# Hacking User Experience in a Repository Service: ScholarSphere as a Case Study

Patricia Hswe, The Pennsylvania State University, pmh22@psu.edu
Michael Tribone, The Pennsylvania State University, mat141@psu.edu

**Abstract:** User experience continues to be an under-explored area for repository services, even more than a decade into the production instances of many institutional repositories (IRs). Only a handful of articles, for example, are dedicated to usability, persona development, and end-user expectations in IRs. One reason for this gap is that libraries rarely have the resources, in terms of personnel, time, budgets, and tools, to commit toward user experience design and development. Another reason is the struggle that libraries have had in defining the services encompassed by IRs. Our paper proposes to help bridge this seeming chasm by reporting on efforts undertaken to develop and manage a user-driven repository service at Penn State. We will show that, even in the absence of resources, such as a user experience specialist, it is possible to "hack" user experience for a repository service, mainly by doing the following: prioritizing people and community building along with service development; leveraging such engagement by crafting use cases and user scenarios to inform the service; and being creative with the "seamless merging" of the key components of user experience, such as engineering, marketing, graphical and industrial design, and interface design.

User experience, especially in the sense of user-driven design and development practices, continues to be an under-explored area for repository services, even more than a decade into the production instances of many institutional repositories (IRs). The library literature about IRs is awash in narratives detailing persistent, interrelated challenges such as content recruitment, low faculty participation, mandates and incentives to drive IR contributions, and promotional campaigns to improve adoption and deposit rates (Casey, 2012; Troll Covey, 2011; Abrizah, 2009; Jantz and Wilson, 2008; Xia, 2007; Foster and Gibbons, 2005). For most of these discourses, the tenor has been, rightly, to question the value proposition of IR initiatives, many of which went south in libraries not long after the evangelizing about them began and the realities of implementation set in. Yet, the predominantly negative user responses to IRs, as documented and discussed in the literature, are arguably symptomatic of a continuing inattention to the overall user experience of an IR. Only a handful of articles, for example, are dedicated to usability (Zhang et al., 2013; Kim and Kim, 2008; McKay, 2007), persona development (Maness, Miaskiewicz, and Sumner, 2008), and end-user expectations (Jean et al., 2011).

One reason for this gap is that libraries rarely have the resources, in terms of personnel, time, budgets, and tools, to commit toward user experience design and development. According to Jakob Nielsen and Don Norman (n.d.), leaders of user experience thinking and design, "In order to achieve high-quality user experience in a company's offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design" (The Definition of User Experience section, para 1). For most academic libraries, the testing of a user interface or the conducting of focus groups to uncover the motivations behind users' thoughts and feelings on particular topics is all they can muster toward defining the user experience of a service or product, such as a repository software application. Often, just to get an IR up and running can consume more library and IT resources than expected. Moreover, as Salo (2008) argues, "The classic open-source project is developed to 'scratch the developer's own itch,' not to please end-users" (116). Much of the short history of IR implementation and use in libraries, in other words, has been about the technological solution, or

the software, rather than about the people.

Another reason that user experience has received little attention in IRs likely stems from the struggle that libraries have had in defining the services encompassed by IRs. Scattered among the cautionary tales about IRs are appeals, in particular from Salo, Lynch (2003), and Furlough (2009), to think through the services aspect of an IR, including models for its management, so that opportunities for the purposeful and strategic integration of an IR within a library - if not also within the overarching cyberinfrastructure of the institution at large - are not lost but leveraged. Today, more than a decade after the hailing of the IR as the "new scholarly publishing paradigm" (Crow, 2002), with many hard lessons learned and shared in the interim, a library would be hard pressed to bring an IR into production without an appreciation of at least these key determinants: whether it is necessary; who it will serve; what it will do; how it will be staffed and managed; where it will complement and advance services - within and beyond the library; and, perhaps most important, how it will evolve and be sustained. These questions are less to constrain than to broaden thinking about IRs. The ways in which they are addressed and answered, both immediately and over time, cannot but have an impact on the overall user experience of a repository service.

Our paper proposes to help bridge this seeming chasm in understanding user experience in IRs by reporting on the efforts that have gone into developing and managing a user-driven repository service at Penn State. In 2012, taking the above key determinants into serious consideration, the University Libraries (UL) and Information Technology Services (ITS) collaborated in the development of ScholarSphere, a self-deposit repository service designed to enable Penn State researchers to share, as well as preserve, a broad array of scholarly materials. A primary objective of the project was to engage as many potential stakeholders, or users of the service, as possible - and as early as possible - to guide feature and functionality understanding, development, and usability.

Treating ScholarSphere as a case study, we will show that, even in the absence of resources, such as a user interface/user experience specialist, it is possible to "hack" user experience for a repository service. In the development of ScholarSphere, our strategy was to aim for "high touch," rather than "high tech," methods. In so doing, we prioritized people and community building, in addition to the product. We engaged liaison librarian colleagues initially as stakeholders, for two main reasons: first, to earn "local" buy-in and trust, - i.e., support internal to the UL; and, second, to employ them as conduits for communication and promotion about ScholarSphere to the faculty and students they serve, who became our external stakeholders. Given the aggressive project timeline of *nine months* to production, this decision gained us valuable efficiencies. For example, when, two months before launch, we conducted usability testing, we had a healthy supply of test users at the ready, largely because our liaison librarian colleagues were able to reach out to faculty and students for such engagement and to do it quickly. Both internal and external stakeholders proved to be rich resources for use cases, too, which were instrumental in guiding development and in defining the service.

Central to the definition of user experience offered by Nielsen and Norman is "a seamless merging of the services of multiple disciplines" - disciplines they name as "engineering, marketing, graphical and industrial design, and interface design." Hacking user experience for ScholarSphere has meant that such merging occurs on a smaller scale, or there is no merging but, instead, an individually occurring activity. Thus, while the components of development (engineering) and usability (interface design) merged at key points of the project prior to launch, the others - such as a fall 2013 marketing campaign and a 2014 revamp of the user interface (including graphical design) - have received more dedicated attention one to two years following production release. We will

demonstrate in our paper, however, that this hack is worthwhile: it refreshes the user experience of ScholarSphere; it conveys to users that their voices and perspectives continue to matter and shape the service; and, significantly, it presents the exciting potential of attracting new users. Furthermore, by hacking user experience in this way, repository service managers continue to learn what users want. As evidence of such value, we will provide user statistics and web analytics, as well as the outcome of the work of the ScholarSphere Users Group.

The concept and practice of user experience design and development are vital to the ecosystem, if not survival and effectiveness, of repository services. As much of the literature about IRs reflects, the first generation of many of these systems drew little support and participation because of user experience "fail." The more attentive repository managers are to the user experience of their services, then the more likely their services will get used and will draw new users. A chief intent behind recounting how we hacked user experience for ScholarSphere is to suggest a model for other libraries and IT divisions to test and adapt in collaboration for their local environments. The paper will extend recommendations for approaches to follow, for partnerships to pursue, and for user services programming to develop as part of forging and sustaining user experience in a repository service.

**References Cited**

Abrizah Abdullah. (1970). The Cautious Faculty: their Awareness and Attitudes towards Institutional Repositories. *Malaysian Journal of Library & Information Science*, *Volume 14*(Issue 2). Retrieved from http://icmsm2009.um.edu.my/public/article-view.php?id=1395

Casey, A. (2012). Does Tenure Matter? Factors Influencing Faculty Contributions to Institutional Repositories. *Journal of Librarianship and Scholarly Communication*, *1*(1). doi:http://dx.doi.org/10.7710/2162-3309.1032

Foster, N. F., & Gibbons, S. (2005). Understanding Faculty to Improve Content Recruitment for Institutional Repositories. *D-Lib Magazine*, *11*(01). doi:10.1045/january2005-foster

Furlough, M. (2009). What We Talk About When We Talk About Repositories. *Reference & User Services Quarterly*, *49*(1), 18–32. Retrieved from http://www.jstor.org/stable/20865171

Jantz, R. C., & Wilson, M. C. (2008). Institutional Repositories: Faculty Deposits, Marketing, and the Reform of Scholarly Communication. *The Journal of Academic Librarianship*, *34*(3), 186–195. doi:10.1016/j.acalib.2008.03.014

Jean, B. S., Rieh, S. Y., Yakel, E., & Markey, K. (2011). Unheard Voices: Institutional Repository End-Users. *College & Research Libraries*, *72*(1), 21–42. Retrieved from http://crl.acrl.org/content/72/1/21

Kim, H. H., & Kim, Y. H. (2008). Usability study of digital institutional repositories. *The Electronic Library*, *26*(6), 863–881. doi:http://dx.doi.org/10.1108/02640470810921637

Kim, J. (2007). Motivating and Impeding Factors Affecting Faculty Contribution to Institutional Repositories. *Journal of Digital Information*, *8*(2). Retrieved from http://journals.tdl.org/jodi/index.php/jodi/article/view/193

Maness, J. M., Miaskiewicz, T., & Sumner, T. (2008). Using Personas to Understand the Needs and Goals of Institutional Repositories. *D-Lib Magazine*, *14*(9/10). doi:10.1045/september2008-maness

McKay, D. (2007). A brief literature review on the usability of institutional repositories. Retrieved from http://researchbank.swinburne.edu.au/vital/access/manager/Repository/swin:10283

Nielsen, J. & Norman, D. (n.d.) The definition of user experience. Nielsen Norman Group. Retrieved February 10, 2014, from http://www.nngroup.com/articles/definition-user-experience/

Salo, D. (2008). Innkeeper at the Roach Motel. *Library Trends*, *57*(2), 98–123. doi:10.1353/lib.0.0031

Troll Covey, D. (2011). Recruiting Content for the Institutional Repository: The Barriers Exceed the Benefits. *Journal of Digital Information*, *12*(3). Retrieved from http://works.bepress.com/denise_troll_covey/56

Zhang, T., Maron, D. J., & Charles, C. C. (2013). Usability Evaluation of a Research Repository and Collaboration Web Site. *Journal of Web Librarianship*, *7*(1), 58–82. doi:10.1080/19322909.2013.739041