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Preliminary Report to the Purdue Writing Lab: Assessing Usability of the "New" Online Writing Lab (OWL) Design and Contents

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Preliminary Report to the Purdue Writing Lab: Assessing Usability of the “New” Online Writing Lab (OWL) Design & Contents

Summary of Findings

This report is submitted June 16, 2006 to the Purdue University Writing Lab, specifically to Linda Bergmann, Director; Tammy Conard-Salvo, Associate Director; and Karl Stolley, Lead Web Designer. Intended to inform the ongoing redesign of the Online Writing Lab (OWL), it is written to maintain the highest level of usability and user-centered design of a unique, globally-utilized information resource. This document is a *preliminary report* limited to initial findings from a five-step usability testing protocol conducted February 25 through March 3, 2006. This testing plan was submitted to Purdue’s Institutional Review Board’s Committee on the Use of Human Subjects (IRB) and *exempted* from further review (#0502000117). A longer report will be submitted later following additional analysis as outlined below in **Further Testing**.

Initial findings of OWL usability suggest:

- **The color-coded branding of the site is highly successful**
- **Users effectively navigate the drop-down menus**
- **Accessibility for differently-abled users is exemplary**
- **The site is perceived as valuable, up-to-date, and authoritative**

While these results are consistent with the international profile of OWL, five (5) of areas of concern require attention and are discussed in the section titled **Discussion of Revision Priorities**.

This report consists of five sections. The first is this **Summary**. **Preliminary Findings** offers explanation of each finding included in this document. **Discussion of Revision Priorities** offers suggestions for managing revision of OWL with attention to creating an effective taxonomy and limited vocabulary to establish an effective search function. It is the longest section and provides detailed explanations of technical terms and concepts. **Further testing** describes further usability testing planned for summer and fall of 2006 as well as long-term test plans. Finally, the report offers a **Conclusion** intended to contextualize OWL usability testing within the Writing Lab, the Professional Writing Program, and the Graduate Program in Rhetoric and Composition. A longer report of the testing will be submitted later following additional usability testing.

June 16, 2006

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Preliminary Findings

Initial findings of OWL usability testing suggests:

- **The color-coded branding of the site is highly successful**

The OWL (the orange-themed site) is readily recognized after just five minutes of use. The use of green for on-campus writing lab sites is effective, as is the use of blue for the Writing Lab Newsletter publication site. However, when first using the website, one-third of all users tested had difficulty selecting the right resource for their needs. Half of users with no experience with the new OWL had difficulty determining the content and purpose of each of the three websites. Solutions for this problem are described below.

- **Users effectively navigate the drop-down menus**

Users consistently navigated the right-hand drop-down menus effectively, although current additions to the orange OWL site will strain the current design and require further organization in a clear and consistent taxonomy. As the OWL adds content, navigation will grow increasingly difficult. The current structure does not easily incorporate additions, and the need for a taxonomy, site map, and more flexible navigation scheme is already evident.

- **Accessibility for differently-abled users is exemplary**

Standards-based design has allowed seamless use with website reading software, and embedded navigation cues create an aural interface for automated screen readers. All elements of the site pass the major accessibility analysis tools. As described below in **Further Testing**, the usability design team is interested in testing the site with users with hearing, visual, and physical disabilities to further improve OWL's accessibility.

- **The site is perceived as valuable, up-to-date, and authoritative**

Users described the site as “cutting edge,” “well-designed,” “navigable,” and “accessible.” This is consistent with feedback generated by thousands of OWL users who use the site, including writing administrators, researchers and teachers, students at university and secondary levels, parents of these students, as well as professional writers. While the majority of users are located in the U.S., Americans abroad, including a significant number of military personnel stationed outside the U.S., use OWL resources, as well as foreign nationals in numerous countries. OWL is a globally used resource for writing effectively in English, and new guidelines for creating OWL resources in this global environment need to be developed. Revision suggestions in **Discussion of Revision Priorities** (below) includes suggestions for presenting these different user groups alternative pathways to the most-used OWL resources.

Discussion of Revision Priorities

Five areas for revision and improvement are described below. These revision priorities are listed in order of importance from most immediate and pressing to a number of lesser concerns that can be addressed over time.

Item number one, the establishment of a search function, should be addressed immediately and should be operational before the majority of students return to school for the Fall 2006 semester. Item number two, completing the migration of materials from the old to the new OWL, should be completed during the Fall 2006 semester. Only after these two major and pressing concerns are addressed should time and resources be directed at the remaining three items.

While number 5 is cautionary advice rather than a specific change, it is important that Writing Lab resources and time be directed at search and migration rather than creation of new and novel tools of uncertain value to users. Few users effectively understood or utilized the advanced tools like the toolbar and the printing functions, and so while valuable as long-term design goals, development of advanced tools should be delayed until more pressing priorities are addressed.

1. Search must be immediately enabled

A majority of users sought out and were unable to access the OWL search function. Some users resorted to Google searching to find the materials they sought. Google already effectively indexes much of the site. Existing metadata tags are the key to establishing an effective search. The lack of a working search tool was mentioned by a majority of users, and is seen as one of OWL's few oversights. Users expressed a preference for a simple search function placed in the upper right hand side of the main splash screen, but the ultimate design and placement is secondary to the need for search to be made available to users as soon as possible.

2. Migration of materials from previous OWL must soon be completed

Existing materials from the "old OWL" can only be located by leaving the "new" orange-branded website, requiring users to learn two navigation and organization schemes as well as remembering whether desired materials are part of the "new" or "old" site. This is the second most important challenge to OWL usability, and includes updating print-based materials for the web and linking all existing materials through the new OWL website. However, this migration requires an improve organizing principle for the drop-down navigation menus: the current design would be overwhelmed by the additional materials a completed migration represents. Therefore, work on a new taxonomy (see #3 below) may need to be co-developed while migrating "old" OWL resources to the new OWL site.

3. An effective taxonomy needs to be implemented and followed

A taxonomy, that is, a way of effectively and consistently naming, labeling, and subdividing site contents is necessary. Coupled with a targeted or limited vocabulary, a taxonomy will improve the effectiveness of navigation and search. Previous testing in the Writing Lab included development of a taxonomy, but it has not been effectively implemented. As resources linked through the OWL increase, establishing and following an effective and robust taxonomic structure becomes increasingly important. The taxonomy becomes a method for limiting proliferating subject areas, and can be used as the text items in the drop-down menu. This taxonomy would also be the primary content of a site map.

The usability team suggests adding one layer of taxonomic labels to the metadata. While this will add one additional layer for users to “click through” to find the content they seek, the benefits of better organized materials, more robust labeling, and finer organizing distinctions will offset the additional attention required of users. And from our initial testing results, users are quick to click through to material and do not hesitate to backtrack when they feel lost – that is, the OWL users tested are sophisticated web users. The added clarity of an additional organizational layer far outweighs the problems of an additional click in each browsing search. Coupled with an effective search function, a robust organizing taxonomy will result in better and more accurate browsing searches.

Figure 1: Fully expanded section of navigation menu

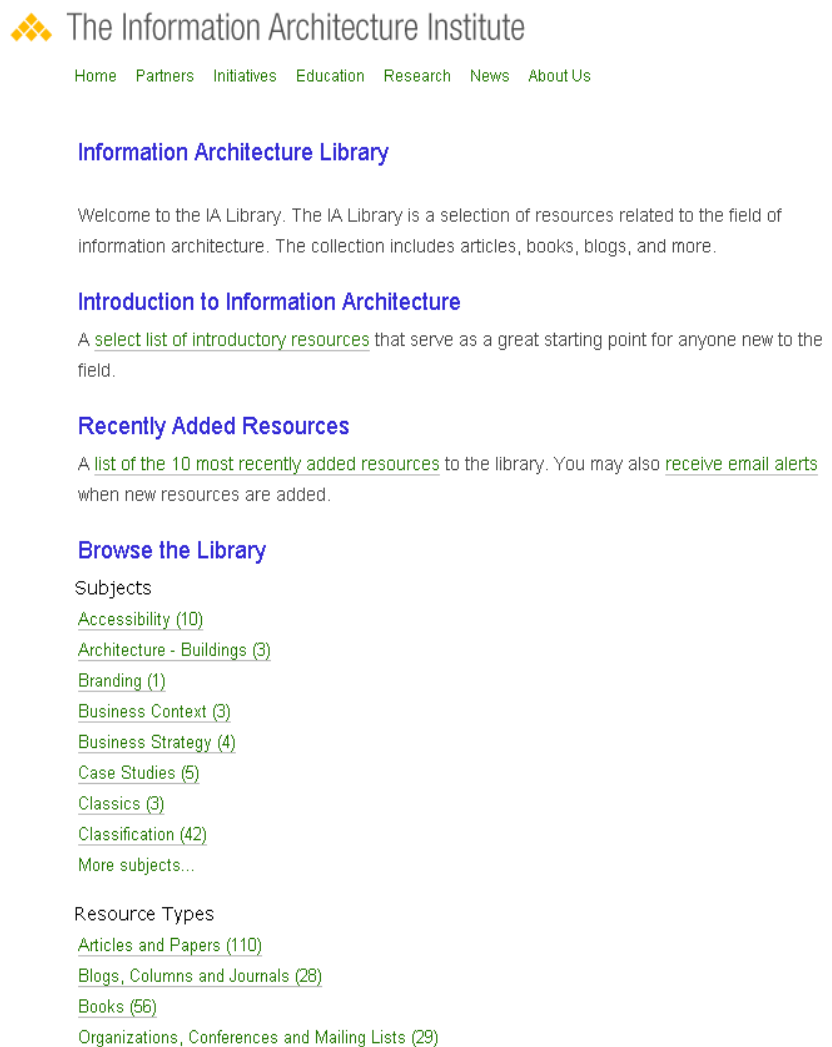
- [-] Professional, Technical, and Scientific Writing
 - [-] Action Verbs to Describe Skills, Jobs, and Accomplishments in Employment Documents
 - [+] What is an Action Verb?
 - [+] Categorized List of Action Verbs
 - [+] Cover Letters 1: Quick Tips
 - [+] Cover Letters 2: Preparing to Write a Cover Letter
 - [+] Cover Letters 3: Writing Your Cover Letter
 - [+] Prioritizing Your Concerns for Effective Business Writing
 - [+] Resumes 1: Introduction to Resumes
 - [+] Resumes 2: Resume Sections
 - [+] Resumes 3: When to Use Two Pages or More
 - [+] Resumes 4: Scannable Resumes
 - [+] Writing a White Paper

Figure 1 (above) represents one menu section of ten items, with one of ten subsections expanded. That is, 1% of total options are displayed, taking up an entire screen. Once total migration from old to new OWL is completed, total contents will quadruple, meaning that one screen of the navigation bar will only show .25%, or one quarter of one percent, of the OWL contents. This is an untenable solution.

Therefore, the usability team offers two examples of effective navigational use of taxonomies that represent databases of similar size. Note that both use the metaphor of “library” to describe their contents. Neither is a library in the classical sense. Rather, both sites offer online access to digital information resources. The OWL should retain its identity as writing resources available online all the time, but the reference to accustomed strategies for resource *findability* make these resources valuable references.

The first is the Information Architecture Institute Library (IAIL) taxonomy and browsing page. Note how the taxonomy is broken down in different ways, allowing access driven by user need. [<http://iainstitute.org/library/>]

Figure 2: Screen display of the Information Architecture Institute Library



Here, “Subjects” and “Resource Types” correlate to OWL organizing challenges as users often search for resources designed for use with the Web, PowerPoint, or for paper-based handouts. The IAIL allows users to find content by subject, genre, author, or language in addition to open searching and subject-based organization. Subjects are listed alphabetically as in an index.

The second taxonomy reference is to the Technical Communication Library of the E-server (TCLibrary). [<http://tc.eserver.org/>] Its taxonomy, designed by a team of technical communicators, is presented on its opening page:

Figure3: Screen display of the Technical Communication Library of the E-server.

Careers Collaboration, Consulting, Ethics, Freelance, Humor, Internships, Interviewing, Job Listings, Management, Mentoring, Outsourcing, Portfolios, Résumés, Usability, Web Design, Workplace	Publications Books, Bibliographies, Directories, Journals, Mailing Lists, Reference, Reviews, Weblogs
Content Management Intellectual Property, Knowledge Management, Project Management, RSS, Single-Sourcing, XML	Rhetoric Grant Proposals, Plain English, Presentations, Rhetorical Theory, Visual Rhetoric
Design Document Design, Graphic Design, Information Design, Multimedia, Prepress, Technical Illustration, Typography, User Interface	Software Acrobat, Dreamweaver, Flash, FrameMaker, GoLive, InDesign, Microsoft Word, OpenOffice, Open Source, PageMaker, Photoshop, PowerPoint, RoboHelp, Voice
Documentation Agile, DITA, DocBook, Indexing, Localization, Policies and Procedures, Online, Specifications, Style Guides	Usability Accessibility, Eye Tracking, Human-Computer Interaction, Interaction Design, Methods, Testing, User-Centered Design, User Experience, Web
Education Certification, Courses, Course Materials, Instructional Design, Online, Risk Communication, Scholarships	Web Design Adaptive, Ajax, CMS, CSS, DHTML, HTML, Hypertext, Information Design, Intranets, Journals, Metadata, Search, Wireless Web, XHTML
Organizations Accessibility, Editors, Educators, HCI, Information Designers, Linguists, Regional, Science Writers, Usability, Web Design	Writing Business Communication, Controlled Vocabulary, Documentation, Editing, Scientific Communication, Technical Writing, Weblogs, Writing for the Web
Authors (4,309) Categories (282) Languages (24) New This Week (77) Publishers (1,558) Years (39)	

The sheer density of information and navigation presented is noteworthy, offering 12 primary headings and an astounding 113 sub-categories on less than one quarter of the TCLibrary splash page. The addition of a number indicating how many resources are linked at the bottom is also helpful in preparing users for the complexity, number or lack of resources under a specific header. While the primary headings remain static, the subcategories will occasionally shift according to user preference and need: the site tracks search terms and will, as shifts in use demand, replace underutilized sub-headers with more often used search terms.

This report suggests that the navigation bar in the right column of the orange OWL site be revised to only include the elements of the resource currently viewed. This would remove the need for the “Jump to section” navigation work-around described in section 4e below. But ultimately, the density of information is instructive to discussion of the limits of screen design, content and density. The goal is to *informate* the search process while retaining *ambient findability*: that is, presenting a large enough resource of information to be helpful that remains usable for clients.

4. The Splash page needs to be revised for content

a. Users do not intuitively select the correct site for content

With three sites listed under the “family” of sites, users do not intuitively select the orange “The OWL at Purdue” site as the location for writing advice, handouts, activities, etc. Users are confused and often select the green “The Writing Lab at Purdue” site instead. Usability tests suggest including descriptive information distinguishing the orange site as a digital resource open to all from the green site that offers information for on-campus facilities for use by Purdue students, staff, and faculty. This can be accomplished by removing the reference to **The OWL at Purdue**. The *at* implies physical place(ment). Testing suggests **Online OWL Resources** or **OWL’s Writing Resources** may better guide users seeking writing advice to this resource.

b. Three logos compete for user attention

A clear majority of users suggested that the OWL select one image for a logo and add this logo to the OWL splash page. The favored logo:

Figure 4: Preferred OWL Logo



This logo is recognizable, effective, and powerful. By branding the entire site with this logo, users from off campus will more readily recognize this logo as leading to writing advice and help through the orange OWL site. Coupled with textual revision (see 4a above) clarity of each website’s purpose will be clearer to users.

During testing, users selected an alternative design based on the Library of Congress (LOC) website portal page. While the usability team does not particularly encourage the creation of an OWL “portal,” the LOC provided inspiration for one of the prototypes of visual and content revision of the OWL splash page. [http://www.loc.gov/]

Figure 5: The Library of Congress website portal. Note the way users are divided into audiences by interest.



The Library of Congress site provides two model navigation strategies:

- First, on the upper left hand side, note the text “Resources for.” While the Library of Congress site breaks navigation down by *user* or audience, the OWL should consider breaking down links by *use*. That is, many OWL users select one of a small number of resources. For instance, the most used OWL resources are MLA and APA documentation. These resources could appear under “documenting your writing” or “writing research papers.” Similar task-based navigation include (but need to be limited to) such tasks as: Writing Professional Documents, Classroom Activities & Resources, Writing about Research, and Building Arguments. Such a task-based taxonomic system is already part of OWL as shown in the category “Job Search Writing” but is not consistently applied throughout the OWL website, resulting in user confusion.
- Second, note the five color-coded links across the top middle and top right. Each of these five composite buttons of image, color, and text link to sub-sites that are similar to the OWL sub-sites in their division and organization of content and audience. The LOC buttons are clear in their content and purpose yet take up a smaller amount of the screen than the current OWL sub-site links.

The LOC site was used as a model for the prototype design that most users chose as a “new” OWL splash page during testing.

c. **Link to “Old” OWL site redundant once migration is complete**

Once migration of legacy content is complete (see #2 above), the links provided to the “old” OWL site can and should be removed. A statement of explanation can be added if users search for “old OWL” indicating that the content has all migrated to the new design structure. This change will probably be made in incremental steps over months or years as OWL users grow accustomed to the new OWL interface.

d. **Descriptions of each website component need revision**

While few users read the descriptions of each website on the splash page during testing, those who became disoriented during navigation relied on this text to reorient themselves. While the current text descriptions seem effective, they are only effective to those of us familiar with the OWL websites, that is, these descriptors are only effective in the context of already knowing the purpose and content of the OWL sites. Revised content should be tested for effectiveness with users unfamiliar with the Writing Lab and OWL.

e. **Resist the impulse to add additional “tools”**

Since completing testing, additional tools have been added to the OWL website. These tools are of uncertain value. Added after formal usability testing protocols were developed, these utilities have not been tested, but this section offers a usability *analysis*.

- The “tool bar” collects many utilities and useful workarounds for preliminary usability challenges such as navigation breakdowns, printing solutions, and duplication of links.

Figure 5: The Tool Bar



While each item on this tool bar offers an interesting and useful link, these specific utilities appear to be randomly chosen and arranged. If a toolbar is warranted (a point which testing has not addressed and which the usability team does not accede is necessary) further study needs to determine whether these are the processes requiring quick access. Team members commented during analysis that the design did not fit with the overall OWL look and feel. While development of a robust toolbar may be an interesting long-term project, there are more pressing concerns. At the least, this toolbar should appear at the bottom rather than the top of each page. This design conveys too much importance for these processes.

- Multiple-page resources need better navigation than the existing “Jump to a listing of this resource’s sections.” Although the designer has expressed an interest in limiting the “number of clicks” to find resources, one solution is to insert a “content” listing prior to presenting content.

Figure 6: Instruction with link at the top of the page.

[Jump to listing of all of this resource's sections](#)

This link advances the page to a text box at the foot of the page listing resource contents:

Figure 7: Example of resource contents for multiple-file resources.

All Sections in *Writing a White Paper*:

1. White Paper: Purpose and Audience
2. **White Paper: Organization and Other Tips**

The solution appears as a work-around rather than a planned-for navigation solution. Coupled with the addition of one layer to the taxonomic metadata (see Appendix X), the additional of one additional layer of navigational information will relieve many of the stress points currently complicating design and site organization.

- A significant change was made to the appearance of the navigational menu. The team’s analysis suggests returning to the previous design scheme of dark brown text on orange background. The current design creates confusion:

Figure 8: Current navigation menu duplicating operating system cues.



The redesigned navigational links share too many visual cues with operating system design, specifically with the look and feel of Microsoft Windows™. Not only does this contradict the open-source ethos of OWL, but it adds unnecessary cognitive dissonance as users oscillate between navigating a web-based resource and the conflict the visual allusion to OS structures the current design introduces.

Further Testing

Perhaps the most striking outcome of usability testing is a potentially significant statistical finding. Although it is too early in the evaluation process to be sure, at first glance, it appears that we have a publishable research finding. Organized as a project with local significance, and little potential of publishing results, the research design was almost not submitted to IRB. Upon locating this potentially significant data point, however, the value of submitting research to IRB oversight becomes apparent: these results would not have been publishable without IRB oversight and exemption (#0502000117).

1. Over the summer of 2006, additional tests will be run duplicating previous testing. The goal is to test a statistically significant population of 30 total users with the same testing materials.
2. Initial results indicate that there may be an additional statistically significant finding related to gender and style of web surfing practice. This finding has the potential to contribute research done on gendered web surfing preferences and may yield additional publishable results.
3. Students in 680A: Rhetoric(s) of Access are interested in developing usability protocols for differently-abled users. That is, student are preparing tests, procedures, and materials for users with physical, sight, and hearing impairments. These students plan to submit a proposal for further testing at the end of the summer, and funding may be an issue as transportation and/or testing protocols may require incur modest costs.
4. As plans for developing new navigation systems and organizing taxonomies develop, these changes will need to be tested for usability. Ideally, a system for quick testing and report creation can be developed, but such work may require dedicated personnel if not funding.
5. Finally, the usability team is designing remote OWL usability tools. These tools are designed to run online and at a distance so that OWL users can participate in usability testing without needing to travel to Purdue's campus for testing. Infinite reproduction and distant results collection should result in larger numbers of test subjects, improving rigor and reliability.

Each of these plans for further testing indicates the collaboration developing among different aspects of the Rhetoric and Composition Program, in particular the Writing Lab, the Professional Writing Program, and the Graduate Program in Rhetoric and Composition. See **Conclusion** below for more on this developing collaboration.

Conclusion

By Spring 2007, a longer, detailed report will be submitted to the Writing Lab Director. This report will be significantly longer, and will include additional testing done over the summer. It will include the data, analysis, as well as detailed description of usability testing protocols. This document is envisioned as a white paper that will be a resource for the publications now being planned. After submission and revision of that longer document, we would like to publish the white paper on the OWL website. Please consider this request as part of the continuing collaboration between elements of the Rhetoric and Composition Program.

The Associate Director of the Writing Lab, Business Writing Liaison, students of the Rhetoric and Composition graduate program, and faculty in Rhetoric and Composition have been closely collaborating to test and improve the OWL's usability. Presentations at national conferences including Conference on College Composition and Communication, Computers and Composition, and Council of Programs in Technical and Scientific Communication have already been completed, and more are proposed. And a number of print and online publications are planned, some already being drafted. This process of usability testing has opened opportunities for graduate students to professionalize, conduct and lead research, and become contributing members of their fields.

This document has been written as a preliminary report of findings of the usability testing conducted during the Spring semester of 2006 in conjunction with Michael Salvo's ENGL 515: Advanced Professional Writing Class. With the development of usability protocols, IRB review, hands-on usability testing, and reporting of results, the OWL Usability Process has become more than a classroom project and become a site of usability testing as well as a center for research and methodological development.