Usability Services at the University of Maryland: Who, What and How

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ABSTRACT
Web Services, Office of Information Technology (OIT), University of Maryland, began to offer Web Site Usability Studies in 1999 as a service to the campus community.

This paper will discuss the development of the usability services, marketing attempts, staff, the process through which a standard set of services were developed, and usability case studies conducted by Web Services, OIT, University of Maryland during this one and a half year. Additionally, this paper provides a model for a “do-it-yourself” usability testing service. The intended audience of this paper would be those interested in building services and service support models to provide Usability Studies in support of campus web sites.

Keywords
Usability Studies, website, web site evaluations.

1. WHY OFFER USABILITY STUDIES?
The audience for the university web site grows exponentially each year, as of course, does the web itself. In admissions, the experience potential students and their parents have while visiting a higher education site will be a major factor in the selection process. Additionally, the campus community now expects to find answers to their information needs, be it on a particular program, hours of the campus recreation service, or a personnel question, on the web. Our goal, in OIT, is to try to assist university entities in making the experience that visitors and the campus community as a whole have when visiting a university web site, more satisfactory. As experts-in-residence, most campus units and departments look toward the IT campus staff to provide the requisite knowledge on developing a usable site.

Usability is the degree to which a user can easily learn and effectively use a system to finish a job. Usability testing, therefore, is a means of improving user interfaces to allow the users to user the web site more effectively.

A review of any university web site would most likely find:
- web sites designed to HTML 2.0, (the ubiquitous blinking text) without intervening upgrades or revisions.
- web sites designed in frames without ensuring accessibility and “searchability” via a no-frames version.
- web sites which contain broken links.
- web sites which do not adhere to accessibility standards.

A well-designed web site increases both the system performance and the user satisfaction, and enhances communication.

2. HOW “IT” BEGAN
In 1998, the Coordinator, Web Services, Lida Larsen, determined that there was a need for a university usability studies service, and to develop standards to benchmark existing university web sites. A request was made for funding to support the hiring of an additional graduate assistant, 20 hours per week, and that request was approved. Ms Lisa Antonille, a Master’s candidate in English Department of the College of Arts and Humanities, was selected to assist in the development of the service. The first step was to develop what usability services were considered necessary.

In early 1999, Ms. Larsen, a team of web savvy students, and other OIT staff developed a three level service plan:

- A page by page review of the web site for
  1. navigation,
  2. link checking,
  3. confusing elements,
  4. University identity,
  5. return to home feature,
  6. accessibility standards per the World Wide Web Consortium, and
  7. consistency.
- Focus Groups evaluation of the web site.
1. Scenario-driven questions designed to test the users’ ability while web-surfing to find essential information.
2. Users are assessed on their feelings and perceptions on the web site as a whole.
   • Observation of users using the web site.
     1. A simple method that involves observing users while they perform specified tasks.
     2. An advantage of observing users is that one often finds that they use the web site in unexpected ways that would not have been sought or identified in a planned laboratory experiment.

To begin the service on campus, in March 1999, Ms Larsen marketed usability testing directly to the Office of Continuing Education (OCEE) and offered to conduct all three levels of service at a reduced cost. Since the OCEE usability testing, Web Services has conducted varied levels of services to five other campus units, as has conducted usability testing and evaluation on the web sites created by the Web Services unit.

3. MARKETING
Web Services has marketed the service through training opportunities, campus articles, and web site information. Some venues have been more successful than others at engendering interest in our service and follow-on contact to conduct a study. We received zero response to a campus paper article on our services. We have at least one query from a four-time annually offered web design course taught by OIT for the campus community. The web design course includes an hour-long segment on usability testing and the Coordinator, Web Services, assists in teaching this segment. I believe that is a significant factor in raising interest in the service.

4. STAFF
Web Services has one full time staff member who has responsibility for a myriad of activities, which includes usability studies. The first graduate assistant hired specifically for the purpose of developing a campus interest in and an audience for usability studies, Lisa Antonille, assisted with two usability studies. The second graduate student has been singularly instrumental in developing the underlying structure of the usability study services currently offered. This student, Jimmook Kim, is a doctoral candidate in the College of Information Studies, and is interested in usability and may focus on that for his doctoral thesis. Mr. Kim brings a level of heuristic evaluation to usability studies by providing an analysis of usability problems in web design.

5. CURRENT LEVEL OF SERVICES
The current level of services offered allows the user to select one or a number of various usability methods, depending on the user’s need and limitations (users available for testing, budget, time, etc.). The following usability method in terms of their advantages and disadvantages (Jacob Nielsen, *Usability Studies*, 2000).

5.1 Heuristic Evaluation (Previously identified as a “page-by-page” review.)
   1. Lifecycle Stage: Early design, “inner cycle” of iterative design
   2. Users Needed: None.
   4. Main Disadvantage

5.2 Observations
   1. Lifecycle Stage: Task analysis, follow-up studies.
   2. Users Needed: 3 or more.

5.3 Questionnaires
   1. Lifecycle Stage: Task analysis, follow-up studies.
   4. Main Disadvantage: Pilot work needed to prevent misunderstandings.

5.4 Focus Groups
   • Lifecycle Stage: Task analysis, user involvement.
   • Users Needed: 6-9 per group.
   • Main Advantage: Spontaneous reactions and group dynamics.
   • Main Disadvantage: Hard to analyze. Low validity.

5.5 Logfile Analysis (Can be part of the heuristic evaluation or a separate piece.)
   1. Lifecycle Stage: Final testing, follow-up studies.
   2. Users Needed: None.
   3. Main Advantage: Finds highly used (or unused) features. Can run continuously.
   4. Main Disadvantage: Analysis programs needed for huge mass of data. Violation of users’ privacy.

5.6 User Feedback
   1. Lifecycle Stage: Follow-up studies.
   3. Main Advantage: Tracks changes in user requirements and views.
   4. Main Disadvantage: Special organization needed to handle replies.
6. COSTS

We have found that the important factor in doing or not doing a usability study has been cost to the unit. In structuring the services and charges, the end-goal is to recoup the cost of the graduate student’s time. Our current fee structure is appended to this document.

7. CASE STUDIES

Three different usability web site case studies will be presented:
- A department level web site usability study conducted to develop user needs and expectations for a web site that did not yet exist.
- A unit level web site usability study conducted to determine a redesign of an existing web sites.
- A heuristic study evaluating the effectiveness of a redesign effort at a college level.

7.1 Case Study 1: A department level web site usability study conducted to develop user needs and expectations for a web site that did not yet exist.

The Office of Information Technology was formed from several IT units when the President of the University created a Chief Information Officer position at the university. We conducted two focus groups to determine the user group information technology needs. Members of the focus groups were recruited from various campus user groups and were either stakeholders in OIT or were recruited because of a personal relationship with someone in OIT. Each focus group participant received an OIT travel mug. The mug was not advertised in advance. A high percentage of the “invitees” actually participated, perhaps because these individuals were stakeholders or personally asked to participate. This process took approximately 2 months, with the OIT web group incorporating comments into the development of the web site. Ongoing opportunities to comment on drafts were made available to the participants. When the web site was published, an online survey was created to capture comments on the new site. Despite marketing of the web site to external groups and internal OIT personnel, and also linking it from the main homepage, the online survey only received 4 inputs.

7.1 Case Study 2: A unit level web site usability study conducted to determine a redesign of an existing web site.

The Office of Software Licensing (SLIC) had an existing web site which was designed using frames. Because SLIC had a defined user group, the first step was to conduct an online survey to assist in structuring questions for the focus group. SLIC provided a list of users/stakeholders to Web Services and these individuals were emailed asking that they take time to take the online survey. Twenty-one users responded and took part in the online survey. Next, a focus group study was held and eight of the eleven users identified, participated. Pizza was the drawing card for the focus group.

The usability study determined the following:
- The current site was considered dull on a dull-stimulating scale.
- A search function was needed.
- Frames should not be used.
- Various access points were needed.
- Users spent 10 minutes or less searching for a product, so a user interface was needed to allow them to find what they needed in that time.
- Critical information only should be on the homepage.
- More information was needed in the content.
- Online purchasing was highly desired.
- Terminology needed to be more well-thought-out.
- Out-of-date information needed to be updated more frequently.

The focus group and online survey comments provided a great deal of information to the manager and is assisting the unit to focus their attention in the redevelopment of their web site and on their business process as a whole.

Case Study 3: A heuristic study evaluating the effectiveness of a redesign effort at a college level.

This heuristic study provided a design and content evaluation for a college level web site, www.bsos.umd.edu. The expert reviewer was Jinmook Kim. The manager of the web site, (not the webmaster), and the Usability Studies office met to discuss possible services. The heuristic study was selected because of the cost factor.

The results of the heuristic review provided the following comments to the college:

1) On screen design and layout, the expert evaluated strengths, opportunities for enhancement, and suggestions for:
- The logo
- Graphics
- Navigation
2) For content evaluation, strengths, opportunities for enhancements, and suggestions were provided for:
- Coverage
- Organization
- Terminology
- Authority
- Site map

3) The study determined the following about the site:
- It was well designed.
- The logo used was too big, taking too much of the top portions of the page.
- Navigation could be improved and more predictable.
- More consistency in terminology, font, font color, and formats was needed.
- Too much information was on the homepage.
- The site was easy to use.
- There were broken links.

8. DO IT YOURSELF MODELS

Two method of usability testing that can easily be accommodated in a less formal testing environment are questionnaires/online surveys and focus groups.

8.1 Online Survey Model

1. The online survey can be tailored to user needs. It consists of questions on:
   a. Background:
      Age
      Level of Education
      University affiliation
      Department or program
   b. System Experience
      Site familiarity
      Site usage
      World Wide Web usage and experience
      Browser version
   c. Overall User Reactions
   d. Content
      Link relevancy
      Content relevancy
      Satisfied/unsatisfied information needs

2. The online survey should be completed by the user, who evaluates the web site while answering the survey/questionnaire.
   a. Be very clear about what you want the user to do.
   b. A “how to do this evaluation” should delineate each step that a user must take,
   c. You must make it clear that the user use the links you provide to open an additional window to look at the web site. Coding the link to open a new window is not sufficient.

3. This method works best if you have a defined user group who would be willing to take time to assist you in your endeavor. This does not work well if you have no stakeholder interest in the redesign.

4. A database will facilitate the compilation of answers and assist in the evaluation of answers.

8.2 Focus Groups

1. Focus groups should be structured so that they are tasked to search on specific information that is relevant to the mission of the web site.

2. Focus groups should spend about 10-15 minutes doing tasks, but the tasks themselves are not a pass-fail venture, the purpose is to get the user to look at the web site.

3. Topics for Focus Group Discussions can include:
   - Overall reaction to the site.
   - Features and information helpful.
   - Features and information frustrating.
   - Comprehensiveness, relevancy and usefulness of content
   - Navigation ease.
   - Consistency and clarity of terminology.
   - Other user comments.

4. Focus group attendance can be increased through incentives. If possible, offer lunch to your participants and reward them with a token gift.

9. CONCLUSION

Each of the usability studies conducted by Web Services was considered useful and beneficial to the unit requesting the study. Since we have only conducted six formal studies during the preceding year, we have been unsuccessful in recouping the cost of our graduate student. Despite that fact, we intend to replace Mr. Kim, who is leaving us for another graduate assistantship. The documentation that he has developed will assist us with continuing to offer these studies. There is a need to improve university web sites, educate campus web developers on the need for usability studies, and offer usability training and services. It may be difficult to implement a fees-based service,
but the value of providing this service will benefit the university as a whole.
<table>
<thead>
<tr>
<th>Method</th>
<th>Task (hours estimated)</th>
<th>Number of Users</th>
<th>Estimated Hours</th>
<th>Charge</th>
</tr>
</thead>
</table>
| **Heuristic Evaluation** | - Interviewing the client  
- Reviewing the Web Site  
- Preparing a written report | None            | Depends on size of Web Site | Hourly charge of $15.00 per hour. |
| **Observation**       | - Interviewing the client (1 hr)  
- Developing a scenario (2 hrs)  
- Data collection (1 hr per user)  
- Qualitative data analysis (6 hrs)  
- Preparing a written final report (3 hrs) | 2 | 15 hrs | $225 |
|                       |                                                                                        | 3 | 18 hrs | $270 |
|                       |                                                                                        | 4 | 21 hrs | $315 |
|                       |                                                                                        | 5 | 24 hrs | $360 |
| **Questionnaires (online survey)** | - Interviewing the client (1 hr)  
- Develop the survey (2 hrs)  
- Data collection (0 hrs)  
- Quantitative data analysis (6 hrs)  
- Qualitative data analysis (8 hrs)  
- Preparing a written final report (5 hrs) | 20 | 22 hrs | $330 |
|                       |                                                                                        | 21-25 | 24 hrs | $360 |
|                       |                                                                                        | 26-30 | 26 hrs | $390 |
|                       |                                                                                        | 31-35 | 28 hrs | $420 |
| **Focus Groups**      | - Interviewing with the client  
- Developing a scenario  
- Data collection  
- Qualitative data analysis  
- Preparing a written final report | 1 group | 15 hrs | $225 |
|                       |                                                                                        | 2 groups | 27 hrs | $405 |
|                       |                                                                                        | 3 groups | 39 hrs | $585 |
| **Logfile Analysis**  | - Interviewing with the client  
- Data collection  
- Data analysis  
- Preparing a written final report | None | Depends on size of Web Site | Hourly charge of $15.00 per hour. |