LabWeb: An Intranet Designed for Usability

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Abstract

This paper describes the approach and methodology used to redesign and restructure the top-level pages of PNNL's large, distributed intranet. Usability principles and methods were essential in gaining acceptance of the product. We also learned the truth of Guy Kawasaki's dictum, "Think digital, act analog"; even the most thoughtfully designed web page can leave users cold until a human being helps explain it. As a result, we have found it very beneficial to provide a "live demonstration" of LabWeb for various groups at their staff meetings.

Background

The Laboratory's first intranet "welcome page" was created in 1994. At that time, web technology was relatively primitive. Very few people at the Lab were familiar with HTML, and very few internal web pages existed. Our page was put together as a proof of concept; it consisted simply of text links to other internal sites (Human Resources, Finance, etc.). New links were added as new websites came online. This "table of contents" format worked well enough to manage such a limited amount of content.

Of course, we all know what happened to web publishing in 1995! New internal websites were being created and added to the welcome page at a rapid rate. In 1996, the Lab decided that the web would be the primary medium for communicating policies, procedures, and other staff requirements; the intranet was now an essential resource. Subject heading and shortcut bars were added to the welcome page in an attempt to help users find the information they wanted, but by the spring of 1998 the page, when printed, ran to more than five pages. The webmaster (Pam) received e-mail complaints on a daily basis about the poor usability and outdated look and feel of the page.

In April 1998, funding was allocated to redesign the page. But as unsatisfactory as the current page might be, the design team knew that it would be difficult, if not impossible, to create a page that would meet the needs of each of the Laboratory's 3500 staff.

Steps in Designing for Usability

<u>Defining Requirements</u>. The first step in redesign was to collect input from as many diverse staff as possible to develop the set of requirements that would guide the efforts. Pam started by combing through the website's "Suggestion Box" archives for the last several years to look for recurring contributors. She invited these staff, along with other staff felt to be representative of key user groups, to a facilitated meeting. A set of requirements resulted; these were sent out for a broader review and refined. The final set used in the redesign were as follows:

- Information must be easily and quickly found.

- The structure should reflect how we do business; it should reflect processes and functions rather than organizational ownership of these processes and functions.

- The page should be aesthetically pleasing and fun to use.

- An effective search tool is needed.

- The page must be accessible to those with visual impairments, offsite internet connections, or non-standard computers.

Developing the Prototype. Sheryl developed a prototype, based on cascading menus, that might meet these requirements. The menus were based on groupings of the links on the existing page. We also developed a usability test plan based on several resources, particularly Jakob Nielsen's *Usability Engineering* (1). We conducted a "test of the test" with several colleagues, and then refined the prototype and the test before the actual user testing began.

User Testing. We conducted seven user tests. Users volunteered to participate; test subjects were selected from this group based on diversity of job function (manager, administrative professional, researcher, etc.) as well as computer platform and browser setup. Of the subjects chosen, four were among those who had attended the facilitated user session and three had not been previously involved with the redesign project. The tests each lasted approximately one hour, and consisted of, first, a set of structured tasks (e.g., "Find the company's organization chart") followed by an open-ended portion in which we asked the subject to tell us what information he or she accessed on the intranet in the course of a normal day and then instructed him or her to find it using the prototype. The results of the tests clearly showed that different people look for information in different ways. While some felt very comfortable with the cascading menus because they followed the familiar paradigm of many software packages, others said they preferred text-based links because those were searchable (using the Find feature on the browser). Still others said they were "visual" and would have preferred a map or flowchart. The design team would have to find a way to accommodate these preferred approaches.

Designing the Page. We worked with a graphic artist to design a page that offered multiple options for navigating the underlying information. The Organization view was the simplest view to create; websites for the Lab's organizations were simply linked from an org chart. The Resources view was created using cascading menus; to create this view Sheryl taught herself JavaScripting and dynamic html. For the Topic view, Sheryl asked a colleague to create an alphabetized list of all the links on the existing top-level page, then add the alphabet bar navigation. Finally, the Search tool was linked in; this was a parallel project led by staff in the Information Sciences & Engineering group.

Other functionality was added. For easier maintenance, the "news" portion of the page is generated from an Access database. To provide another medium for communicating Lab news, an audio version of the Lab's e-mail newsletter is available.

Final Testing. Sheryl placed the new page at a test location and Pam announced it in the staff e-mail newsletter, asking people to test it and provide comments. Numerous staff responded with helpful comments on the page's usability. The page was modified accordingly. On October 1, 1998, the page replaced the old one.

<u>Follow-on Activities</u>. We continue to update and enhance the page in response to staff suggestions. We have provided "guided tours" of the new page at meetings of over a dozen Lab organizations. Other Lab organizations are adapting the basic navigational template for their pages. Once staff realize that, unlike software, a web page can be quickly changed to fix a problem (for example, a link or cross-reference can be added), they find the page usable and useful.

Conclusion

We are certain that, without extensive user input from the very beginning, we could never have designed a page that met with such a degree of acceptance from such a large and diverse staff. Granted, people were so dissatisfied with the old page that nearly anything would have been an improvement, yet (as several users pointed out) familiarity has its advantages, and the learning curve for even a vastly superior product can be annoying when a user has a task to perform and a deadline to meet. By putting the users in the driver's seat through the whole process, we were able to come as close to reading their minds as we are ever likely to!

Acknowledgments

Reference

(1) Nielsen, Jakob. 1993. *Usability Engineering*. New York: Academic Press.