Evaluating the Usability of the University Senate Website Redesign

Introduction

This report presents results of the usability test of the redesign of the Michigan Tech University Senate Web site. The purpose of the usability test is to establish whether the changes requested by the user were done properly, and also to see if the redesigned site does in fact make the site easier to navigate for all users. Those users are members of the University Senate, MTU graduate and undergraduate students, and other members of the MTU community who seek information regarding decisions made by the senate at their meetings.

The University Senate uses a Web site to post meeting agendas, minutes, by laws, proposals and other information applicable to their group. The president of the University Senate, Bob Keen, requested that students in the Scientific and Technical Communication program redesign the senate's Web site as a class project. Cheryl Ball, instructor of HU 2650, Introduction to Web Design, volunteered her class to complete the redesign.

Goals

The goals for this test came from two sources: Bob Keen, who had requested the redesign, and from the Web design students who were the software experts for the project. The original site appears to the right.

Cheryl Ball invited Dr. Keen to her class, where he was able to explain his goals to the Web design class. Dr. Keen explained the history of the site, and how the age of the site, and its placement amid the rest of the MTU Web site warranted an update for looks and for use. He had viewed the senate sites of several other universities, and had ideas for the redesign based on what he liked about those sites.

Bob Keen's explicit goals included the following:

- A fast load time—senate members might access the site from remote locations where they may use slow modems.
- Few if any graphics, again to moderate the amount of time needed to load the page.
- No tables, because the Lynx browser has difficulty reading text in tables.

Web design students have been studying the principles of both design and the possibilities for what HTML coding can do for current Web sites. Based on their knowledge of Web design, and preliminary reviews of the current University Senate site, the students determined their goals for redesign.

Web design students, and ourselves, had the following goals:

- That tasks done by users, such as accessing specific meeting agendas or minutes, be found "easy" by test subjects.
- To make the site look more professional, and be aesthetically pleasing.
- To make the site more welcoming for all users, not just senate members.
- To make the site easy to approach for the continuously changing body of members of the senate.

Methodology

Interviews, observations of users, task scenarios and pre- and post-test surveys were used to generate the data for this usability project. Faculty, undergraduates, and Web design professionals (taken from the class population who had not worked on the redesign) were given the opportunity to participate in this usability test. This section will detail the questions asked in both levels of testing; the testing environment will be discussed in later sections.

The redesign of the University Senate Site began the creation of story boards by each Web design student. The class voted for five boards to present to Bob Keen for his selection. Technical Communicators I presented the five story boards and led a discussion of other universities' senate sites. The site that appears to the right comes from Western Michigan University; Dr. Keen liked the appearance of this site, and thus the redesigned MTU site resembles this site.
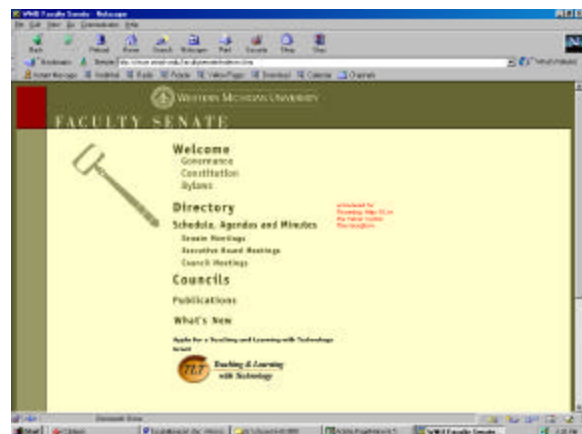
The Design Team worked up the first draft of the redesigned site, and Technical Communication II prepared for the alpha test.

The Alpha Test

The alpha test was designed to ask users to view the first draft of the redesign. Each person was given a pre-test questionnaire.

Student Users

Pre-test Questionnaire

- How would you rate your computer expertise?
  (Lowest) 1   2   3   4   5   (Highest)
- Do you use your computer for schoolwork or entertainment?
- What do you use the Internet for?
- Do you read online or print Web sites to read?
- How interested/invested/concerned are you with administrative activity at the university?
  (Lowest) 1   2   3   4   5   (Highest)

Each of the 12 student users was then given a sheet of six task scenarios to complete by using the senate site to find information. The browser used was noted, and a Web design student observed the activity of the student user doing the alpha test.

Task Scenarios

- You are a student in the Scientific and Technical Communication program here at Tech and you are graduating with a BA in STA and your concentration area is all media related topics. You would like to know if you could receive this written on your diploma. Where should you look and what are the requirements?
- You have just been charged with intent to injure another student while you were in your PE class. You and the other student were goofing around and you threatened to throw the basketball at the other student's head. You were both laughing about this afterwards. Later in class you accidentally throw the ball at him when he isn't looking and it hits him in the head. What is the policy that deals with this situation? What needs to happen next, according to the policy?
- You are a marketing major in the School of Business. Who is your current university senator?
- Who was the Senate President in 1976-77?
- At what time did Senate Meeting 340 start?
- Can you locate what the Finance Committee of the University Senate does?

The post-test questionnaire asked student users to respond to the experience they had using the redesigned senate site.

Post-test Questionnaire

- How useful was the Senate site to you?

(Lowest)   1   2   3   4   5   (Highest)
- What did you find the most useful?
- What did you find the least useful?
- Were you able to complete the task scenarios with relative ease?
  (Lowest)   1   2   3   4   5   (Highest)
- If it was difficult to complete the tasks, what made it difficult?
- Are you likely to revisit the site?
- Do you know more about the senate now?
- How readable are the pages?

Professional Web Designers

Five students from the Web design class also participated in the alpha test as imaginary "professional" designers. These five persons looked through the site at the same time as a class of sophomore students from throughout campus, and made notes in regards to inappropriate font sizes, links that didn't work, pages that open new pages and others that don't, and misspelled words. Their responses were emailed to the Web design class list, and the design team could collaborated the input and used the suggestions for the next revision.

Faculty Users

The final group of persons who participated in the alpha test were faculty members who have been active in the senate in the past.

Pre-test Questionnaire
- How would you rate your computer experience?
  (Novice)   1   2   3   4   5   (Expert)
- Do you use your computer for schoolwork or entertainment?
- What do you use the Internet for?
- Do you read online or print Web sites to read?
- Where do you usually use the Internet (home or school office)?
- Do images on a Web site enhance or inhibit your user experience?
  (Inhibit)   1   2   3   4   5   (Enhance)
- Does your reaction to images on a Web site differ according to what type of site you are using (entertainment versus work-related)?
- What computer platform do you usually use (Mac, PC, Sun, Sunray)?
- What browser do you usually use to view Web sites (Netscape, Internet Explorer, Opera, Lynx)?

Task Scenarios
- You are an MTU faculty member whose significant other wants to go on sabbatical because they have a chance to study volcanes in Hawaii. They have been granted sabbatical, will you be allowed to go with them and return to your current position and pay?
- What is the current agenda for the next meeting of the Senate you will be attending? Have any of these proposals been discussed in previous meetings?

- You are appointed to the Professional Staff Policy Committee. What is your responsibility?
- At what time did Senate Meeting 340 start?
- Who was the Senate President in 1976-77?
- You want to double-check the meeting dates for April and May of 2001. Can you locate the page that lists the dates for the meetings?

Post-test Questionnaire
- How useful was the Senate site to you?
  (not useful) 1   2   3   4   5 (very useful)
- What did you find the most useful?
- What did you find the least useful?
- Were you able to complete the task scenarios with relative ease?
  (lowest) 1   2   3   4   5 (highest)
- If it was difficult to complete the tasks, what made it difficult?
- How readable are the pages?
- Did the images enhance or inhibit your use of the site?
  (inhibit) 1   2   3   4   5 (enhance)
- How long would you approximate the download time took?
- Was the download time acceptable for you?
(unacceptable) 1   2   3   4   5 (acceptable)

Following the collection and synthesis of the data from the alpha test, the design team revised the site. The usability team prepared task scenarios, pre- and post-test questionnaires, and contacted the Senate to set up times for the Usability Test.

The Usability Test

Each of the five members of the Usability Group, comprised of members of Cheryl's class, was to meet with two faculty senate members. The faculty senate was sent a mass e-mail inviting them to participate in the usability test of their redesigned site. Student users who qualified as potential users—such as persons involved in the Graduate Student Council and Undergraduate Student Government would be asked to participate in the usability test—and would be given pre- and post-test questionnaires, and task scenarios to complete (as would the faculty persons involved in the test).

The questions and tasks are detailed below.

Faculty Users
Usability Pre-test Questionnaire
- How would you rate your computer expertise?
  (novice) 1   2   3   4   5 (expert)
- Do you use your computer for schoolwork or entertainment?
- What do you use the Internet for?

- Do you read online or print Web sites to read?
- Where do you usually use the Internet (home or school office)?
- Do images on a Web site enhance or inhibit your user experience?
  (inhibit) 1   2   3   4   5 (enhance)
- Does your reaction to images on a Web site differ according to what type of site you are using (entertainment versus work-related)?
- What computer platform do you usually use (Mac, PC, Sun, Sunray)?
- What browser do you usually use to view Web sites (Netscape, Internet Explorer, Opera, Lynx)?
- Are you aware that there currently is a senate Web site? Have you ever seen it?

Usability Test Task Scenarios

- You are an MTU faculty member whose significant other wants to go on sabbatical because they have a chance to study volcanoes in Hawaii. They have been granted sabbatical, will you be allowed to go with them and return to your current position and pay?
- What is the current agenda for the next meeting of the Senate you will be attending? Have any of these proposals been discussed in previous meetings?
- You are appointed to the Professional Staff Policy Committee. What is your responsibility?
- At what time did Senate Meeting 340 start?
- Who was the Senate President in 1976-77?
- You want to double-check the meeting dates for April and May of 2001. Can you locate the page that lists the dates for the meetings?

Usability Post-test Questionnaire

- How useful was the Senate site to you?
  (not useful) 1   2   3   4   5 (very useful)
- What did you find the most useful?
- What did you find the least useful?
- Were you able to complete the task scenarios with relative ease?
  (lowest) 1   2   3   4   5 (highest)
- If it was difficult to complete the tasks, what made it difficult?
- How readable are the pages?
- Did the images enhance or inhibit your use of the site?
  (inhibit) 1   2   3   4   5 (enhance)
- How long would you approximate the download time took?
- Was the download time acceptable for you?
  (unacceptable) 1   2   3   4   5 (acceptable)

Staff Users
Usability Pre-test Questionnaire

- How would you rate your computer expertise?
  (novice) 1   2   3   4   5 (expert)
- Do you use your computer for schoolwork or entertainment?
- What do you use the Internet for?
- Do you read online or print Web sites to read?

- Where do you usually use the Internet (home or school office)?
- Do images on a Web site enhance or inhibit your user experience?
  (inhibit) 1   2   3   4   5 (enhance)
- Does your reaction to images on a Web site differ according to what type of site you are using (entertainment versus work-related)?
- What computer platform do you usually use (Mac, PC, Sun, Sunray)?
- What browser do you usually use to view Web sites (Netscape, Internet Explorer, Opera, Lynx)?
- Are you aware that there currently is a senate Web site? Have you ever seen it?

Usability Test Task Scenarios

- You are a transfer student into a graduate program here at Michigan Tech. You are concerned about the number of transfer credits that you have and if you have enough MTU credits to graduate at the end of next year. Can you locate the proposal on which you could find the information you need?
- You are a student in the School of Technology and you have a concern you want brought before the senate. Who is your senate representative?
- Curt Tompkins has announced that he is leaving the university and you want to know who is going to select the new president so you can do some research on the candidates. Is the university senate the right place to go for this information?
- At what time did Senate Meeting 340 start?
- Who was the Senate President in 1976-77?
- You feel that the financial aid policy is unfair for students and they should receive more money to come to school. Which committee should you go to with your suggestions?

Usability Post-test Questionnaire

- How useful was the Senate site to you?
  (not useful) 1   2   3   4   5 (very useful)
- What did you find the most useful?
- What did you find the least useful?
- Were you able to complete the task scenarios with relative ease?
  (lowest) 1   2   3   4   5 (highest)
- If it was difficult to complete the tasks, what made it difficult?
- How readable are the pages?
- Did the images enhance or inhibit your use of the site?
  (inhibit) 1   2   3   4   5 (enhance)
- How long would you approximate the download time took?
- Was the download time acceptable for you?
  (unacceptable) 1   2   3   4   5 (acceptable)

Environment

Multiple levels of tests were done for the redesign of the senate site, and for this report. The first level of testing was an "alpha test," administered in two different locations. Both are places where real users might access the site—one was a professor's office, and the other was the CCLI in Walker 113.

The reason for visiting faculty in their offices to do these usability tests is that the level of comfort, discomfort, and knowledge and availability of assistance, matches the experience real faculty users will have when using this site in the future.

The CCLI is the computer lab for only one department on this campus, and therefore did not place all of the alpha test subjects in the lab where they usually work. Sophomore students from Kara's Revisions class (who are from a variety of departments on campus—only two of which are Humanities students) came into the CCLI to use a Web site with which they were not familiar, in a lab that they may have entered only a few times before, if at all.

Because of the observers of the alpha test, and other users who occupied the lab at the same time, there was a very large crowd on the PC side of the CCLI during the alpha test. Therefore, even though the physical location may have been a "real" one, most likely the level of noise, and the number of bodies at and around the computer interfaces was considerably greater than it will be in real use situations.

The usability test of the fully constructed site took place in the offices and labs of various faculty and staff, and students around campus. Our goal for administering the test in that way was to both place users in comfortable environments—and "real" ones—and also to have the users view the site from whatever browser they ordinarily use. Because fonts and colors can change depending upon the browser used, our test required that the site be tested from many different browsers. The CCLI offers Netscape, Opera, and Internet Explorer as browsers. The other labs where tests were administered use systems such as: Sun and Lynx.

Context of Use

Users of this technology need information from the site such as meeting agendas, minutes from those meetings, by laws for the senate and biographies of the senate members. Often users will access the site from their personal computers, which could host a variety of browsers, meaning that the site must be readable from all types of browsers, and several different modem speeds. Dr. Keen mentioned that senate members occasionally access the site from remote locations when on business trips, where they might use slower modems.

Another person we wished to address with this usability test is the Web coordinator for this site. This position could be a revolving one, where explicit organization is required for consistent maintenance throughout changing coordinators.

Graduate students who are members of the Graduate Student Council are the most likely graduate students to access this site, and are likely to do so from either their labs on the MTU campus, or perhaps from home and their personal computer. GSC members would likely be interested in following decisions made by senate members that will impact the life, research options, and funding of graduate students. As representatives of all graduate students, GSC members would read meeting minutes to look for issues discussed, motions passed, and upcoming events where graduate student input should be considered.

As a part of the general university Web site, the University Senate site is representative of the image the faculty wishes to present to the public. Anyone doing research on becoming a faculty member of MTU might look at the senate site to gain an understanding of the nature of faculty life here. Therefore, they might not have general knowledge of the local area here, nor the relevance of issues discussed at meetings. However, since main users of this site include members of the MTU campus, it is likely that most users will access the site from campus computer labs, private offices on campus, or from home computers.

User Motivation

The University Senate site was created in 1992 to make the minutes, by laws, proposals, and other information, more readily accessible to not only members of the senate, but also other persons who would not be on mailing lists for minutes, etc. Additionally, senate members can access the site from remote locations at any time, which saves them the trouble of transporting documents when traveling to conferences, vacations, etc.

At any time now or in the future, the database of decisions made, motions passed, proposals accepted or denied, etc., will always be available to all interested persons. Paper files don't have to be kept by each senate members; since the membership is constantly changing, there is also no shuffling of files within departments when the representatives change.

Since faculty members are the target audience for this site, and all faculty members have access to a computer with Internet capabilities, there are not problems with accessibility to this site.

Results/Data

Our alpha test generated the first set of data, and the usability test the second. The results will be discussed in that order, because the results of the first test affected those of the second. The following section will discuss whether or not either test was successful.

The Alpha Test

The test conducted in the CCLI and a faculty office generated many suggestions for how to revise the site prior to the usability test. Although each person had individual comments, at least two people made responses similar to the following points:

- Get a search engine feature on the site
- Fix the dead links
- Do something about new windows opening
- Change the ugly picture of "Wadsworth Hall"—which was actually the M&M building
- List the meeting numbers and years
- Keep the navigation on the left side of the page

A Search Engine

A sophomore student observed completing the task scenarios struggled to locate specific information on the site, and "kept using Netscape's 'Find on Page' search feature, but that didn't work too well."

Dead and confusing links

Several of the links were not coded with the correct information (such as meeting minutes from 1998-99) and thus could not be accessed. Not only could the links not be activated, but the only way to back out of the dead end was via the "Back" button provided by the browser. Several users indicated that the site should include internal links connecting users back to where they had just come from, Home, and to other locations in the site. Proposal links seemed to have the most trouble. Users stated that if links were not links, the words should not be underlined.

Additionally, some of the text that appeared on the left side of the page was thought to be links, but was not. One user found that he sidebar was not consistent "when clicking on different main links links."

The test participants asked us to clearly differentiate between links and non-links. Also, the "vlinks colors" should be set so that browser defaults don't determine the color—which might be "ugly."

Meeting Numbers and Organization

The tables where the meetings are listed are not numbered, but should be, according to several users. Some users stated that separating the meetings by the years that they happened was unnecessary. Users felt that information would be found by content, such as intent to injure, and thus, the organization should reflect that method. A long page with a search function was suggested by several users.

Proposals

This section of the site was the most problematic. Several users were unsure of what this section was for, and requested a description at the top of the page. (At the same time, several users thought a description of each section of the site would be helpful.) The links between the various proposals were also non-existent, which caused confusion and frustration for several users, as observed by the design students.

New Windows Popping Up

Users were confused by the inconsistency of when new pages would open and when they wouldn't. For instance, within the Proposals main page, the documents for specific years kept opening on top of that main page. No link existed to go back to the main page, nor could the user click between the main page and the specific year's page from the bottom control panel at the bottom of the browser screen. The page to

the right and above is the page that opened on top of the original page; users did not know they could close this page by clicking on the "x" in the top right-hand corner, and would then be taken back to the previous page.
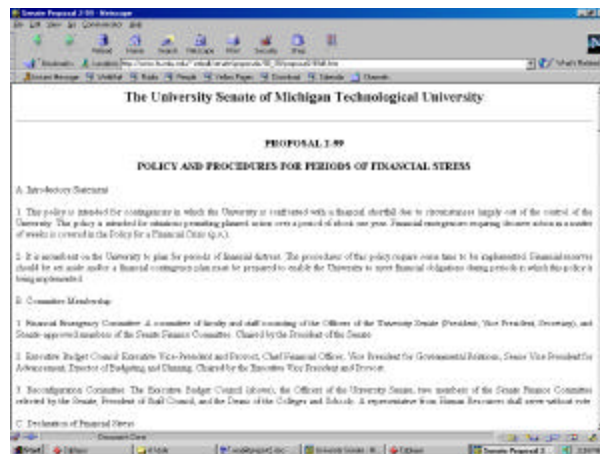
Some users found the new windows useful for printing purposes, but were frustrated by having to close so many windows.

Post Alpha Test Revision

Following the Alpha Test, the design team returned to their work and revised the site in light of the request for change made by users, and the problems found by users during the alpha test. The main page for of the site as it appeared for the beta, or final usability test, looked like this:
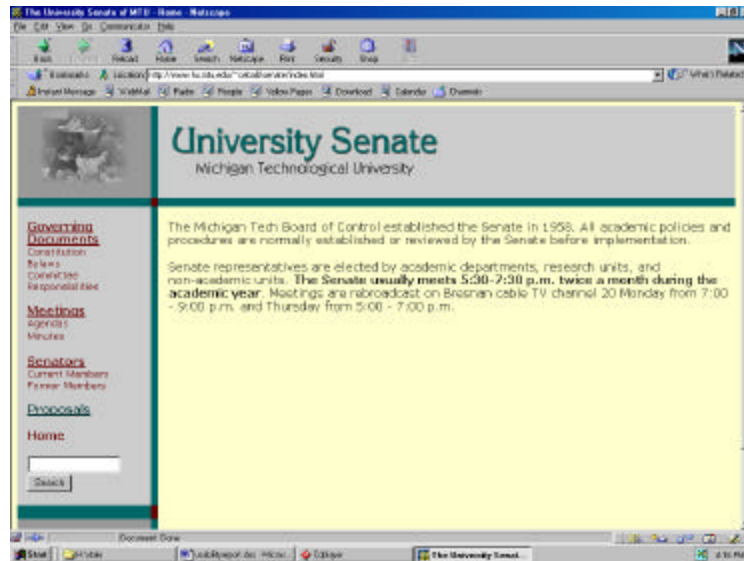
The Final Usability Test

The Usability Team contacted the Senate and requested members who were willing to participate respond and signify their interest. When no one responded, each of the five members of the design team contacted either faculty or staff with whom they had a good relationship and could convince to participate in the test at a busy time of the year, and on short notice. The task scenarios then had to be revised to better reflect the activities staff members would do when using this site.

Faculty User Responses

The responses to the final test were varied. One professor in the school of business rated the site as not useful, and could not find much of the information the task scenario required. Another professor in that department—who is also a current senator—found the site easy to navigate and full of useful information. Both rated their computer use experience as average, use the Internet for both business and pleasure, and read both on-line and from printed screens. Others had similar and different experiences. All will be discussed below.

Novice User

The novice user who participated in the beta test stated that computer use was generally work related, documents were printed not read from the screen, and images on a site enhance a user's experience. This user did not know that there was a senate site, and following the task scenario sequence found the site useful (rated the site a 3 out of 5 for usefulness). Most useful were the list of representatives and the minutes from meetings. This user remarked that a lack of experience hindered the experience she had with the site—and did not state that the site design/structure made use difficult. The download time was rated as quick and acceptable. The least useful elements of the site were "specific

documents"—the user stated that the search engine did not find "injuries" or "liability."

Users with an average amount of expertise

This group of users all cited the same amount of computer expertise, however some read online, while others print; some use the Internet for information and shopping, while others cited work or research as their primary reason for using the Internet; none cited a different reaction to images, depending on whether the site is work related or not. Only one user was not previously aware of the senate Web site.

Of the three faculty users who were tested in this category, only one found the site very useful. The other two found locating specific information a difficult task, even though the pages were readable and loaded quickly. The search engine feature was noted as the most useful feature, but that user still found locating information a difficult task. Another user noted that the sections on policies, subcommittees, bylaws, agendas and proposals were the most useful. None were entirely pleased with the site, because either the information was difficult to find, or the information was outdated.

Staff User Responses

Four staff members participated in the test; three rated themselves as just above average in their expertise, while the other was a self-described novice.

Above Average Expertise

Those users who declared their expertise as above average rated the site as a three out of five for its usefulness. They each listed a different element as the most useful: the home page, the senator listing, and the search function (a faculty user also noted the search engine as the most useful). For least useful, they noted the proposals and the picture in the upper left hand corner (that same user noted that images were an enhancement of the site). All found the readability of the pages to be good.

One user had difficulty opening one of the pages for their task scenario, but otherwise the pages opened quickly for each user, and all were pleased with the load time.

None of these users had particular problems with or suggestions for the site.

Novice User

This user cited schoolwork, such as working with students on research assignments or doing research on student disabilities, as the primary reason to use the Internet. This user was not previously aware of the senate site; reads both

online and from printed sites and finds that images do an average job of enhancing a user's experience.

This user found the site useful; the menu was the most useful part. Tasks scenarios were completed with relative ease, but the user did note that a significant amount of time was spent finding the specific information. (However, the time spent did not seem to affect the user's rating of the ease of use.)

The download time was acceptable, the pages readable, and the user did not notice images on the site—thus did not respond to whether or not the images enhanced the user's experience.

Student User Response

One student user participated in the beta test; the user noted expertise at above average. Schoolwork is this user's main reason to use the computer, although on rare occasions, entertainment purposes require the computer. The Internet is used for referencing material, obtaining data, transferring information and for correspondence. This user reads online 98% of the time. This particular user noted a significant amount of interest in administrative activity at the university because of this user's position on an undergraduate council.

This user found the site useful; however, she would have liked to know who is on what committee by both committee groups and by individual name. The proposal listings were the most useful, as were the senatorial lists. This user rated the ease of use at a five out of five, and stated that the likelihood of returning to the site is high. Readability was acceptable.

Recommendations

The data collected from the alpha test was useful for the design team from the Intro to Web Design class; because of time constraints, the data collected from the beta, or final test, will be given to Bob Keen and the Webmaster for future improvements and maintenance.

Four final recommendations for enhanced usability are as follows, and are explained in better detail below:
- Make sure all content is provided where there are links. (Likewise, make clear what are links and what are not.)
- Add a textual explanation of the search function for novice users. Also, add an advanced search option.

- Add text to inform users that proposals will open a new page—for ease of printing—that can be closed to send the user back to the previous page.
- List the members of each committee.

The search engine was the feature most often cited as being the most useful by both expert and novice users. As stated at the outset, locating information is the function of this site, therefore a useable search function is crucial for all users to find what they are looking for in a timely fashion.

If users cannot find what they need quickly, as one user stated during the alpha test, they will resort to calling Bob Keen and asking him for the information they could not find. To make Dr. Keen's life easier, as well as the lives of all users of this site, the above recommendations should be considered and applied to the site. More usability tests should be administered throughout the future as technology continues to evolve, which if used/designed properly, can make the lives of all users even better.