Shaping User Experience

A Workshop presented 1 April 2012 for Electronic Resources and Libraries 2012 by

Tara Carlisle, University of North Texas Libraries
Kate Crane, Texas Tech University
Ana Krahmer, University of North Texas Libraries

Table of Contents
Workshop Outline .................................................................................................................................. 2
Usability Test Plan Worksheet ................................................................................................................ 4
Glossary of Digital Library, Usability Research, and Iterative Design Terminology ................................. 9
Additional Resources ............................................................................................................................ 11
Workshop Outline

Introduction: 45 minutes

Learning about usability is an interactive process, something that is easier to teach when the audience actively participates. We considered presenting papers as a panel about how usability research has contributed to progress within our respective institutions, but, realistically, our audience (you) would learn more about usability, end user experience, and iterative design if we actually invite you to participate.

Iterative design and testing should be of particular importance to digital libraries because we are building technologies that we assume will work based on our experiences in face-to-face reference-desk settings. We take a set of assumptions from the physical library to create interfaces to online content, and these assumptions don’t necessarily translate logically within the online environment. In creating digital avatars of physical library materials, we are also changing the nature of those materials, by degree, and we have to respond to user needs accordingly.

In this portion of the workshop, we will go over usability issues with the participants, to situate everyone around central questions about usability, iterative design, and the digital library.

- As a librarian, what set of assumptions do you make about your users when you create digital library resources?
  - Are those assumptions fair/inaccurate?
  - Important elements that affect the usability of a digital repository include: CMSes, proprietary e-tools, physical collections versus online collections.
  - A librarian might say, “We want to change this on the website to make something happen.” But is this the right attitude?
- User-centered design versus focus groups: User-centered design is not equal to focus groups; focus groups are not usability because focus groups do not observe how the user interacts with the product.
- What is usability testing?
  - Define usability testing as the first step in user-centered design.
    - Usability team: observer, facilitator, “computer”
    - Explain what data usability testing harvests.
    - Purpose in action
- What is usability research? What is it not?
- User-centered design?
- Iterative design?

Getting Started: 20-30 minutes During this portion of the workshop, we will address usability research specifically, as well as how to develop usability testing and methods in the digital library.

- D.E.A.R.: Discovery, Evaluation, Analysis, and Reporting; all usability test plan choices, including goals for the testing to achieve, target audience from which to receive feedback, and ultimate design decisions, emerge from the usability theory of D.E.A.R.
- Creating a Test Plan: Developing objectives/goals.
- Usability Research Methods Defined: Active Intervention, Eyetracking, Pre- and Post-Surveying, Retrospective Recall, Think Aloud Protocol; movement tracking (mouseclicks, dwell, etc.); recording facial expressions.
• **M.E.E.L.S.:** Memorability; Errors; Efficiency; Learnability; Satisfaction

**Action:** Audience Participation *60-90 minutes* We will ask the participants to organize in groups and design a usability test plan based on a worksheet handout that we will give them. This will simulate the usability test plan they would design in their own project settings.

- Audience will develop a single usability test.
  - To do this, divide audience into groups of 2 or 3 to paper-prototype the test that they conceptualize as a team.
  - Groups will take turns running each others’ usability tests.
  - Ask one person from each group to discuss his/her findings.

**Compare & Contrast Other Methods: 10-15 minutes**

- Discuss follow-up steps after paper prototyping
  - Address using a broader range of tools for performing further tests on the same concept as what was initially paper prototyped.

**BREAK (10 minutes)**

**Iterations of Design: 30 minutes**

University of North Texas Libraries’ Digital Projects team was awarded an IMLS grant that targeted a very specific user group, genealogists, with whom UNT performed iterative testing and redesign of The Portal to Texas History.

- Case study discussion of Help Guides on The Portal to Texas History
  - The Portal IGENE test cycle and lessons learned from it.
- How long should usability testing/iterative design go?
- Examples of what The Portal to Texas History has been doing.
  - What did one usability test achieve?
    - Illustrate what changes were made to the Portal based on testing.
  - What did attempts at iterative design achieve? Was there enough time between iterations, and were there enough changes?
  - Explain when follow-up would be useful for future redesign considerations.

**Conclusion/Summary: 15-20 minutes**

- Usability Technologies and how each can assist with interface design of digital library content:
  - Morae; EyeGuide; paper prototyping; stand-alone survey software; hand recorders.
- Recommendations for learning more about usability testing in the digital library field:
  - [Texas Tech Usability Certification Program](#)
  - [EyeGuide™ Eye Tracker Certified Expert Training](#)
Test Plan Worksheet

Fill in the blanks of this test plan worksheet to begin conceptualizing an initial design of a usability test plan. For the purposes of the workshop, everyone will use low-fidelity testing to perform a usability test, and this worksheet will assist with framing that test. This worksheet can also be used to begin creating a larger-scale, high-fidelity test. (For more information about low-fidelity testing, see “The Blank Page Technique: Reinvigorating Paper-Prototyping in Usability Testing,” by Brian Still.)

Description of the product to be tested:

<table>
<thead>
<tr>
<th>Description of the product to be tested:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Goals that the usability test will fulfill*:

<table>
<thead>
<tr>
<th>Goals that the usability test will fulfill*:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
These goals will come directly from conversations with the client. New goals will be created for each test when performing iterative testing and design.

Equipment testing will require:

*Consider whether you will perform a low-fidelity or high-fidelity test; this determination can be based on the goals you’ve established.

User groups to be tested:

*Again, the user groups will come directly from conversations with the client. Remember, “user groups” means sample groups representative of the product’s target audience, and “user groups” does not mean the same thing as numbers of users to be tested. In planning for user groups, it is advisable that you test at least two users representative of each user group.

Team Roles
Tasks to be performed during testing*:

*Do not overwhelm your users with too many tasks. If a test runs longer than 30 minutes, your users will lose their attention span.

Usability research methods to be used during testing (see “usability research methods” in the glossary):

Test script—this includes pre-/post-test surveys as well as tasks for the test (use the space below to write out the script you will read during the test).
Methods for Analysis (Marking errors, counting mouse clicks, for example.)

Findings
Glossary of Digital Library, Usability Research, and Iterative Design Terminology

**Client:** The person or persons for whom the usability test plan is being developed; in some cases, the client is oneself, developing a test to improve one's own product.

**Content Management System:** A software system that provides the web authoring tools to develop a cohesive and collaborative website.

**D.E.A.R.:** Discovery, Evaluation, Analysis, and Reporting. D.E.A.R. is the standard protocol that every usability test follows.

- **Discovery:** determines a few key pieces of data about the product you will be testing. This includes user groups for whom the product is designed (target audience); how users use the product; what tasks will be relevant for testing; and what goals testing will achieve. Discovery also defines what user groups you will want to select for the usability test, as well as which roles members of the usability testing team will fulfill, and which usability research methodologies you will use to interpret data.

- **Evaluation:** is the stage during which you and your team will create the usability test plan. During the evaluation stage, you and your team will perform “dress rehearsal” tests to examine the effectiveness of your test plan. This will allow you and your team to determine whether or not all portions of your test plan (goals, user groups, equipment, tasks, roles, fidelity, etc.) fulfill the requirements of the testing purpose. After dress rehearsal of the tasks within the test plan, live testing will take place. Evaluation ends after live testing is complete.

- **Analysis:** is the stage in which results are studied and interpreted, based on the methods you determined within your test plan. The bulk of your testing time will be spent in analyzing the research data to draw conclusions about how that data speaks to the testing goals. For every hour spent on testing, three hours is spent on analyzing that data.

- **Reporting:** is the stage in which you and your team represent to your client the conclusions you drew from analyzing the test results. Using multiple types of data to communicate these conclusions is useful: qualitative, quantitative, video, and eye-tracking data, that all come directly from the testing stage should support your conclusions, and they will usefully represent your main points to the client.

**Digital Asset Management System:** The management system used to describe, store, process and retrieve digital objects.

**Digital Avatar:** A term used to describe a digital reproduction of a physical item.

**Digital Collection:** Online access to a collection of digital reproductions of archival materials, such as photographs, books, sound recordings, manuscripts, letters, government documents or records. (Also known as digital repository, digital library, or digital archive.)
**Fidelity:** Usability testing can be performed through multiple means, using basic and advanced technologies; low-fidelity testing technologies include paper-prototyping, in which users are asked to work with drawings or cardboard models of a given product to demonstrate how they would engage that product. High-fidelity testing technologies include computer equipment, cameras, and software, to track user response to tasks and the product. Often, with iterative design, multiple levels of testing fidelity provide better data.

**Goals:** A set of objectives that guide how you design your usability test plan; this set of objectives limits what gets tested, establishes the target audience, and influences the determination of which usability methods will be used to analyze the data. Goals develop directly from the needs expressed by the client.

**Iteration:** is one cycle of designing based on data gathered from user feedback in usability testing.

**Iterative design:** is a design process of prototyping a product, usability testing the prototype, and then redesigning the product based on test results. This is a perpetual, continuing process.

**M.E.E.L.S.:** Memorability, Errors, Efficiency, Learnability, Satisfaction. This acronym represents the key qualities of a product’s usability.

**See/Say/Do:** is a research triangulation concept that data should be gathered in three different ways: first, based on what usability researchers watch users do with a product; then, based on what a user says about the product; and then what the user does with the product. See/Say/Do can be measured by applying usability research methods that harvest a variety of data, including such examples as eye movements, mouse movements and clicks, and user vocalizations.

**Target Audience:** The group(s) of users you most want to reach out to when planning to redesign your website based on usability test results of your product. The target audience is a key group to whom you want to communicate a specific message. In some cases, multiple dissimilar groups may comprise your target audience.

**Test Plan:** is comprised of the goals, target audience, research methods, testing script, and evaluation methods to tell every researcher working on usability test exactly what his/her role should be at any given stage during the testing process, from the beginning of the project (plan development) to the end (results evaluation and recommendations to client).

**Usability Research Methods:** are the methodologies used to analyze usability test data; these include such methods as: eye tracking, think-aloud protocol, retrospective recall, survey, interviews, and cognitive walkthrough.
Usability Test Plan: is a “hit by a bus” document that defines every stage of testing and role to be filled during testing; if any member of the testing team is unable to function for a given test, the usability test plan will provide enough information about the testing cycle to allow someone completely unfamiliar with the process to step in and seamlessly fill the lost member’s shoes.

User Interface: A design system that allows human - computer interaction. More specifically, a website design system that enables interaction with a digital asset management system.

Additional Resources

Readings


**Usability Technologies**


**Further Training**


EyeGuide™ Certified Expert Training [http://www.grinbath.com/content/education](http://www.grinbath.com/content/education)