of the five participants also created a group containing information about doing research, using the word “Research” in the title of the group. These groups usually contained links to research guides, which may be a result of similar terminology. There is much variation in the cards participants included in their research categories. Electronic resources, books, interlibrary loan, and in-person help were variously represented.
It appears that participants may perceive division between print and electronic resources, as well as between services or resources that require a physical visit and those which can be accessed online. For example, three participants separated services that could be used only in the library building, such as borrowing laptops, from online services.

Four out of the five participants created a category for information pertaining specifically to them. This included all of the students; the faculty member did not create a personalized category. This category commonly included information specific to the individual’s library account and academic discipline. In this way, patrons would have control over their experience of the website and would see only information that was relevant to them.

**Recommendations / Lessons**

Because it appears that students want to be able to customize their view of the library website, it might be useful to revisit the My Personal Library feature. Despite its current state of being widely reviled and perpetually languishing in beta, it appears that the My Personal Library dashboard may have the potential to meet student demand for a personalized view of the library website. At present, the program does not successfully communicate with Millennium, and so does not give accurate information about a patron’s library account. The academic discipline module appears to be functioning.
Yet the My Personal Library feature suffers from some of the same problems as the rest of the library website. Namely, it is cluttered and unattractive. The new resource widget is useful, but it is not a main attraction to most undergrads and would be more logically placed below the fold. The suggested databases are too generic; this is something that the user should be able to customize with their favorites. Prime screen real estate is consumed by the bulky and unattractive What Is This Thing box, while the same thing could be accomplished with a small link, question mark icon, or tool tip.

Despite mixed feelings about this feature and the possible challenges involved, it may be worth investigating the potential to develop and refine My Personal Library. Alternatively, a similar, more sophisticated program may have become available, or the next redesign of the library website might opt to design this feature in house. An alternative to a fully customized dashboard could be audience-tailored views, allowing users to choose to view the site from the perspective of an on-campus student, distance learner, faculty, or alumni.

In addition to personalization, participants offered other suggestions. Two of the participants created cards to represent pages they felt were missing from the library website. One suggested that it would be useful for the library website to display information about other buildings on campus, such as the hours of the recreation center. Another participant noted the increasing population of international students at Drexel, suggesting that the website should offer options to display in other languages, to increase accessibility for those who are not native English speakers.

On the subject of language, one of the participants suggested that ‘Services for Alumni/ae’ was unnecessarily complicated and could be streamlined by using the simpler term, Alumni. Additionally, while I suspect that each of the participants had experience using the library’s computers, three of the five participants were not familiar with ‘Computing Facilities.’ This terminology may be confusing. Something like ‘Using a Computer in the Library’ might be clearer.

Participants also demonstrated unfamiliarity with iDEA. The institutional repository may have a limited audience, consisting primarily of faculty, grad students, and research assistants. However, this presents an opportunity for marketing. Additionally, a tool tip, or different verbiage such as ‘iDEA – Research from the Drexel Community,’ may help patrons understand what the institutional repository is.

In light of the removal of the reference desk, it is alarming that participants were generally unfamiliar with Book a Reference Consultation. While reference statistics may be declining across universities, it is important for Drexel students to know that librarians are available and eager to support them in their learning. A follow-up study might be useful, outside of the library website, to gauge student awareness of the reference services and research assistance available through the library. Additionally, marketing reference services across campus, and through Blackboard Learn, may help raise student awareness. Focusing on the personalized nature of research assistance may be a helpful strategy.
Task Completion Activity

Purpose and Design

Direct observation of students using the library website provides depth and texture to the information gleaned using less intrusive usability study methods. The final Spring 2013 study asked participants to use the library website to complete a series of 12 tasks. Their activities on the screen, as well as their comments, were recorded using Camtasia. These videos allowed for detailed analysis of participants’ interactions with the website. In addition to the participants’ success or failure in completing a particular task, I recorded the number of clicks for each task, as well as the number false starts the participant made along the way. In the event that the participant completed a task using the same path a librarian would, that task was scored as having an ‘expert path.’

<table>
<thead>
<tr>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What time does Hagerty Library close on Saturday?</td>
</tr>
<tr>
<td>2. Do the Drexel Libraries own the book Silent Spring by Rachel Carson?</td>
</tr>
<tr>
<td>a. Is it available?</td>
</tr>
<tr>
<td>b. Where is it located?</td>
</tr>
<tr>
<td>3. Does the library have any movies from director Alfred Hitchcock?</td>
</tr>
<tr>
<td>4. Find a way to ask a question if you are not in the library.</td>
</tr>
<tr>
<td>5. What is the date of the latest issue of Rolling Stone at Hagerty Library?</td>
</tr>
<tr>
<td>a. Where is it located?</td>
</tr>
<tr>
<td>6. You are doing a project for your Biology class and you are not really sure how to get started. How would you make an appointment to meet with a librarian for research help?</td>
</tr>
<tr>
<td>7. Can you print from your own laptop in the library? How would you do it?</td>
</tr>
<tr>
<td>8. In January 2012, an article by Bill Tucker, titled “The Flipped Classroom,” appeared in the journal Education Next. Find that article.</td>
</tr>
<tr>
<td>9. The library website has a section with pages that librarians make that tell how to do research on certain topics. Find a page that will help you do research in Economics.</td>
</tr>
<tr>
<td>10. Find a tutorial on the library website that will help you decide if an article is scholarly or not.</td>
</tr>
<tr>
<td>11. Find out which database would be a good place to look for scholarly articles on nutrition.</td>
</tr>
<tr>
<td>12. How can you search Google Scholar through the library website?</td>
</tr>
<tr>
<td>13. On the library homepage, what gets your attention first?</td>
</tr>
<tr>
<td>a. Is there anywhere you tend to have trouble with the library website?</td>
</tr>
<tr>
<td>b. Is there anything else you would like to say about the library website?</td>
</tr>
</tbody>
</table>

Figure 20 - Participants were asked to use the library website to complete 12 tasks

To standardize comparison between participants, outcomes were scored on a data recording form adapted from a study done at Hunter College (see Appendix 2.C. for an example.) Similarities in participants’ outcomes with each task highlight trouble areas of the library website, as well as areas that users have less difficulty navigating. Although participants were instructed to narrate their thought processes completing tasks, participants made few comments in the midst of the activity. After the final
task was completed and the participants answered follow-up questions, they were invited to speak freely about their experience with the library website. These comments are available in Appendix 2.C.

Using Camtasia to record the task completion study is highly recommended. The software can easily capture much more data than the researcher alone could record. None of the five participants expressed concern or hesitation about being recorded, and all were assured anonymity. The participants were again recruited via emails responding to their submission of contact information on the surveys attached to the online usability studies, and a $10 library printing card was again offered as an incentive.

**Discussion of Results**

One task asked participants to find out if they could print from their own laptops in the library. A second part of that question asked participants to explain how this could be accomplished. However, none of the participants were asked the second part of the question, because each participant answered that they could not print from their own laptop. Although the participants made it to the page titled *Printing from Computers in the Libraries*, where the necessary drivers can be downloaded, none of the participants interpreted this information to mean that they would be able to use their own laptops to print. In their comments, participants expressed that they usually move from their own computers to a library machine when they have to print.
The most difficult task by far proved to be finding the date of the latest print issue of *Rolling Stone* available in the library. The expert path for this task would require users to search the library catalog for *Rolling Stone* in the journal title field, choose the record for the print version, then check the record for the ‘latest received’ date. Most participants started this search task in Summon with a keyword search, and were overwhelmed with results. Participants then tended to move to the catalog, where they also did a keyword search. One participant used a keyword search of the library website. Most of the participants examined the book *Rolling Stone: the complete covers*, and one participant gave that book’s publication date, 2001, as the date of the latest print issue of the magazine. Three participants simply gave up. Only one participant successfully completed the task. She was quite determined: the task took her nearly 10 minutes, and she made 25 clicks.

<table>
<thead>
<tr>
<th>Exercise Name</th>
<th>Expert Path Total</th>
<th>Av. # False Starts</th>
<th>Av. # Clicks</th>
<th># Success</th>
<th># Failure</th>
<th>Common False Starts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you print from your own laptop?</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>5</td>
<td>Most got to page but did not see info. clicks on Services, Get Help</td>
</tr>
<tr>
<td>Date of the library’s latest print issue of <em>Rolling Stone</em>?</td>
<td>0</td>
<td>2.4</td>
<td>8.2</td>
<td>1</td>
<td>4</td>
<td>Summon keyword search without limiters</td>
</tr>
<tr>
<td>Who to contact for Biology research help</td>
<td>2</td>
<td>0.6</td>
<td>2.8</td>
<td>2</td>
<td>3</td>
<td>Staff directory, chat, Proquest</td>
</tr>
<tr>
<td>Does the library have movies by director Alfred Hitchcock?</td>
<td>1</td>
<td>1.5</td>
<td>3.8</td>
<td>3</td>
<td>2</td>
<td>Summon keyword search without limiters, site search</td>
</tr>
<tr>
<td>Which database for scholarly articles on Nutrition?</td>
<td>0</td>
<td>1.4</td>
<td>2.8</td>
<td>3</td>
<td>2</td>
<td>Databases by title, site search, Summon</td>
</tr>
<tr>
<td>Does the library own the book <em>Silent Spring</em>?</td>
<td>3</td>
<td>0.5</td>
<td>1.8</td>
<td>4</td>
<td>1</td>
<td>Choosing different item from catalog keyword search for title</td>
</tr>
<tr>
<td>Find a research guide for Economics</td>
<td>3</td>
<td>1.2</td>
<td>3.6</td>
<td>4</td>
<td>1</td>
<td>All Research Guides from drop down menu, liaison librarians</td>
</tr>
<tr>
<td>Find a tutorial – is an article scholarly</td>
<td>2</td>
<td>0.8</td>
<td>4.6</td>
<td>4</td>
<td>1</td>
<td>Research Guides, Summon</td>
</tr>
<tr>
<td>Google Scholar through the library website?</td>
<td>3</td>
<td>0.6</td>
<td>2.4</td>
<td>4</td>
<td>1</td>
<td>Databases by title - S</td>
</tr>
<tr>
<td>What time does Hagerty close on Saturday?</td>
<td>1</td>
<td>1</td>
<td>1.8</td>
<td>5</td>
<td>0</td>
<td>Today’s Hours</td>
</tr>
<tr>
<td>Ask a question when you are not in the library</td>
<td>5</td>
<td>0</td>
<td>1.2</td>
<td>5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Find an article - provided citation</td>
<td>3</td>
<td>0.8</td>
<td>6.4</td>
<td>5</td>
<td>0</td>
<td>Spelling/entering info, keyword search for journal</td>
</tr>
</tbody>
</table>

Figure 22 - Task completion study results summary table
The usability issue highlighted by the difficulty participants encountered with the *Rolling Stone* task is the different search boxes, each with a different functionality. Users may not know which search feature is most appropriate for a given task. There may be an information literacy component complicating this task as well. One participant mused aloud, “Is this a journal?” Perhaps the website could compensate for confusion, and promote information literacy, by including a short definition in a tool tip over the word “journal” in the library catalog.

Also alarming is the fact that three of the five participants failed to find who to contact for help with research in biology. Coupled with the results of the card sorting activity, which indicated user unfamiliarity with the Book a Reference Consultation page, this indicates that a large number of library patrons may be completely unaware of the availability of liaison librarians. Terminology may play a role in this lack of awareness. A phrase such as ‘Get Research Help’ or ‘Talk to a Librarian’ may be clearer and perhaps less intimidating than the current terminology. Additionally, it is likely that students are unfamiliar with the term ‘liaison librarian;’ ‘subject librarian’ may be a friendlier choice. Both terms are currently in use on the library website. Selecting one term for consistent use may be an effective strategy for clarification.

Participants also struggled searching for DVDs. Most began their search in Summon, using a keyword search. Overwhelmed with the many results, participants tended to move to the catalog. There, participants used a keyword search for Alfred Hitchcock, rather than searching for the director’s name in the author field. Most participants scrolled down this result list, saw some items that appeared to be DVDs, and supplied the correct answer to the question. Two participants, however, were unsuccessful. One was unable to tell if the results she received were books, articles, or movies. Another searched the website instead of the catalog. Similar to the difficulty with the *Rolling Stone* task, the most effective search technique here is unfamiliar to the average library user; this is more closely related to the ILS than to the library website. However, the library website could attempt to compensate for the idiosyncrasies of the ILS by including information about finding DVDs by director on the appropriate research guide.

The research guides seemed to be less troublesome. Participants accessed the research guides using the tab on the central search box, the link below this, and the Research button. While having a variety of access points may seem untidy, users were generally able to reach the research guides without much difficulty. In the only exception, one participant used the drop-down menu for research guides in the tabbed search box. She chose the Business heading. While examining the page, she noticed the photo and contact information for the Business librarian, and said that she would contact that person. This indicates either that this particular participant would prefer in-person help over self-service, or that this participant was unfamiliar with the content and function of research guides, despite the fact that she correctly navigated to the page that links to the research guide requested in this task.
Tutorials were more difficult to find. While four of the five participants found the specified tutorial, their paths were inconsistent. The participant who was unsuccessful used Summon to search, and said that he would simply limit a Summon search to return only scholarly articles. While this may indicate a lack of clarity in the wording of the task, it may also indicate a lack of awareness about tutorials available on the library website, and a need for further marketing and more logical placement of tutorials on the website. The tutorials may be easier for users to find if they were grouped under the Research heading instead of, or in addition to, their current placement in the Get Help section. Two participants first searched the Research section for the tutorials. One participant returned to the research guides listing three times before finding the tutorial, a task that took her a total of ten clicks.

While four of the five participants also were successful in finding that users are able to search Google Scholar through the library website, increasing student awareness of this feature should be a priority. Students are searching Google anyway, and many are likely using Google Scholar. Embedding a Google Scholar search box on the library homepage, below the fold where it would be less distracting, may be useful for students. Alternatively, a Google Scholar option might be added to the drop down menu for the existing Quick Links search box. If a student is searching Google Scholar on a campus computer, the authentication system will automatically show article availability. However, if a student is off campus, the convenient access to Drexel-owned articles could be of high value to a student who otherwise may not know the articles are freely accessible through the libraries.

One task asked participants to find an article, given a citation. Each participant successfully found the article. However, there were a few sticking points along the way. Two of the participants had difficulty entering the citation information into the search box with correct spelling. In future task completion activities including a citation search, it would be wise to provide the citation in print to alleviate this difficulty. Although Summon has a “Did you mean” feature to help with spelling mistakes, this feature become less effective when a long string of search terms is entered. One participant seemed to have difficulty deciding which part of the citation contained the most important or effective information to search. Her strategy was to search for the journal title as a keyword in the library catalog. She clicked on the title of the journal in the results, and was sent to DOAJ. She then went back and did another search in the catalog. This time she set the search to the author field and typed the author’s name, first name followed by last name, “Bill Tucker.” The results, of course, were for authors with “Bill” as a last name. Again, this

“There are many links, so finding the right link to information is hard.”
- Participant 1

“You have to learn to use it. But for a brilliant website, it should be, you don’t have to learn how to use it. Like we all love iPhone, because it’s so easy, it’s so simple.”
- Participant 5
issue is more closely related to the learning curve involved with the ILS and information literacy issues than the library website itself. This participant then used the Find It citation finder to search for article. She began by entering all of the citation information, but spelling mistakes prevented the article from being retrieved. She removed some information, including the misspelling, and tried again, eventually locating the article, after a total of 18 clicks.

Each participant was successful in finding a way to ask a question when not in the library, indicating that the Library Chat button is noticeable and familiar to patrons. Additionally, each participant successfully found Hagerty’s Saturday hours. The task completion activities took place on weekday, so participants needed to find use the Hours link, rather than the Today’s Hours link. Most clicked Today’s Hours first, presumably because it is at the top and in the largest font.

Recommendations / Lessons
Many complaints have been lodged regarding the hours box on the top left portion of the library homepage. This box is indeed cluttered, and includes more information than is necessary at first glance. There are seven links labeled “hours” in this box; it is not surprising that four of the five participants clicked an incorrect link before reaching the desired information. A drop down or expanding menu allowing users to choose their location of interest may be an effective way to reduce this visual clutter.
Also in this box is the link to information about printing in the libraries. Even if lucky enough to spot this link, the user may not understand the information provided. Since printing costs are the same at each library, they could be displayed once at the top of the page, rather than repeated for each location. A brief note can explain that printing costs are the same at each location. This would help to project the image of a unified library, as well as reduce clutter and streamline text. Another note should indicate that patrons can print from their own laptops after installing the appropriate driver. Patrons will likely appreciate the convenience.

Participants commented that visual clutter was a hindrance to using the library website. The profusion of links on the homepage is overwhelming, especially to new users. Participants also commented that many of these links are not useful to them personally. News and events in the library seem to be less important than information about how to find sources needed for students’ next assignments. While patrons may want to see some news and events at times, the current location of these sections on the homepage may be confusing and undesirable for many students, especially undergraduates. These could be moved below the fold, or displayed as two thumbnails which link to full pages of information.

Research guides could be promoted and their access points on the homepage might be streamlined if the Research Guides tab on the central search box were highlighted or accented in some way. Additional inquiry into intuitive organization of the research guides section, as well as the nomenclature, is recommended. It is also recommended that a link to the tutorials be provided on the research guides page.

Making the Millennium ILS and Summon interfaces easy for users is not entirely within Drexel Libraries’ control. However, the library website should provide tool tips to clarify troublesome terminology wherever possible. Additionally, short, targeted tutorials, video or text with visuals, should be provided at point of need wherever possible. If this cannot be accomplished via integration with the ILS or Summon, an FAQ section should provide these. If a patron asks how to find movies by a certain director, a very short tutorial should provide just the needed piece of information.
Recommendations

Information Architecture

Addressing the information architecture of the library website is perhaps the single most important step toward improving usability. As this affects all aspects of users’ interactions with the site, it is advisable to complete additional research into perceptions of effective information architecture and semantic relationships between library resources and services before effecting significant changes.

This study found several opportunities for improvement, including:

- **Research Guides**
  - The research guides under the General Reference heading are not directly related, and should be reorganized into semantically related groups, or provided independently.
  - Embedding research guides in Blackboard Learn may facilitate student discovery and use.

- **Arrangement of tutorials and their placement on the library website**
  - Participants indicated a semantic relationship between tutorials and research. Even if the tutorials remain linked under the Get Help heading, adding a link under the Research heading will likely help users find tutorials, perhaps increasing their use.
  - The internal arrangement of tutorials could be clarified. A comprehensive listing of tutorials, or an expandable menu arranged by subject, will be helpful to users.
  - Point-of-need provision of tutorials has potential to greatly enhance users’ search skills.

- **Location of borrowing policies**
  - Adding a link to information about borrowing policies to the pages patrons use to access their accounts will help patrons access this information at point of need.
  - Renewal information should be added to the table of access policies.

- **Physical vs. digital collections and services**
  - Students may perceive division between physical and digital collections, and may prefer to have separate listings for each type of resource.

Terminology

Students may not understand library jargon. Using language that aligns with student expectations will make the library website easier to use, help students find the information they need, and facilitate discovery of information resources and services.

Terminology issues identified in the course of the study include:

- ‘Services for Alumni/ae’
  - Although this is politically correct, users may respond more favorably to ‘Alumni.’

- ‘Research’
  - Card Sorting Activity participants tended to use the term ‘research’ to describe groups they made including collections of information resources.
While no Research Guide Terminology Study participants suggested using the term ‘research,’ the Task Completion Study participants had no difficulty finding the research guides under their current title.

- A potential solution is increased marketing for research guides as a study tool.

- ‘iDEA – Institutional Repository’
  - It is likely that the average student is unfamiliar with the term ‘institutional repository.’ Though the audience for iDEA may be somewhat limited, students may find the repository more accessible, and more useful, if its subtitle were changed to ‘Research from the Drexel Community.’

- ‘Book a Reference Consultation’
  - Card Sorting Study participants demonstrated unfamiliarity with the term ‘Book a Reference Consultation.’ The term has connotations of seriousness and negativity; a ‘consultation’ is something you would schedule with a doctor before undergoing a surgical procedure. The name may discourage students from using research assistance services. A friendlier, more obvious term might be a better choice, such as ‘Get Research Help’ or ‘Talk to a Librarian.’

- ‘Liaison librarian’
  - The majority of students are unlikely to be familiar with the term ‘liaison librarian.’ ‘Subject librarian’ may be a clearer term. Even this may hold some mystery for students; perhaps a line of text could explain ‘These librarians provide specialized research help in your field.’

**General Layout / Usability**

Several additional usability issues came to light in the course of these studies. Some suggestions for improving the overall usability of the website include:

- Create a library FAQ
  - In addition to helping patrons connect with frequently needed information without the challenge of navigating the website, an FAQ could be useful to introduce new users to the library.

- Move account login above the fold
  - Study participants expressed the desire to have ready access to personally relevant information. Some participants specifically mentioned that they did not like having to scroll down the page to log in to their account. Moving the link to log in to patron accounts above the fold will help the libraries present a patron-centered interface.

- Move news/events below fold
  - Study participants expressed a perception that information about library news and events is extraneous to their immediate needs, and their location on the screen should be accordingly subdued.
• My Personal Library
  o Participants are focused on their own needs, and expect the library website to have the same point of view. Allowing a customized view of the library homepage may be worthwhile, increasing usability and improving users’ opinion of the site and of the libraries as a whole.

• Restructuring the hours box
  o Much information is displayed in the hours box on the library homepage. A more efficient and less cluttered way of displaying information about the operating hours of each location may be an expanding menu allowing users to select their location of interest.
  o Users tend to click on the large link for Today’s Hours, or the Hours link immediately below. This displays hourly information for each location for that particular day. To see the week’s hours for a particular location, the user must click on that location. The display then shows separate, potentially confusing entries for operating and reference hours. Hourly information may be easier to use if displayed in calendar format, rather than as a list. Penn’s library hours serve as a good example of a calendar display.

• Customized Google site search
  o Though study participants expressed overall satisfaction with the existing site search function, one librarian suggested that implementing a Google custom search may make the site search easier and more effective, with the added benefit of providing Google Analytics to collect data on how visitors use the site.

• Market Google Scholar search
  o Add a Google Scholar search below the fold on the homepage, or as an option in the Quick Search box drop-down menu. During instruction sessions, mention using the library website to search Google Scholar.

• Printing link
  o The link to printing information does not have a semantic association with operating hours and should be separated from the hours box.
  o The printing information page should provide clear instructions for printing from one’s own laptop.

• Course Reserves tab on central search box
  o Since electronic course reserves are now integrated in Blackboard Learn, and the course reserves tab on the central search box now gives only contact information for reserves coordinators, perhaps that screen real estate could be better utilized. An example could be using that tab for the site search function, reducing the number of search boxes visible on the page at a given time.

• Multilingual display options
  o Given the increasing enrollment of international students, it may be useful to provide page translations, or to allow the user to choose to view the page in another language. This practice would demonstrate understanding of and commitment to the needs of the user community.
• Other buildings on campus
  o A student suggested creating a page with information about other buildings on campus. 
    It may be handy to have information about other locations where students can print, 
    campus dining locations, and the recreation center, on one page which students can 
    access without leaving the library website.

• Point of need assistance for catalog searches
  o It may be useful to prompt users to enter authors’ names in last, first format.
  o It may be useful to design a prompt that asks users if they are looking for 
    book/movie/newspaper/magazine/journal, then displays a very short tutorial (text or 
    video) describing the most efficient way to find that in the catalog as a pop up or in a 
    new tab, so that the user does not navigate away from the current search.

• Group study room photos
  o Add photos of each group study room to the reservation system to allow users to 
    preview rooms before making a reservation.

• General appearance of the library homepage 
  o Reduce clutter.
  o Diversify color scheme.
    ▪ Participant comments indicate that blue and white dominate the homepage 
      and camouflage links.

**Study design / administration**

This project was my first experience designing and administering usability tests. I deeply enjoyed 
and value the experience. I was surprised to discover how much I care about web design and usability!

In the course of this project, mistakes were made. The following recommendations can help 
future projects design and administer more effective and efficient studies:

• Pre-test all studies with library staff and other users
• Check rendering of all pages when using Loop11 
  o Much like typos, it is easier for someone else to catch these errors than it is for the 
    person who created the test.
• Follow up with Loop11 about account login issue 
  o Although participants should not need to log in to their accounts while engaged in 
    usability testing, it may be useful to find out more about this error.
• Provide an opportunity for study participants to leave open ended comments in both online and 
  in person tests 
  o Participants’ comments add depth to their responses and allow qualitative insight to 
    their perceptions of the website.
  o Participants may use comments as an opportunity to bring attention to important issues 
    outside of the study topic.
• Provide citation information in print
  o If an activity asks a user to find an article based on a citation, provide that citation in print to avoid errors in comprehension or spelling.
• Provide smaller incentives for online studies
  o Unfortunately, there will always be dishonest people and the resulting compromises in data. Because online studies tend to be short, cannot be monitored, and participants may not take them as seriously as in-person studies, smaller incentives are appropriate.
• Small monetary / gift card incentives to increase value of token incentives
  o Token incentives such as sunglasses, pens, and lanyards provide minimal motivation. Small monetary or gift card incentives may be more effective. Campus dining may be an option worth exploring.
• Convenience sampling
  o It is best to invite students who are alone to participate in a study. Students in pairs or groups will be influenced by one another, leading to compromised study results.
  o Recruiting participants outside of the library may yield more honest answers.

Future projects

With a limited time period in which to complete this project, I was unable to perform every necessary study. The following are ideas for studies which may be useful to implement in future projects:

• Research guides
  o Revising and repeating the Research Guide Terminology Study could gather information about students’ perceptions of what a research guide is, how it can be used, how likely they would be to use one, and where they would expect it to be found.
  o Providing a choice between potential names may be more effective than asking students to choose their own terminology.
  o Use sets of research guides from two clearly defined academic subject areas, such as Business and Engineering.
• Reserve a Group Study Room
  o A student suggested that the top of the screen attracts the most attention. A survey could be used to gauge whether users would prefer the group study room and other buttons to be above or below the tabbed search box.
• Student perceptions of importance
  o Additional surveys could ask students to choose from a list the library functions which they use most frequently.
  o These could be transformed into buttons to make common library website functions easily accessible on the homepage.
  o This information could also help influence the top level navigation, by indicating how users would expect the library website to be divided into semantic sections, and what the landing pages would be expected to contain.
• Terminology - ‘Book a Reference Consultation’ & ‘Liaison Librarian’
  o This terminology should be adjusted to better meet student expectations. Providing a few options and gathering student opinions and feedback should help to improve this terminology.

• Reference Service Awareness study
  o What research services do students wish the libraries provided?
  o Do students know they can get personalized help from a librarian who is an expert in their field?
  o Do they know how to get personalized help?
Appendices

Appendix 1: Online Study Reports

Appendix 1.A: Loop11 Study 1 – Find the Research Skills 101 Tutorial
Visit the following URL to see a preview version of the study, exactly as it appeared

http://www.loop11.com/usability-test/18148/PREVIEW_DO_NOT_USE_THIS_LINK_FOR_COLLECTION/0YkUEzPvKP/

You can also double-click the icon below to view a copy of the results report generated by Loop11.

Appendix 1.B: Loop11 Study 2 – How Many Times Can Your Renew a Book?
Visit the following URL to see a preview version of the study, exactly as it appeared

http://www.loop11.com/usability-test/18345/PREVIEW_DO_NOT_USE_THIS_LINK_FOR_COLLECTION/yBcyZgBbMC/

You can also double-click the icon below to view a copy of the results report generated by Loop11.

Appendix 1.C: Loop11 Study 3 – Reserve a Group Study Room
Visit the following URL to see a preview version of the study, exactly as it appeared

http://www.loop11.com/usability-test/18577/PREVIEW_DO_NOT_USE_THIS_LINK_FOR_COLLECTION/qWTCRb3Qew/

You can also double-click the icon below to view a copy of the results report generated by Loop11.
Appendix 2: In-person study designs and results

Appendix 2.A: Research Guide Terminology Study

Script

Research Guide Terminology Activity
Packet.docx

Results – Raw Data

Research Guide Terminology Test Con

Appendix 2.B: Card Sorting Study

Script

Card Sorting Activity Script.docx

Results – Raw Data

Card Sorting Responses.xlsx

Appendix 2.C: Task Completion Study

Script

task completion script.docx
Data Analysis Sheet for Website Usability

Results – Raw Data

Participant 1 Data Analysis Sheet for Wi
Participant 2 Data Analysis Sheet for Wi
Participant 3 Data Analysis Sheet for Wi
Participant 4 Data Analysis Sheet for Wi
Participant 5 Data Analysis Sheet for Wi
Participant Comments – Video files
You can view the Drexel University Libraries Website Usability Study 2013 playlist on YouTube to hear participants’ comments and watch example videos of participants’ difficulty with the library website.

Appendix 3 - Recruitment Flyer

RecruitmentFlyer.pdf
Works Cited


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