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Usability Studies in the Electronic Resource Lifecycle

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The usability of e-resources and services contributes to library patrons' use and satisfaction with them, which in turn affects library employees' acquisition, provision of access, administration, support, and evaluation of e-resources. Librarians can integrate usability into the e-resource lifecycle in a variety of places and using numerous methods. This presentation provides an introduction to usability testing, highlights two usability case studies involving e-resources, and discusses how librarians might fruitfully incorporate usability methods throughout the e-resource lifecycle.

KEYWORDS usability, e-resources lifecycle, TERMS, user testing

A number of studies investigate the usability of library websites, but usability is less commonly associated with the e-resource lifecycle. The usability of a digital resource or platform depends on the interaction of several factors, including “intuitive design, ease of learning, efficiency of use, memorability, error frequency/severity, and subject satisfaction” and may be measured using a variety of quantitative and qualitative approaches.¹ Usability influences library patrons' use and satisfaction with e-resources and services, which should, in turn, affect library employees' acquisition, provision of access, administration, support,

and evaluation of e-resources. There are fewer studies on how or why usability testing might be integrated into the e-resources lifecycle, and this presentation seeks to address that gap.

Librarians can integrate usability into the e-resource lifecycle in a variety of places and using numerous methods. Before they can do so, however, it is important to understand the principles of usability testing and to explore examples of how librarians are leveraging usability testing as part of their analysis of e-resources. This paper will provide an introduction to usability testing, discuss two usability case studies with implications for e-resources management, and highlight examples of how librarians can productively incorporate usability methods into the e-resource lifecycle.

Usability Testing

The World Wide Web Consortium states that usability “is about designing products to be effective, efficient, and satisfying.”² Through usability testing, researchers can determine the effectiveness, efficiency and user-satisfaction of a certain product, application, or website. Usability testing methods include, but are not limited to task analysis, think aloud, interviews, surveys, focus groups, and card sorting. Conducting usability studies can empower librarians to understand and address challenges in their websites, mobile applications, e-resources, and other systems. For example, conducting a usability study on a library homepage can help librarians determine which services to prioritize, how fast patrons can locate resources, and if patrons understand the terminology used. Usability studies of library websites can also give researchers an idea of the expectations and information literacy skills of users and, most importantly, insight into whether the website is user friendly.

Usability testing can be conducted with or without expensive technology. Eye trackers, card sorting, and screen capture software can be used to help collect details on the user experience. For both case studies presented in these proceedings, Morae Usability Software was utilized to record users completing tasks and automatically collected mouse

clicks, time on tasks, and survey data. Overall, usability testing has significant benefits for library systems, but the process requires time and intention. Researchers have to plan ahead to determine who the users are of a certain product or system, how many participants should be included in the study, how those participants will be recruited, which usability factors will be measured, and which usability methods and attendant technologies will be utilized in data collection. By taking the necessary steps to conduct usability testing, librarians can gain an understanding of how users are interacting with library systems and make changes to facilitate improvements.

Case Study 1: Tabbed Search Box

The first case study involves the discovery of e-resources via the library's homepage. The University of Memphis had long used a tabbed search box with a default setting that pulled both from the library's discovery layer and traditional catalog. There were separate tabs to search journals and databases, and both of those tabs also included specialized services and resources. Figure 1 presents the tabbed search box on which we conducted usability testing.

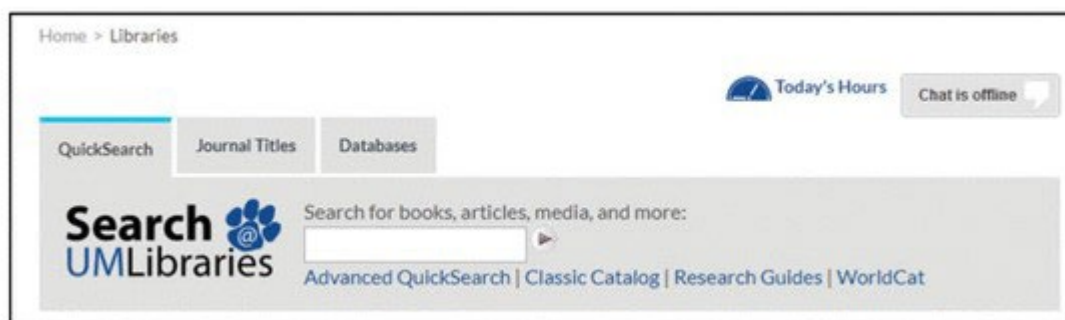


Figure 1 Tabbed Search Box

When the authors consulted traditional e-resource usage reports and search logs, they found evidence that users were not successful in their searches. For example, in EBSCO's "Top Search Terms," users searched for database names in the default search, which did not pull from an A-Z list or other list of databases.³ With mounting evidence that the default

search was helpful to many users, the authors devised a usability study of the existing tabbed search box. The goals were to see how students, faculty, and staff actually used the search box and what obstacles they encountered in finding known items and exploring the library's resources.⁴

In order to investigate the user experience in searching for, identifying, and accessing e-resources via the library's homepage, Haggerty and Scott devised several tasks in which users would find and access specified items as well as conduct their own searches using the three tabs. Haggerty conducted twenty interviews, ten with undergraduate students and ten with graduate students, faculty, or staff members. These interviews were conducted between November 2018 and April 2019 and lasted up to an hour, but usually around thirty minutes. During the session, users were asked to complete nine scripted searches and to describe their process as they worked, which is referred to as "thinking-aloud." The Morae software was employed to measure time on task and mouse click data, but these results were excluded because the relatively small sample suggested that we focus instead on the qualitative data. Through analysis of the search tasks and "think aloud" data, the authors learned that users rarely used specialized journal or database searches, and even when they did, they were often unsuccessful.

Usability testing showed that the library was creating obstacles for users who had less knowledge of the complexities of scholarly communications. The findings from the usability testing, interpreted in conjunction with e-resource usage statistics and search logs, made the next steps quite simple. In order to optimize, or at least improve, access to databases and electronic journals, a simplified search interface was needed in order to ensure that databases and electronic journal content could be accessed from the native search box. The findings were published in an article that posed the question: "Do, or Do Not Make Them Think?" The answer to that question, at least in the authors' local context, has been to not make them

think. As Steve Krug asserts in his classic book on usability, *Don't Make Me Think*, users in online environments do not want to think; like it or not, librarians cannot reasonably expect users to be thoughtful in how they approach searching for library resources when they do not have to do so in their other information pursuits.⁵

Case Study 2: Curriculum Builder

The second example from the intersection of usability and e-resources investigates Curriculum Builder, an EBSCO product that seeks to integrate library collections into the university Learning Management System (LMS) through Learning Tools Interoperability (LTI) integration.⁶ That study focused on instructor perceptions of the usability and utility of Curriculum Builder as a means by which they could potentially integrate licensed content and open educational resources in their D2L course shell. Curriculum Builder, which bears an annual subscription cost, facilitates the building of reading lists within the LMS with content pulled from EBSCO's central index of resources. Figure 2 shows the Curriculum Builder product in the University of Memphis's D2L LMS, which is locally branded eCourseware.

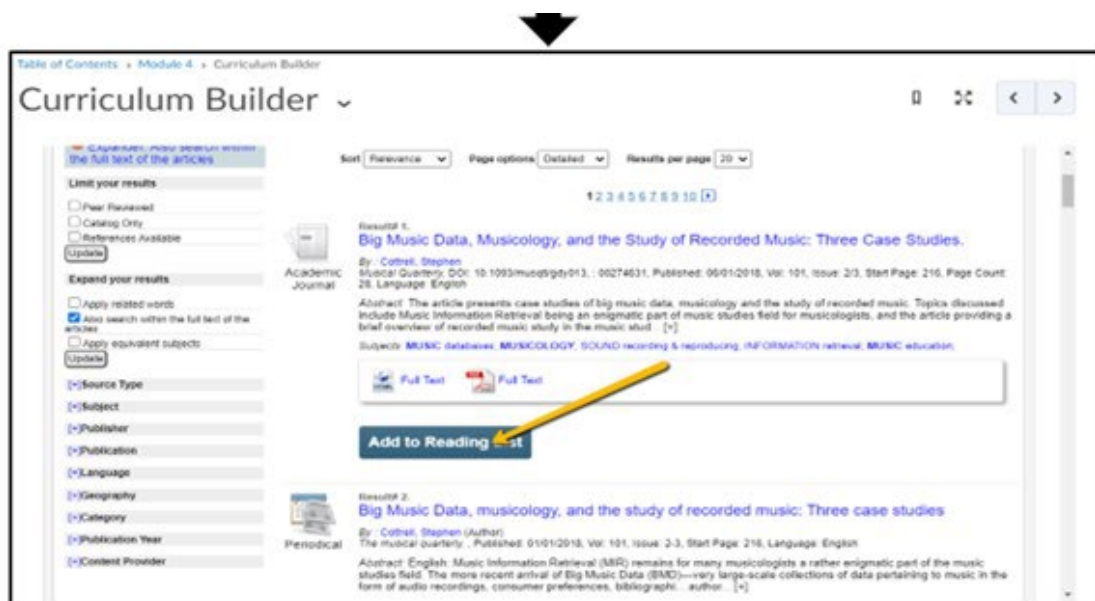


Figure 2 Curriculum Builder in the University of Memphis's D2L LMS

Harrington, Scott, and Haggerty met several times to discuss how best to test the usability and determine what exactly we hoped to learn. The authors devised several tasks and discussed how the testing software Morae would be employed. Haggerty conducted interviews with twenty instructors across many colleges and with various titles and ranks in early 2020. As in the previous study, Morae Usability Software was used to collect qualitative and quantitative data. Once again, the qualitative data proved more useful than the quantitative given the small sample and tendency of outliers to skew the results. Analysis of participants' performance on the tasks as well as their "think aloud" statements yielded themes relating to the usability of Curriculum Builder and of LTI plugins more broadly. Their primary concerns were the long page load time, the use of Inline Frame (iframe), difficulties finding and navigating the product, the long list of steps and their seeming inconsistency, the perceived lack of student/user-friendliness, and the participants lack of familiarity with LTI plugins and their integration within the LMS broadly speaking.

Participants indicated that the LTI-integrated tools in the LMS seemed hidden and unintuitively labelled. Only a handful of these tools were widely known and used at University of Memphis and six out of seven were associated with textbook publishers. Although much licensed content does not integrate through library or institutional platforms via LTI and is viewed or accessed on the publisher or vendor's platform, there is still room to conduct testing to ensure that it is serving your users and worth the investment. The University of Memphis opted not to renew Curriculum Builder because it was not working well for our users; the authors also met with EBSCO to share their findings and concerns.

It may seem that conducting usability testing on e-resources that are hosted on a publisher or provider's website or integrated in a way that the library does not control is not a productive use of time. It was found, however, that the feedback was appreciated by the vendor and opened doors with faculty about their needs as they integrate licensed content into

their online courses. Usability testing has enabled the expansion of evaluative methods beyond traditional metrics of use, value, and fulfilment to explore more directly how the resources we provide to our community meet their needs. More importantly, perhaps, it provides tools for receiving user input, exploring assumptions about how users interact with our resources, platforms, and services, and measuring the perceived quality of these interactions.

Integrating Usability Throughout the E-Resource Lifecycle

The e-resources lifecycle was first outlined by Oliver Pesch in 2008 and has since been updated most recently by Jill Emery, Graham Stone, and Peter McCracken's 2020 monograph, *Techniques for Electronic Resource Management (TERMS)*.⁷ TERMS was first devised in 2008 in response to Pesch's e-resource lifecycle model, and most its most recent iteration, TERMS 2.0, includes the following six constituent parts:

- Investigation
- Acquisition
- Implementation and troubleshooting
- Evaluation, assessment, and review
- Assessment
- Preservation and sustainability

While Emery, Stone, and McCracken do not include user testing as an ongoing component of the e-resources cycle, their framework will be used here to identify suitable moments within the e-resources life cycle to perform user testing.

It is worth noting that when selecting and purchasing e-resources, content is often prioritized. Library users, particularly faculty and researchers, are primarily concerned with the content and tend to prefer whatever resources they are most familiar with. To this end it may seem that there is little to gain from user testing in the e-resource lifecycle, but it can be added as a selection criteria or evaluation tool throughout the lifecycle to support institutional decision-making.

Not all user testing has to involve focus groups, eye tracking, or costly incentives for participation. Broad determinations about a resource's effectiveness, efficiency, memorability, error frequency and severity, and satisfaction can be made by developing a general checklist. Because e-resources are commonly the request of a campus faculty member or researcher, that individual, and/or a handful of folks from their department, may be interested in cooperating with user testing in order to help along the purchase of their desired resource.

Investigation

The first opportunity within the e-resources lifecycle where e-resources librarians may choose to incorporate user testing is during the investigation phase. Whether an institution has formal criteria for selection or not, there are some general parameters that help to determine whether a new resource is worth pursuing. An institution's collection development policy may provide guidance, along with a resource's discoverability and accessibility, and budgetary limitations. Early user testing may also be added as criteria for selection.

Depending on the resource, trial access may be available anywhere from a couple weeks to an entire semester, or even an entire year for an evidence-based acquisition model. Emery, Stone, and McCracken recommend including as many campus or community stakeholders as possible during the investigation phase of the e-resource lifecycle, and this group may be a good audience for preliminary user testing.⁸

Acquisition

The acquisition phase of the e-resources lifecycle is dominated by negotiations and licensing. Figure 3 illustrates an example list of "Deal Breakers" that e-resources librarians may use for negotiation and licensing of new resources from TERMS.⁹ The various criteria are weighted "extremely," "somewhat," or "not" important. User testing performed in the trial phase should provide some sense of how well the resource matches institutional

expectations.

DEAL BREAKERS			
Negotiation Point	Extremely Important	Somewhat Important	Not Important
Cost	X		
Technical Access	X		
Site Definition	X		
User Definition	X		
Accessibility Requirements	X		
Usage Measurement		X	
Interaction with Discovery System			X
Indemnification Clauses	X		
Privacy Clauses	X		
Exigency Clauses	X		
Venue of Agreement	X		
Perpetual Access Rights/ Preservation	X		
Text and Data Mining			X

Figure 3 E-resources Deal Breakers

The “content is king” approach to e-resource acquisition that many librarians are familiar with may mean that the results of user testing are not a deal breaker. However, it is during negotiations that vendors may be most responsive to librarian concerns, and so it may be worth it to share the results of any user testing that was performed. If considering more than one resource with similar content, then user testing could be particularly helpful towards making a final decision. And finally, depending on who the target audience of the resource is, it may actually be a deal breaker if user testing is poor. Hearing from users on this point before money has been spent will be worth the time spent developing a user testing checklist.

Implementation and Troubleshooting

The implementation and troubleshooting phases provide great opportunities to assess how e-resources, either newly acquired or renewed, are interacting with other information delivery tools. User testing in this phase of the e-resources lifecycle may focus on the institution’s discovery layer, link resolver, catalog, or A-Z database list. It is easy to develop blind spots in the user experience because content delivery systems become second nature to

information professionals, but users may be struggling. A periodic check-in during the implementation phase will serve to evaluate users' experiences accessing resources. The results of this evaluation may have less to do with licensed electronic content and be more focused on the content delivery systems. Periodic assessments of your discovery layer, A-Z list, and link resolvers are also recommended.

Assessment

The final phase of the e-resources lifecycle to incorporate user testing is during assessment. Emery, Stone, and McCracken propose returning to your deal breaker checklist from the acquisition phase to aid in making decisions about renewals. In the absence of an explicit assessment criteria then usage data, faculty feedback, and renewal cost most likely factor into decision making. When attempting more time-consuming user testing methods, like interviews or think aloud exercises, try to begin early. Devising testing methods and recruiting participants will take time, and in order to make a renewal decision based on the outcome of user testing plenty of time is needed to complete testing and analyze the results. In the Curriculum Builder study described above, the University of Memphis did decide to cancel the subscription based in large part on the results of the user testing.

Conclusion

The e-resource life cycle is ever expanding and may explicitly include user testing in future iterations. While Emery, Stone, and McCracken do address Open Access resources in their monograph, they do not recommend performing user testing on those resources. As Open Access content continues to grow in scope and availability it becomes an increasingly essential component of institutional collections and should therefore be subject to similar scrutiny. How easy is it to access Open Access content? If users cannot easily find and access it then they will not use it.

Initiating usability studies may seem daunting, but keep in mind that they can be

conducted at nearly any time in the e-resources life cycle and do not require a high number of participants in order to be effective. Take advantage of the various options to customize your user testing. As the designer of a usability study, think about what is most important to learn about how users are interacting with resources and make that the central component of the study. Finally, user testing is an opportunity to gather more personal metrics. Cost per use is a tried-and-true way to assess return on investment, but it does not paint a complete picture.

User testing can fill in those gaps.

NOTES

1. “Usability Evaluation Basics,” Department of Health and Human Services, October 8, 2013, accessed July 21, 2021, <https://www.usability.gov/what-and-why/usability-evaluation.html>.
2. “Accessibility, Usability and Inclusion,” W3C Web Accessibility Initiative (WAI), May 6, 2016, accessed July 21, 2021, <https://www.w3.org/WAI/fundamentals/accessibility-usability-inclusion>.
3. James R. Rodgers and Caitlin Harrington, “What we Learned about Quicksearch (and Didn’t) from the ‘Top Search Terms’ Report,” *Journal of Electronic Resources Librarianship* 29, no. 4 (2017): 269–274, <https://doi.org/10.1080/1941126X.2017.1412872>.
4. Kenneth C. Haggerty and Rachel E. Scott, “Do, or Do Not, Make Them Think?: A Usability Study of an Academic Library Search Box,” *Journal of Web Librarianship* 13, no. 4 (2019): 296–310, <https://doi.org/10.1080/19322909.2019.1684223>.
5. Steve Krug, *Don’t Make Me Think, Revisited* (Berkeley, Calif.: New Riders, 2014).
6. Kenneth C. Haggerty, Caitlin Harrington, and Rachel E. Scott, “Integrating Library Resources in a Learning Management System: Exploring Instructor Obstacles and Motivations,” *College and Research Libraries* 83, no. 1 (2022), 111–28, <https://doi.org/10.5860/crl.83.1.111>.

7. Oliver Pesch, "Library Standards and E-Resource Management: A Survey of Current Initiatives and Standards Efforts," *The Serials Librarian* 55, no. 3 (2008): 481–486, https://doi.org/10.1300/J123v53n04_05, accessed July 21, 2021; Jill Emery, Graham Stone, and Peter McCracken, *Techniques for Electronic Resource Management: Terms and the Transition to Open* (Chicago: American Library Association, 2020), <https://doi.org/10.15760/lib-01>, accessed July 21, 2021.
8. Emery, Stone, and McCracken, *Techniques for Electronic Resource Management*, 25.
9. Emery, Stone, and McCracken, *Techniques for Electronic Resource Management*, 41.

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