Planning for Iteration-Focused User Experience Testing in an Academic Library

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Abstract

Many case studies and literature reviews focus on usability or user experience testing in libraries, but most are focused on testing before a planned website redesign, and often only include formal usability tests. This article contains an updated literature review on iteration-focused user experience test planning in academic libraries, followed by a description of the implementation of a user experience testing plan at Valdosta State University's Odum Library and its use in a Campus Information Technology (IT) redesign of the library website.

Keywords: user experience testing, usability testing, iteration

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Introduction

The diverse communities of patrons in academic libraries, from first-year students and visitors to faculty scholars and doctoral students, push library website designers to take a complex set of resources often designed for experts and organize this set to be accessible to everyone. Academic library websites need to be useful, usable, and accessible to an increasingly diverse patron base while still being the go-to portal for in-depth research in scholarly fields. This struggle to find a balance unique to each institution's community continues today. This article reviews the literature on library website user experience testing, with an emphasis on creating a user experience testing plan to benefit all involved with the design, improvement, or administration of an academic library website. It then chronicles the implementation of a simple, flexible user experience testing plan at Valdosta State University's Odum Library, and highlights how user experience tests informed both full redesigns and smaller iterative changes.

Literature Review

User Experience Testing and the Academic Library Website

The User Experience Professionals' Association defines the term "user experience" (now commonly abbreviated as UX, but also abbreviated as UE) as "every aspect of the user's interaction with a product, service, or company that make up the user's perceptions of the whole. User experience design as a discipline is concerned with all the elements that together make up that interface, including layout, visual design, text, brand, sound, and interaction. UE works to coordinate these elements to allow for the best possible interaction by users" (2012). User experience testing is the assessment and evaluation of a service in regards to users' interactions with that service. It extends beyond just how quickly and efficiently a user can perform a task.

As Glanznig said in a recent user experience article, there is no uniformly accepted definition of "user experience," but most definitions have one thing in common: "…usability (focusing on performance) is not enough" (2012), and a website's usefulness, based on users' wants and needs, should also be tested.

Various user experience tests described in library literature, including formal usability tests, focus groups, surveys, and other methods, have been categorized in the past under the "usability testing" umbrella term. Vaughn and Callicott, in their critique of usability testing in libraries, state a difference between the terms "usable" and "useful." Usable refers to the ease-of-use of a service, related to how quickly a user can complete a task. Useful refers to meeting users' wants and needs (2003). Green and Pearson, building off of this dichotomy between usability and usefulness, found that these two factors were closely related, but still separate parts of the experience (2011). Usability does not guarantee usefulness, and usefulness does not guarantee usability. The two must be recognized as related but independent factors. "Usability testing" limits the focus of testing to "usability" and "useful" becomes less important. "User experience testing" structurally broadens the "usability testing" term's measurement goals to also include usefulness, aesthetics, brand recognition, and other favorable factors which a library may want to measure regarding their website. Changing the focus to "user experience" pushes a library to look outside of only evaluating task performance, and address users' wants and needs when planning changes or new designs to a library website.

Articles on academic library website redesigns were sparse before online public access catalogs (OPACs) became more common in the early 2000s. Once OPACs were the norm, libraries seemed primed to follow the example of eCommerce websites and were ready to make their library websites more usable and useful to all possible patrons. Finding a balance between

making every useful library resource visible and providing a usable site for all patrons, however, has been a consistent challenge in academic library website design. Cockrell and Jayne stated why libraries had trouble focusing on design; library websites are complex due to the many demands and roles they must serve, including making available a diverse group of library services to an increasingly diverse community of patrons. They predicted that library websites "may easily exceed 1,000 pages" in the future, and that management and presentation of that information would become a larger issue (2002). It was clear, even this early on, that libraries (whether academic, public, school, or special) had their own unique "information overload" issues apart from the eCommerce sites that were becoming the models for library website design. In a famous *Library Journal* article titled "The Expert User is Dead," Leo Robert Klein described a philosophical issue underlying library website design: "We can no longer get away with designing for expert users only… we must design library websites to welcome all users" (2003). Years after Klein's call for a more universal website design, and after many library website redesigns throughout colleges and universities, Blummer observed that "it remains especially important that libraries consider design in the development of their web pages to maximize usage of content" (2007). Finding the balance between a minimalistic library webpage design that does not overwhelm the user and a design that points to all useful library content is an ongoing issue with no easy or quick fix, and must be evaluated locally and consistently. User experience testing has the potential to inform library website design to create a library site that most patrons find useful and usable.

Libraries face challenges that are uniquely different from the challenges large retail websites face. Library websites must address both an abundance of information and specific content types. Additionally, library websites must be usable and useful to a varied demographic

audience. Library target audiences are more narrowly-focused that the target audiences of large eCommerce sites. The audience focuses on library users that are part of a defined group, such as a university community. At the same time, library users are a diverse group when characterized by their experience using the website, research skills, field of study, and demographic status (undergraduate, graduate, faculty, staff, community). Communicating clearly to library users is an ongoing challenge for library websites. The specific content commonly found on library websites has its own confusing jargon. Spivey's intensive study on the use of library jargon on library home pages, done in the extremely early days of library website design, concluded that "even a relatively low frequency of jargon is troublesome in view of the parsimony of the introductory home page" (2000). Other jargon is adopted from popular culture in an attempt to resonate with the audience. For example, Liu described an academic library website redesign incorporating "Web 2.0" values, including using the word "My" in many category headings to reflect MySpace's prominence with college students at the time of the design (2008). Trends in social networking and e-commerce designs change rapidly and continually; MySpace, for example, is now hardly a competitor in the social networking industry. Planned and frequent user experience testing allows libraries to address each of these challenges. As audiences change, the website should be reviewed and updated. In the university setting the audience changes every year as new students arrive and graduating students leave. Changes in language and jargon, and trends from social and commercial sites, can be tested for in user experience testing and used inform library website design. The challenges addressed here are ongoing; addressing them once is not enough. User experience testing should be repeated regularly, at a frequency that allows your library to address challenges and changes in a timely manner.

Iteration-Focused User Experience Testing

In 2004, Liu noted that strengths and weaknesses of the library website should first be identified before the planning phase of the redesign occurs (2004). Many libraries did focus on a round of usability or user experience testing prior to the creation of a new library homepage or website. Only a few articles describe user experience testing being planned after the redesign in order to create iterations on the current design. For example, Cobus et al. describe a fifteen-week usability testing process to not only revise the Hunter College library website, but also to make smaller iterative changes after the revision during the fifteen weeks: "Continuing to have users look at the new site and evaluate it will help the librarians be more responsive to user needs. In addition to providing a mechanism by which to improve the library's Web pages, the usability study impacted the college community by providing a model for testing the usability of the Hunter College main Web site" (2005). King and Jannik describe Georgia Tech's first usability study, where the library created a testing "lab" to foster continued testing and changes to the newly revised website (2005). George describes the Carnegie Mellon University Libraries' three-step process for creating a new library website, with iteration-focused testing built-in: 1) ideation, 2) architecture, and 3) iteration (2005). More case studies and research should be focused on long-term test planning and iteration within the library literature, as they are sorely needed within the field of academic librarianship.

An alternative to having a user experience testing plan may be to have a set of Web policies overall. A survey by Chen et al. of all academic libraries in the Association of Research Libraries (ARL) set out to find if Web usability policies, standards, and guidelines (PSGs) were in place. They found that while 30% of ARL libraries have PSGs in place, having PSGs does not seem to have any effect on how often a library conducts usability testing. The lack of having

academic library usability PSGs, according to the authors, seems to stem from the lack of an immediate need for a policy document, since formal patron complaints about web usability that would require a policy-backed response are rare. The authors also noted a lack of iterative usability testing during each of the three major stages of a redesign process: pre-, during, and post-design – an interesting point to consider when creating a testing plan (2009). Chen's study suggests that having only PSGs is not enough to encourage the consistent collection of qualitative data from users about the library website. In order to collect the user data one needs in order to focus on iterative design, a user experience testing plan should be in place.

User Experience Testing Plans and Iteration

Very few works in library and information science literature discuss the need for, or implementation of, a long-term usability or user experience testing plan. Many articles focus on one redesign, the effectiveness of a new piece of usability-measuring equipment, or recommendations for overall site design based on a test or a set of tests. In 2005, King and Jannik described the development of a Digital Initiatives Department at the Georgia Institute of Technology. The in-house lab was developed in order to make long-term usability testing feasible as an alternative to outsourcing tests to a contracted company (2005). It is implied through the descriptions of past usability testing and their future plans that usability testing will occur only in the event of a redesign, but a long-term plan was not explicitly discussed.

Two trade magazine articles discuss long-term usability test planning in relation to iteration. In the magazine *Computers in Libraries,* Brown describes a set of usability tests for the Hampshire College library website. While long-term planning was not explicitly discussed, multiple tests were conducted after the redesign and Brown remarks that although the "tweaks

were minor" after the second round of tests, they further increased the current site's usability (2002). In an issue of *ONLINE,* Gore and Hirsch, two Hewlett-Packard consultants, defined a basic usability assessment plan and outlined the criteria: 1) goals and objectives, 2) target population, 3) type of assessment, 4) frequency, 5) test environment/equipment requirements, and 6) results and recommendations. Their argument for implementing such a plan was that long-term usability assessment in a web development plan will "…result in a more usable Web site that is responsive to user needs and behaviors" (2003). A simple user experience assessment plan involving these six criteria could help an academic library keep their website both usable and useful in the long run. Gore and Hirsch's criteria were adopted by Odum Library as the basis of the implementation of their user experience testing plan.

Case Study: Implementing a User Experience Testing Plan at Odum Library

Developing a User Experience Testing Plan

Odum Library has enjoyed a unique advantage in working with the VSU Information Technology (IT) office, as the Automated Services library department acts as a "bridge" between IT and the library. Because of this organizational link, communications between IT, its Web Services division, and Odum Library are seen overall as remarkably effective. IT has given Odum Library a large degree of freedom in designing and making changes to the library website, as it is seen as an extremely unique and crucial information hub for the university, and while the library does comply with campus-wide standards and redesign efforts, most design decisions are made within the library itself.

Odum Library has had a history of releasing a new homepage design every two years. After the creation of the first Odum Library website in 1998, a new design was introduced in

2000, 2002, then a four-year gap until the next design in 2006, with the last major revision in 2008 (Figure 1). Usability testing documentation goes back to 2007, when a plan was put in place to alternate actions per year – one year of creating and releasing a new design, and one year of usability testing. The one-year rounds of testing would include one-on-one observations, a survey, and a guided discussion.

The 2008 revision largely tested well, and only small changes were made in 2010. The lack of a need for a full redesign in 2010 led the group to implement a plan which did not mandate a redesign when only smaller iterative changes were needed, and facilitated a more consistent testing frequency. This led to the implementation of a new testing plan which would enable the library to be more flexible with the use of its data, while keeping current with how its users interacted with the website, and what they needed in a library website. The current User Experience Testing Plan for Odum Library (2013) follows the six criteria designed by Gore and Hirsch as mentioned above (2003):

Goals and Objectives

1) To stay current with the needs and usage trends of the patrons of the Odum Library website.

2) To inform smaller iterative changes and larger redesigns of library websites and other web-based services.

Target Population

The target population for tests is the current students and faculty of Valdosta State University.

Types of User Experience Tests

Tests include formal usability tests, focus groups, questionnaires, and other heuristic tests as needed.

Frequency

Odum Library will conduct at least one user experience test per year on the library website. This is subject to change due to circumstances such as a Campus Web redesign, where the new designs and content may take up to a year to be finalized.

Test Environment and Equipment Requirements

To prevent designer influence on the gathering of user experience data, library personnel will not conduct user experience tests for Odum Library websites. [The User Experience Testing Group currently works with the university's Office of Employee and Organizational Development to create the user experience tests. Personnel from that office moderate the various user experience tests needed.] Equipment requirements depend on the type of test administered, but often will require computers similar to current library workstations, screen capture software, a camcorder, a web camera, and a microphone.

Results and Recommendations Reporting

Test administrators will report results to the User Experience Testing Group, who will share the results with library faculty and staff. The User Experience Testing Group may share results with other departments included in website redesigns when necessary, including Web Services and Information Technology.

This plan was designed as flexible enough for unforeseeable circumstances which may interrupt testing, but more frequent at a base level on how often user experience tests were run. User experience tests could be run on any part of the site – for example, tests could heavily involve the website's course guides and ignore the homepage if the library saw a need for it. As soon as tests and library demands exceeded the capabilities of the current site, a redesign would be recommended. Redesigning the site would occur more "naturally" as a result of a demand for change, instead of a biannual plan, or conversely, if a redesign was demanded of the library as an overall campus initiative, the User Experience Testing Group would have current usability and user needs data from UX testing to guide the redesign. The plan also includes testing new design prototypes created before a public release.

Testing and Results of User Experience Testing Plan Implementation

The User Experience Testing Group conducted formal usability testing in Fall 2010, and focus group testing Fall 2011 and Spring 2012. In each instance the group solicited questions and concerns from all the librarians. These questions and issues were shared with partners in the Office of Employee and Organization Development, who then helped the user group develop questions for the usability and focus groups.

The Fall 2010 formal usability tests identified several issues with both our previous testing methods and the website. Participants and the moderator had difficulty understanding the questions and tasks. For example, "Find a list of databases about English Literature" confused some participants due to them not being familiar with the word "database." The moderator suggested a "scenario" question instead, where students would have to find literature within a subject, but not explicitly "databases." Future usability studies will include scenario-based

questions, and the group will meet with the moderator to refine and clarify these questions before testing. Website issues were centered on a lack of clarity and the use of jargon. For example, students had difficulty recognizing that the “Library Help” link would take them to a page of tutorials on using the library.

The Subject Guide web pages had five tabs labeled Articles, Books, Government Documents, Research & Course Guides, and Websites (Figure 2). Students had difficulty recognizing that the Articles tab contained a list of subject-specific databases they should use. Most of the concerns raised by the tests were discussed with the library faculty, but no changes were made at this time, especially since the Subject Guides architecture made revisions to the tabs impossible with the web design support that Odum Library had.

The Fall 2011 focus groups identified issues similar to those identified in Fall 2010. Additionally, this is the first user experience test where students and faculty critiqued the overall structure and layout of the webpage. Several changes were made to the website based on user group feedback. Similar issues included the location of the tutorials under “Library Help.” The “Library Help” link was changed to “Tutorials,” as that was the agreed-upon language that focus group members were comfortable with. The “Library Help” page had become a collecting point for everything helpful, resulting in an overabundance of content and creating confusion. Reference Services, who governed “Library Help”/”Tutorials” content, changed the layout to a cleaner, more focused set of resources. Only tutorials and help guides are now located on the “Tutorials” page. Other changes were requested by students, such as moving the Library Hours link. All participants could find the link, but it was suggested the link be moved for better visibility. Several popular on-campus departments placed the link to their hours under their

contact information and students requested the library mirror this. The library moved the link to the suggested location.

One overall theme throughout the 2011 focus groups was that participants understood there was a clash between the library needing a complex site for different information demands and the homepage being cluttered with information. The current site (Figure 1) needed revisions, but not to the detriment of the diversity of necessary resources on display. At that time, there was no sign from the Office for Information Technology (IT) that Valdosta State University's overall website would be redesigned, so a small team of library staff began to create wireframes and mock-ups for a library homepage prototype. The goal was to get a prototype approved by the library faculty and then tested by focus groups in Spring 2012.

The prototype project aimed to simplify the design of the homepage while keeping a diverse amount of resources visible and keeping current data from formal usability tests in mind. Early attempts included a "tile" aesthetic mimicking the early photos released of Windows 8's then-titled "Metro" scheme, but still be designed foremost for desktop/laptop computer use. Early prototypes largely kept the previous homepage's layout intact, while only changing the look of the links and containers (Figure 3). Later designs (Figure 4, Figure 5), after many discussions with Reference Services and the library faculty, resulted in a more collapsible system with three major "tabs" for articles, books, and journals. Some of the "boxes" were replaced by two drop-down menus. This second design (in a slightly different form, as the screenshot was taken after the code from this design was used in another design) was tested in a round of focus groups in Spring 2012.

The focus groups liked the design of the prototype, and had less issues finding information, but disagreed with the color scheme – the scheme did not match the red-and-black scheme of the college and the rest of the site. The design was meant to occupy most of the library homepage, but IT still had a required older template the designers needed to include. Color was a sticking point throughout Reference Services, the library faculty, and the focus groups. A three-color scheme without white was difficult to reconcile with the standard IT template the library had to use for a section of the page. A third prototype was created to make a gradient color scheme that lined up with the current IT template. Plans were in the works to integrate this into the library homepage in Summer 2012, with usability tests in Fall 2012, when IT confirmed in Spring 2012 that the entirety of Valdosta State University's web pages would be redesigned by IT with the help of an external consulting firm. Library website prototype rollout plans were put on hold in order to align the redesign with the new IT standards.

Using Library User Experience Testing Data with the IT University Website Redesign

Valdosta State University's campus-wide website redesign started with the homepage, which contains a menu in the center of the page with nearly the same layout as the prototype library homepage menu (Figure 6). Redesign and migration of departments was planned in a phased rollout, with plenty of time for communication between IT and the department. Due to the consistent testing as implemented through the User Experience Testing Plan, the library was able to leverage its user experience data and opinions about new menu designs when IT reached out to the department. The resulting redesign effort focused on both simplifying the organization of the site and creating color-coded categories for types of resources. Library faculty and staff were satisfied with the new design, and many of them had been briefed on user experience test findings previously, so they knew what needed to change from the original design and why.

The library website redesign was published in Summer 2013, heavily informed by previous usability tests and including the new EBSCO discovery tool as provided by The University System of Georgia's GALILEO consortium (Figure 7). Initial responses to the library website redesign have been positive, without many complaints from students, staff or faculty in regards to completing tasks. Because the overall site rollout caused some data migration issues, some pages were left incomplete. Many pages require work such as link-checking and image updating in order for them to be functional. While Odum Library would like to run either a scenario-based formal usability study or a set of focus groups in for its homepage, course guides, and other newly-developed pages in Fall 2013, a more realistic time for them will be Spring 2014, given the post-migration issues. The data gathered from this round of tests will help the library carry out quick iterative changes for both the site's usability and usefulness, and will help the library communicate technical needs to IT when bigger changes need to be made to the homepage.

Conclusions

As the literature often states, user experience testing yields important qualitative data on how to improve an organization's website, and it also helps a website's designer(s) communicate the site's main issues, wants, and needs clearly to constituents and other organizations. Although the prototypes were cancelled by plans for an overarching IT website revision, the data collected from the tests were still useful. The data allowed the library to communicate what the website's users wanted and needed to IT in an effective manner. This data would not have been gathered as consistently without a user experience testing plan in place, and the library would not have been as flexible to this immediate change of plans.

The authors believe that the local focus of the article is unique and important. Valdosta State University is a regional university, and Odum Library is therefore without an abundance of library staff. Having a User Experience department or User Experience specialist librarian is not possible, and yet regular user experience testing is still conducted through planning and departmental collaboration with IT and the Office for Employee and Organizational Development. The authors recommend that all academic libraries implement a formal plan with recurring user experience testing for their patrons. The qualitative data gained from these tests have many important uses within addressing website issues, informing the creation of a new design, and communicating more authoritatively and effectively the needs of library website users to library and institutional peers. Consistent and planned user experience testing keeps a library connected to its patrons in a meaningful and qualitative manner, and the library will be ready for changes in design when the need for that readiness arises.

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