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Book Chapter

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LINKÖPINGS UNIVERSITET

Continuous Usability Testing: The importance of Being Iterative When it Comes to Assessment and Development of the Library's Digital Services

Anneli Friberg, Linköping University Library

Introduction

The interest for user experience (UX) and usability in libraries has grown rapidly over the past years and has now become an essential tool for developing and assessing a library's digital services and physical spaces. It is necessary, though, to recognize that UX incorporates much more than just usability. Norman and Nielsen[i] summarize user experience as something that "encompasses all aspects of the end-user's interaction with the company, its services, and its products" and continues:

> The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own, a joy to use. True user experience goes far beyond giving customers what they say they want, or providing checklist features. 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.[ii]

Furthermore, they state that it is important to separate the overall user experience from usability, since the latter "is a quality attribute of the UI [user interface], covering whether the system is easy to learn, efficient to use, pleasant, and so forth."[iii]

At Linköping University Library (LiUB) we are slowly moving towards a "culture of usability" where users are being observed interacting with both physical and virtual spaces, the way Godfrey[iv] advocates, but this paper will only focus on the library's online presence. The main objective with this paper is to argue for continuous usability testing, as a part of regular library activity.

Usability testing within the library sector is nothing new *per se*, but it is usually done in the process of launching a new or redesigned website/UI or implementing a new library system. Most often it has a distinct focus on web development, and is not so much used to develop other services or physical spaces. This is confirmed in numerous articles and UX-blog posts and articles by e.g. Gasparini[v], Godfrey[vi], Broadwater[vii], and Dominguez, Hamill and Brillat[viii]. Sometimes the tests are not conducted by library staff, but by external consultants. Our approach, however, is to use an in-house, continuous process which is applied not only to the library's website structure, but also to other digital services such as the search box on the library start page and link resolver user interface and the link resolver icon in the discovery tool.

Rettig asks whether such a thing as "*grassroots* UX" exists in libraries. She wonders if "the UX hopeful, [who] do not have the mandate or team or job title", can find "ways to apply UX methods to smaller-scale, day-to-day work in the library?"[ix] I am inclined to say that it is possible. A UX perspective can and should be integrated in any development project, big or small. The UX philosophy does not have to be initiated as a top-down initiative, and in a sense LiUB's systematic way of doing usability testing started out as a grassroots initiative.

Context

Linköping University (LiU) is one of 16 Universities in Sweden. LiU has four campuses in three cities (Linköping, Norrköping and Stockholm) and has four faculties: Science & Engineering, Medicine & Health Science, Arts & Science and Educational Sciences. LiUB consists of four physical libraries, one on each campus, with approximately 90 staff members in total.

In order to make sure that LiUB contributes in a useful and valuable way to student learning and research, we have tried to find different ways to understand our users' needs and behaviour. We use our insights to improve the digital library in order to provide a user-friendly and intuitive way for students and researchers at LiU to access the information they need for their studies and research.

The groundwork for the library's systematic user involvement was done within a web strategy project in 2014. Throughout the project we had the opportunity to test different methods for collecting user data. During this time we also formed a usability team at the library. The team consists of five people (of which three are librarians), including myself, with different skills and roles such as system manager, computer programmer, webmaster, UX expert and cognitive scientist. Over the last 24 months, the usability team has gathered once a month to do testing. The advantage of having a permanent usability team is that the library does not have to mobilize a team whenever the need occurs. This approach is also advocated by Nichols, Bobal & McEvoy[x]:

> A permanent usability team allows an organization to build expertise and tackle more usability projects than ad hoc teams. Having a usability team already in place makes it more likely that usability studies will be done on projects that may otherwise have been overlooked because of the 'burden' of asking staff to be part of another project on top of their already busy schedule.

The LiU Library Experience

The web strategy project in 2014 established usability and user benefits as central to the continuous web development process. In order to accomplish a user-centered library website we decided to find a doable model for user-involvement. The book *Rocket Surgery Made Easy: the Do-It-Yourself Guide to Finding and Fixing Usability Problems* by Steve Krug[xi] became our inspiration. Our workflow is illustrated in Fig. 1.

Planning by:
- setting a date
- booking rooms
- deciding what to test
- preparing test assignment
- recruiting test participants

Testing by:
- observing
- listening
- think-aloud protocol
- sharing screens
- recording

Improving by:
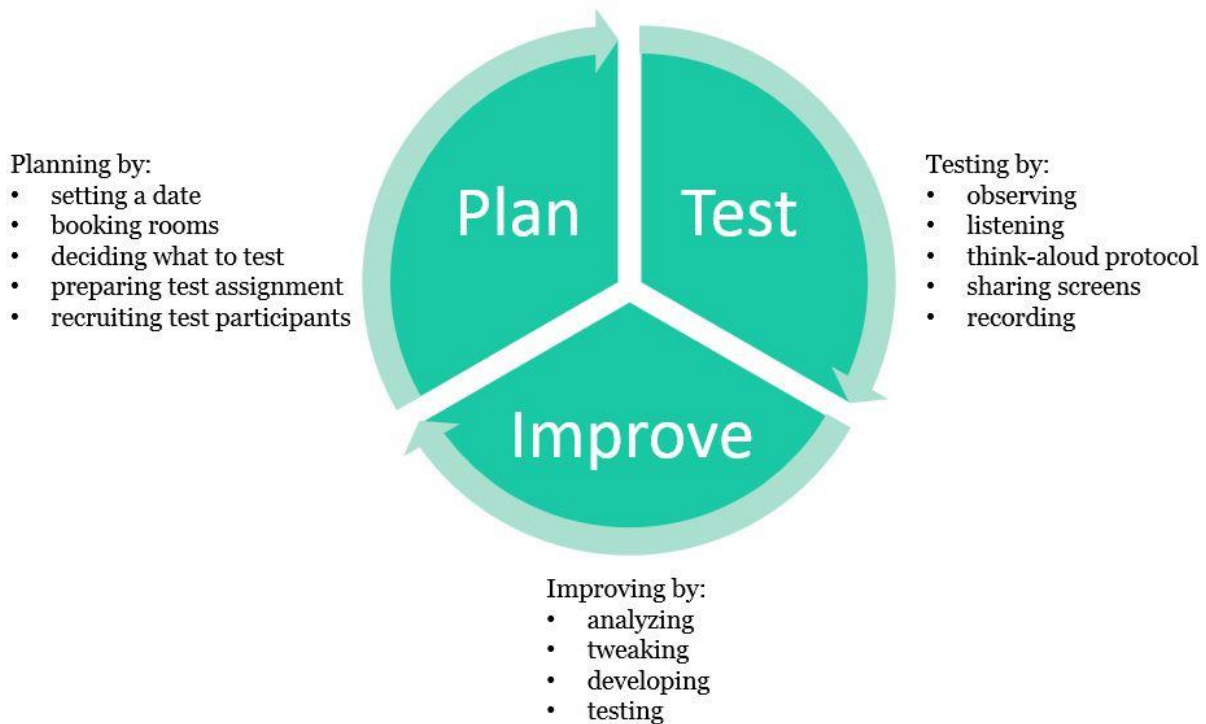- analyzing
- tweaking
- developing
- testing

Fig. 1 Workflow for usability testing at LiUB

When we first started, we asked ourselves how many test participants were needed. According to Nielsen five users are enough when doing usability testing, because then "you almost get close to user testing's maximum benefit-cost ratio."[xii] Steve Krug on the other hand claims that three users are good enough for "the do-it-yourselfer", considering "you're not interested in what it takes to uncover most of the problems; you only care about what it takes to uncover as many problems as you can fix."[xiii]

As we evidently belong in the category of "do-it-yourselfers" we started with three test participants per session during the first year. The previous semester we decided to increase the number to four users per session, since we thought we had the capacity to expand. Although, after our last evaluation we decided to go back to only three users again, since it was difficult for me as facilitator, but also for the observers, to stay focused and perceptive with four users and to get enough time for summarizing and debriefing. Krug made a list of arguments why three test participants are enough, and after trying with four, I am willing to agree. Some of Krug's reasons are[xiv]:

- The first three users are very likely to encounter many of the most significant problems related to the tasks you're testing.
- Finding three participants is less work than finding more.
- Testing with three users makes it possible to test and debrief in the same day.
- When you test with more than three at a time, you often end up with more notes than anyone has time to process – many of them about things that are really 'nits'. This can make it harder to see the most serious problems – the 'can't see the forest for the trees' effect.

For the tests we use randomly chosen employees and/or students as test participants. In my experience, engaging face to face is the most successful way to recruit users. For example, I

usually recruit students I meet in the library. Regarding employees we always recruit research or teaching staff such as PhD students, lecturers, university teachers and professors. My experience is that most students and employees I ask are willing to help us as long as they can find the time for it. They all want to be part of a process that aims to improve the user experience.

When it comes to deciding what to test, we make a preliminary plan at the beginning of each semester. This plan sometimes changes during the semester. What we actually test depends on different projects in progress at the library. We never test systems or interfaces that we can't alter or modify ourselves to some extent.

We conduct usability testing monthly during each semester, which gives us approximately eight test sessions per year. This enables an agile and iterative approach to assessing the users' experiences of the digital library as well as helping in the development of our digital services.

On the test day, the usability team divides into two groups in two different locations: a test room and an observation room (see Fig. 2). The facilitator and one observer goes to the test room, while the rest of the team goes to the observation room. Often the latter are accompanied by other observers and stakeholders; sometimes colleagues from other departments within the University such as the division for IT Services, sometimes external such as librarians from other universities.
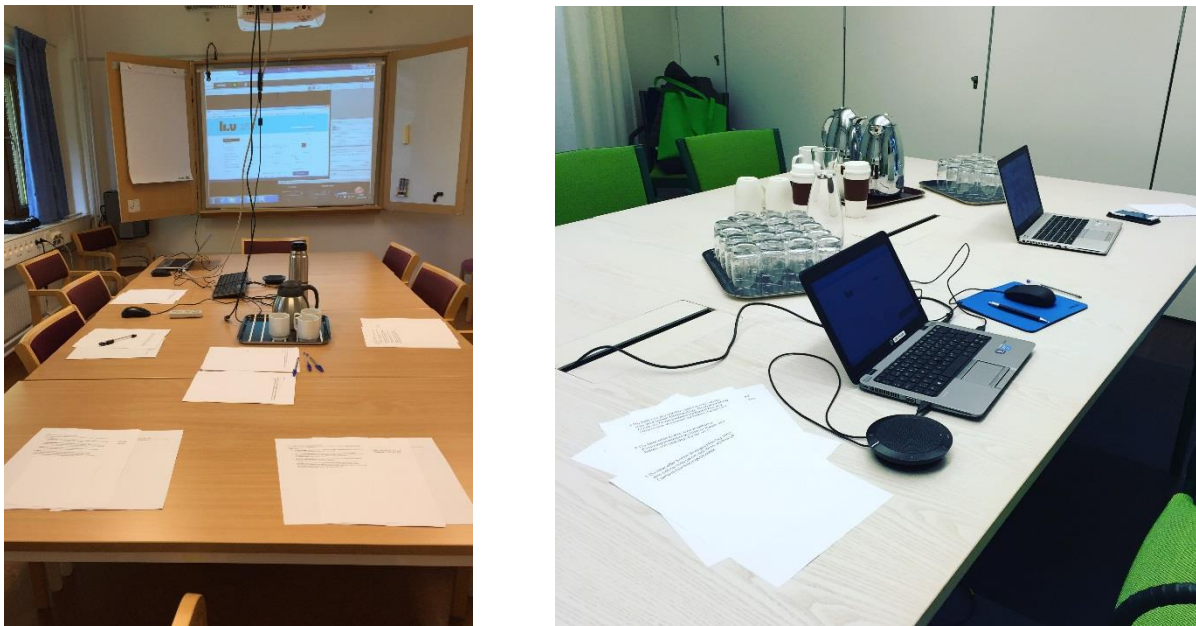

Fig. 2: Observation room (left) and test room (right)

We combine different methods like observation, think-aloud protocol and capturing screen activity. By using different practices that complement each other, we avoid the uncertainty of using just one method. One of the benefits of triangulation of data is that we get a more complete picture of the usability issues that need to be addressed.

Each test person is given a specific assignment based on a common user scenario for the service to be tested. The test person attempts to complete the assignment while thinking aloud. If needed, the facilitator encourages the test participant to think aloud and describe

what he/she is trying to do. At the same time, the team in the observation room records what the test person says and does. We use Camtasia to record screen activity, and we set up an Adobe Connect meeting to share screens between the test room and the observation room. Obviously we do not record anything without permission from the users. Before we begin the test session, the test participant signs a written consent.

After the test, the facilitator and observer from the test room join the rest of the usability team in the observation room and a debriefing session starts. We then collect and discuss the usability problems we have noticed and put them together in an aggregated list of feasible improvements. We also prioritize the things on the list.

After each test session the usability team starts to improve the things listed. Depending on what the problems are and what has to be done, we involve different colleagues outside the usability team. The recordings have proven valuable for the analyses and development in between the test sessions. They are an essential complement to the observers' notes.

Another valuable complement is so called guerrilla testing, which we do sometimes in between the monthly test sessions. This type of testing is both agile and flexible. It is a "low cost method of user testing. The term 'guerrilla' refers to its 'out in the wild' style, in the fact that it can be conducted anywhere…"[xv] When we perform guerrilla testing we approach people in the library and ask them to give quick feedback. This fits well with our thinking that some testing is better than no testing.

Outcomes

The improvements we have made as a result of what we have seen during our usability testing ranges from very small terminological changes to more structural changes on our website. One of the first things we tested was the information architecture for a new library website. For that, we used a tool called Treejack. We did one test session with students and one with employees. This enabled us to get valuable feedback on the site structure.

For several years we had a tabbed search box on the library start page (see Fig. 3). Last year we decided to renew the design, inspired by the design of the search box on the MIT Libraries website. Before we launched the new search box (see Fig. 4) we made a prototype which we used to perform both regular usability testing and guerrilla testing. The feedback we got gave us useful input to the design process.

Fig. 3: Old search box on the library start page

Fig. 4: New search box on the library start page

We have also tested different features and new services for the discovery tool, such as a new search service for e-publications. We tested this service twice – once with undergraduate students and once with PhD students. In addition to getting feedback on what adjustments to do, we also learned that undergraduate students have quite a different attitude to journals than PhD students have. We have seen this in other situations, for instance when doing interviews as part of the web strategy project in 2014, but seeing this again during usability testing confirmed our previous insights.

Things we have also tested and improved are terminology, holdings information and link resolver user interface. Sometimes we make changes and then we do a new round of testing, but more often we get indirect feedback on changes we have done while testing new things.

A bonus effect is that LiUB's work has been noticed and recognized outside of the library, which has contributed to change the image of the library. Additionally, usability testing is an excellent way to make our services more visible to users.

Conclusion

A vast understanding about our users is the foundation of any user-centered development. By combining qualitative and quantitative methods and applying a UX-perspective we are better equipped to meet our users' changing needs and behaviour. It allows a more agile workflow. The trick is to keep it simple. We do not consider ourselves researchers. What we do are continuous modifications based on input we get from real users. Our motivation is to enhance users' experiences of the library's digital services.

Based on our experiences from the last 24 months we have found that systematic usability testing can and should be a part of the regular library activity and that it can encompass so much more than just the website structure. The key to success is the model itself, particularly when it is carried out monthly during the academic year. By involving real users continuously, we avoid getting stuck in our own internal assumptions of how users interact with the library's digital services.

References

Broadwater, Tim. "Why am I doing this to our users? A case study about the wrong turns taken during a redesign project and the impact of design-by-committee on team morale." Accessed July 11, 2016. http://libux.co/why-am-i-doing-this-to-our-users/

Dominguez, Gricel, Hammill, Sarah J., and Brillat, Ava I. "Toward a usable academic library web site: a case study of tried and tested usability practices." *Journal of Web Librarianship* vol. 9, issue 2-3 (2015): 99-120.

Gasparini, Andrea A. "A holistic approach to user experience in the context of an academic library interactive system." *Lecture Notes in Computer Science* vol. 9188 (2015): 173-184.

Godfrey, Krista. "Creating a culture of usability." *Weave: Journal of Library User Experience* vol. 1, issue 3 (2015). Accessed October 8, 2015. doi:10.3998/weave.12535642.0001.301

GOV.UK. "Guerrilla testing: getting input into products and services." Accessed September 27, 2016. https://www.gov.uk/service-manual/user-centred-design/user-research/guerrilla-testing.html

Krug, Steve. *Rocket surgery made easy: the do-it-yourself guide to finding and fixing usability problems*. Berkeley, CA.: New Riders Publishing, 2010.

Nichols, Jane, Bobal, Alison M., and McEvoy, Susan. "Using a permanent usability team to advance user-centered design in libraries." *Electronic Journal of Academic and Special Librarianship* vol. 10, no. 2 (2009). Accessed July 13, 2016. http://southernlibrarianship.icaap.org/content/v10n02/nichols_j01.html

Nielsen, Jakob. "How many test users in a usability study?" Last modified June 4, 2012. https://www.nngroup.com/articles/how-many-test-users/

Norman, Don, and Nielsen, Jakob. "The definition of user experience." Accessed July 8, 2016. https://www.nngroup.com/articles/definition-user-experience/

Rettig, Monica. "Grassroots UXD in the library: a review essay." *Weave: Journal of Library User Experience* vol. 1, issue 1 (2014). Accessed April 1, 2016. doi: 10.3998/weave.12535642.0001.103

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[i] Norman and Nielsen, "The definition of user experience." Accessed July 8, 2016.

[ii] Norman and Nielsen, "The definition of user experience." Accessed July 8, 2016.

[iii] Norman and Nielsen, "The definition of user experience." Accessed July 8, 2016.

[iv] Godfrey, "Creating a culture of usability." Accessed October 8, 2015.

[v] Gasparini, "A holistic approach to user experience in the context of an academic library interactive system."

[vi] Godfrey, "Creating a culture of usability." Accessed October 8, 2015.

[vii] Broadwater, "Why am I doing this to our users? A case study about the wrong turns taken during a redesigned project and the impact of design-by-committee on team morale." Accessed July 11, 2016.

[viii] Dominguez, Hammill and Brillat, "Toward a usable academic library web site: a case study of tried and tested usability practices."

[ix] Rettig, "Grassroots UXD in the library: a review essay." Accessed April 1, 2016.

[x] Nichols, Bobal and McEvoy, "Using a permanent usability team to advance user-centered design in libraries."

[xi] Krug, *Rocket surgery made easy: the do-it-yourself guide to finding and fixing usability problems*.

[xii] Nielsen, "How many test users in a usability study?" Last modified June 4, 2012.

[xiii] Krug, *Rocket surgery made easy: the do-it-yourself guide to finding and fixing usability problems*, 43.

[xiv] Krug, *Rocket surgery made easy: the do-it-yourself guide to finding and fixing usability problems*, 43.

[xv] "Guerilla testing: getting input into products and services." Accessed September 27, 2016.