Library Web User Survey – Designing Online Access

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Abstract

This paper is a revision of the report prepared for the Web Development Committee as summary of the Library Web User Survey conducted in March 2001.

The Web Development Committee of the Carnegie Mellon University Libraries conducted a Library Web User Survey in March 2001 to generate information that would support the redesign of the Library's web site. Provided as an electronic as well as paper and pencil survey, the survey totaled 367 eligible responses.

The results of the Web User Survey, though indicating no major problems, suggested that a revision was in order. The problems indicated by the responses focused on the front-page layout, locating information and navigating the site, and the Cameo search engine and interface. Respondents also requested the addition of new features and links. Recommendations for redesign efforts would emphasize reorganizing and re-labeling links, featuring the reference and student services links on the home page; providing a global navigation bar and footer; providing a logical movement through the site; providing a site map; improving the functionality of the "Search this Site" link, increasing the visibility of the online librarian assistance; creating a simple, uncluttered, visually pleasing design; and adding some of the new features and links that have been suggested by users.

Introduction

Background. The services provided by academic libraries have extended well beyond those offered at an on-site facility. With the number of online journals, books, materials, services, and search options continuing to increase, off-site use increases. Over 60% of students at Carnegie Mellon are conducting their research in areas outside the library. The web site has become a significant aspect of the libraries and the services they provide. Therefore, the design, usability, and functionality of the web site are critical if the libraries are to continue providing essential services to its patrons in a timely and efficient manner. For this reason the Carnegie Mellon University Libraries are currently reviewing the design of the web site and seeking feedback that can provide a basis for improving the site to meet the needs of the patrons. Though a number of different methods will be used in the process of redesigning the site, this study focuses on a preliminary survey to determine the general strengths and limitations of the current web site to support redesign decisions. The goal of the survey was to generate information about reasons for use, navigation, visual elements, search options, databases, usability and functionality.

The survey. The survey was self-administered as a paper and pencil design and an electronic version was available via the Libraries' web site. As an incentive, a $50 Cash Drawing was offered to participants. Participants were self-selected from a pool of all Carnegie Mellon students, staff, and faculty members. It was reasoned that by making the survey available both on-site and via the web site, the survey respondents would be those most likely to use both the libraries' resources and the web site, therefore most likely to provide the most relevant and useful feedback.

The survey consisted of 21 items. Four items were multiple choice and used to collect information that described users. Sixteen items used a five-point scale rating reasons for use, navigation, visual elements, search options, databases, usability and functionality. A final item was open-ended and provided the opportunity for participants to offer suggestions. Of the 367 eligible surveys, 90% were electronically entered.

Participants

Over 80%, of participants were students, almost evenly represented by undergraduate students and graduate students, as shown in Figure 1. This is probably consistent with the users of the web site. It is important to design a site that is relevant to the research interests of the graduate and undergraduate students. It is also important that further usability studies evenly focus on these two groups, though interests of staff and faculty, also represented in this study, should also be included.
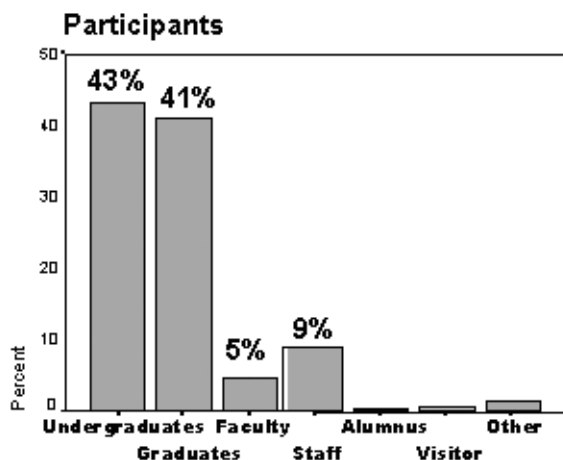
Participants

Figure 1

should be consistent with both browsers to enable consistent visual and textual display for the majority of users.

How did you find the site?

Figure 3

Frequency of access. Over 78% of the participants visited the site frequently, either daily or weekly as shown in Figure 2. Over half of the participants used the site on a weekly basis. Looking at the user groups, undergraduates visited the site slightly more than weekly, while faculty/staff were the least frequent visitors, slightly less than weekly. Though it will be necessary to provide easy access for infrequent users or newly incoming students, the site must also be applicable to continual use by providing a means of getting to the most used links quickly. Frequent users will have time to become familiar with favorite links. A site designed only for infrequent users can become boring and even annoying to more frequent users who might prefer some of the shortcuts to familiar sites.

In the last six months how frequently have you visited the Library's web site?
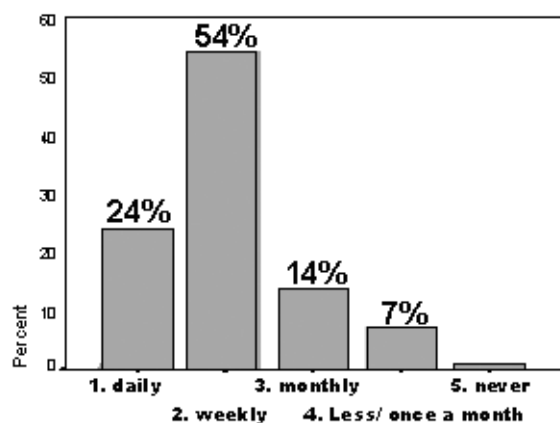

Figure 2

Accessing the Site

Browser. Nearly all participants (99%) reported using Internet Explorer, Netscape or both to access the site. Slightly more reported using Internet Explorer (42%) than those using Netscape (33%). About 24% reported using both. Development language and conventions
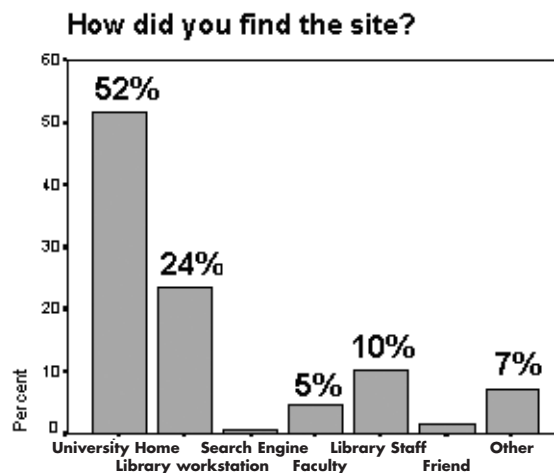
Finding the site. Over half responded that they found the site using the Carnegie Mellon University Home Page (Figure 3). This is interesting because the Libraries' web site is not a direct link on the Carnegie Mellon home page. Respondents had to use the search option or one of the other links to locate the Library site. This might be a good argument for adding a direct link on the University's home page for the Libraries. Not surprisingly, the second most frequently used method was a Library Workstation (24%). The University Libraries have an icon on the screens at each workstation. The other 25% reported finding out about the site from staff, faculty, word of mouth, handouts, orientation, workshops, and classes.

Table 1: Frequency of Use for Site Areas
Rating Scale 1 to 5 with 5 as the highest rating.

Use the web site for...	Average
Use the web site for reference	4.26
Use the web site for information about services	2.99
Use the web site for libraries' hours, etc.	1.85
Use the web site for information about staff, etc.	1.78

Total participants – 367

Frequency of use for the site areas

Four items rated which areas of the web site had the most use. The current Library Home Page has four main sections: 1. *Resources* includes links to the Library's online catalog and other reference links; 2. *Services* includes links to the Library's interlibrary loan, tutorials and other services; 3. *Information* includes links to "What's New", library hours, etc; and 4. *Organization* includes links about staff, the library organization, etc. Though all of this information might be important to include on the web site, the responses

from these items can help to determine the emphasis on links, sometimes established by positioning, color or font size. Table 1 shows the average of the responses for each of the main areas of the site. The reference area, with an average rating above 4 (5 point scale), is used most frequently.

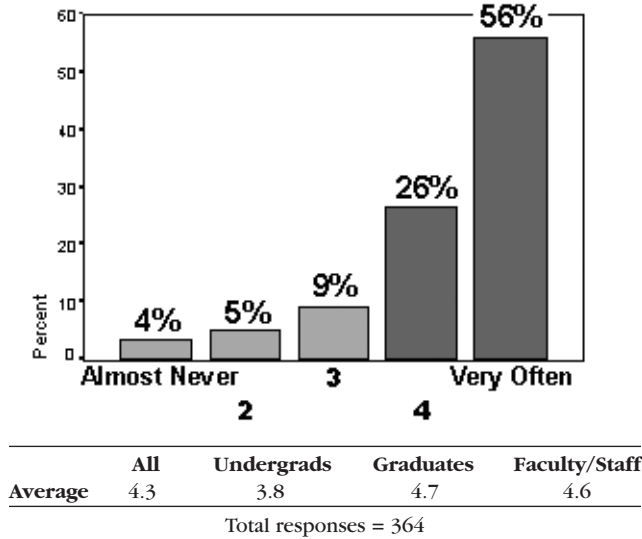**For accessing library catalogs, reference materials, full-text journals…**

	All	Undergrads	Graduates	Faculty/Staff
Average	4.3	3.8	4.7	4.6

Total responses = 364

Figure 4

Reference links. Over 80% reported using the reference areas at above average rates, while nearly 60% reported using them very often (Figure 4). Referred to on the current web site as *Resources*, this section includes links to the Libraries' online catalog to library materials, the databases, and the full-text journals and newspapers. Undergraduate students accessed these areas slightly less than other user groups though they still indicated frequent use. Graduate students reported the most frequent use. Responses indicated that the reference links should have the greatest emphasis on the front page.

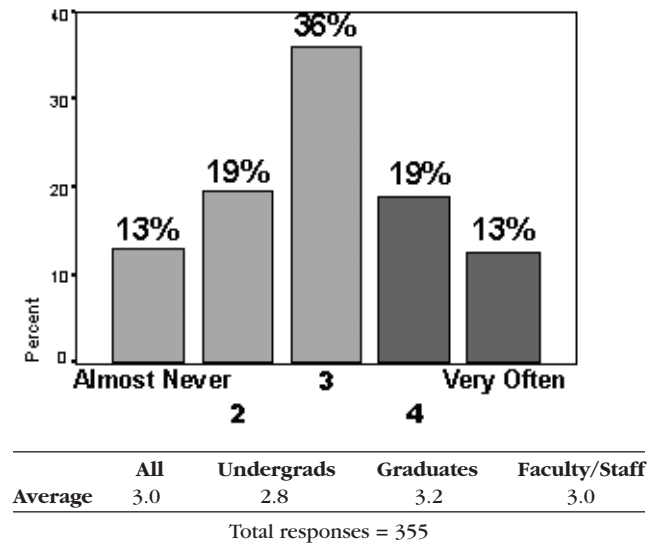**For general information about services: reference, borrowing, reserves…**

	All	Undergrads	Graduates	Faculty/Staff
Average	3.0	2.8	3.2	3.0

Total responses = 355

Figure 5

Services links. Only 32% reported using the services section at above average rates, considerably less than the references (Figure 5). Over 60% reported visiting this section at average or above average rates. This section includes links to information about services such as reference, borrowing, reserves, tutorials, access to the Libraries' interlibrary loan and journal article delivery, and others. Again, graduate students accessed this section most frequently, slightly above average in frequency. These ratings indicate slightly less emphasis on the web site for the services links.

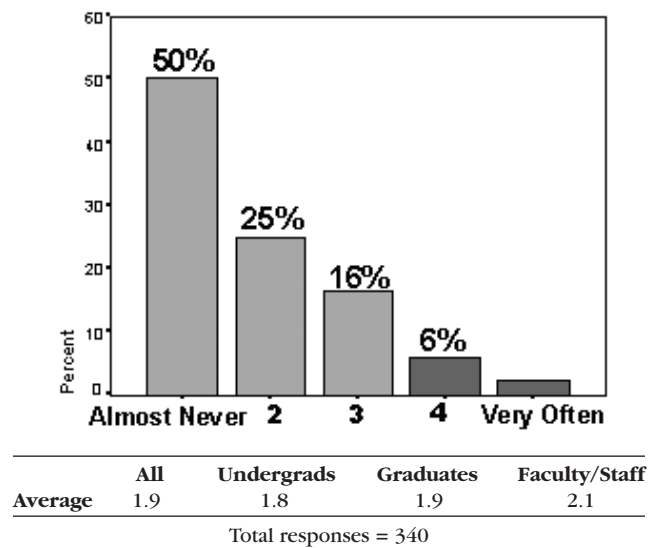**For libraries' hours, job opportunities, copyright information, "What's New"…**

	All	Undergrads	Graduates	Faculty/Staff
Average	1.9	1.8	1.9	2.1

Total responses = 340

Figure 6

301

Information and Organization links.
Approximately half of the respondents reported that they used the two other areas, Information and Organization almost never (Figures 6 and 7). These sections include links to such information as the Libraries' hours, job opportunities, copyright information, archives, and the staff directory, and they're not directly related to library reference services. Though the links might be an important part of a web site, they're visited infrequently. The web designer might want to consider treating these links with less emphasis by using positioning or font size or include as secondary links on other pages in the site.

For information about staff, archives, the Carnegie Mellon Libraries…

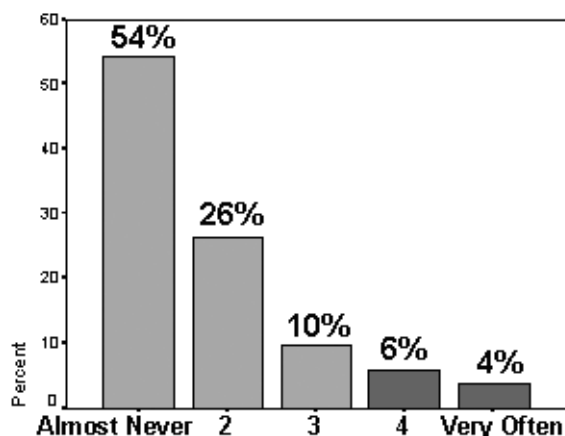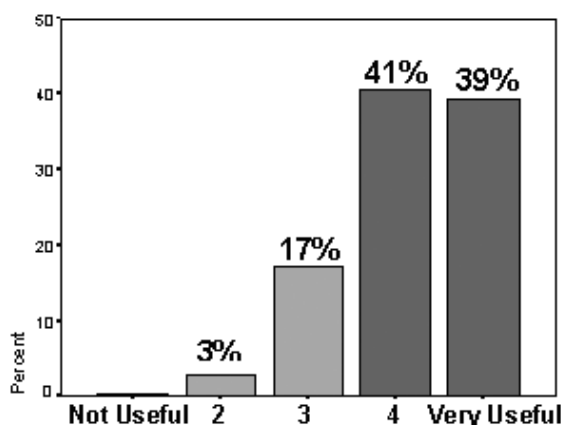|	All	Undergrads	Graduates	Faculty/Staff
Average	1.8	1.6	1.9	2.1

Total responses = 322

Figure 7

Value of the information

While the four items previously discussed determined which areas had the most frequent use, the next two items rated the quality of the information available on the site and how well the site supports the research of respondents. Responses on both items indicated an above average level of usefulness.

The information offered on the web site is…

	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	4.2	4.0	4.3	4.3	3.8

Total responses = 362

Figure 8

Usefulness of information. Over 80% responded that the information is above average in usefulness and above average in its ability to support research (Figures 8 and 9). These ratings are strong support for the value of the information, however, the group of occasional users responded with a slightly lower rating than other user groups on both items. They might be unaware of all of the information that is available on the site. Frequent users might have had more opportunity to explore the site and find information more appropriate to their needs and useful for their research. Further user testing would be necessary and interesting to determine how much or what information is being described and what information sources are actually being utilized.

How useful is the web site for your research?
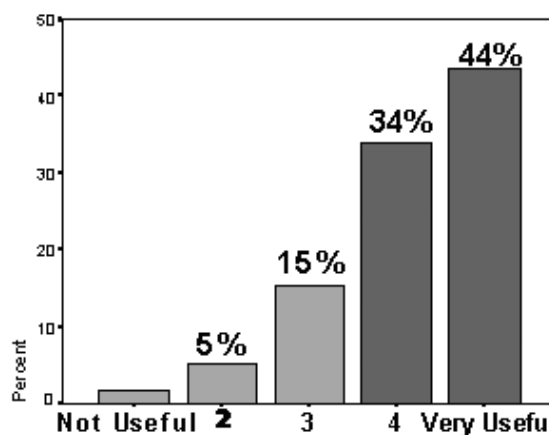
	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	4.1	3.9	4.3	4.3	3.7

Total responses = 346

Figure 9

Links. Links to outside information were also rated by more than half of the respondents (54%) as above average (Figure 10). Though very few respondents rated this item as below average (11%), about 35% rated it average. The ratings fluctuated slightly among user groups, with the lowest rating from occasional users. The results might indicate consideration in evaluating the current links that are provided and looking into providing additional links for outside information. Only about 15% responded that it was "not applicable" suggesting that the links are being used, though the lower rating from occasional users might indicate that they haven't yet had the opportunity to explore available links. Again, further testing would help determine which links are most valuable.
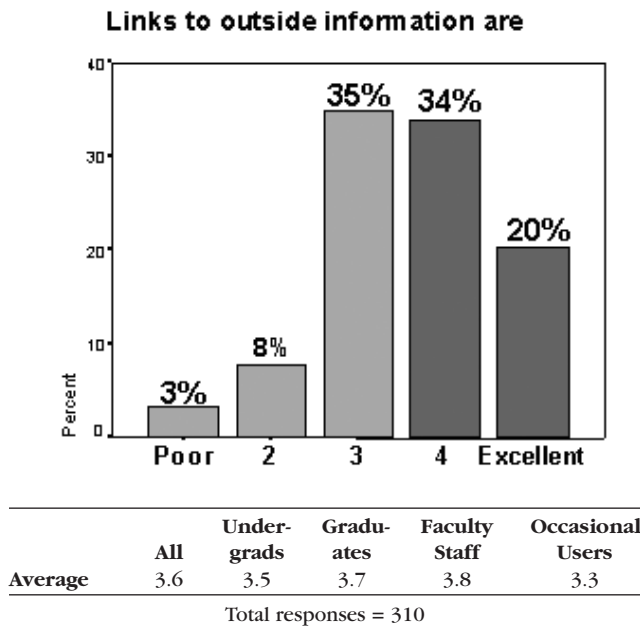

Links to outside information are

	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.6	3.5	3.7	3.8	3.3

Total responses = 310

Figure 10

Presentation – textual and display

The manner in which the information is presented can affect the site's usability. The next two items were designed to rate the presentation of the information. Participants were asked to rate the vocabulary and also the visual display.

Vocabulary. Approximately 80% of the respondents rated the vocabulary as above average in clarity (Figure 11); over 40% rated the vocabulary as "very clear". The results were fairly consistent among the user groups including the occasional users. No apparent problems are indicated for the respondents in the survey, however these results should be interpreted cautiously. Vocabulary should not be confused with labeling or category headings. Some users indicated some confusion about the labeling, for example they said:

"Provide short descriptions as to what links do when it's not immediately obvious from the title"

"Some of the terms used are too close in meaning to others. It's hard to keep them straight."

To further rate the vocabulary and labeling, individual interviews or user tests with participants who are less familiar with the current web site can help to identify specific problems areas.
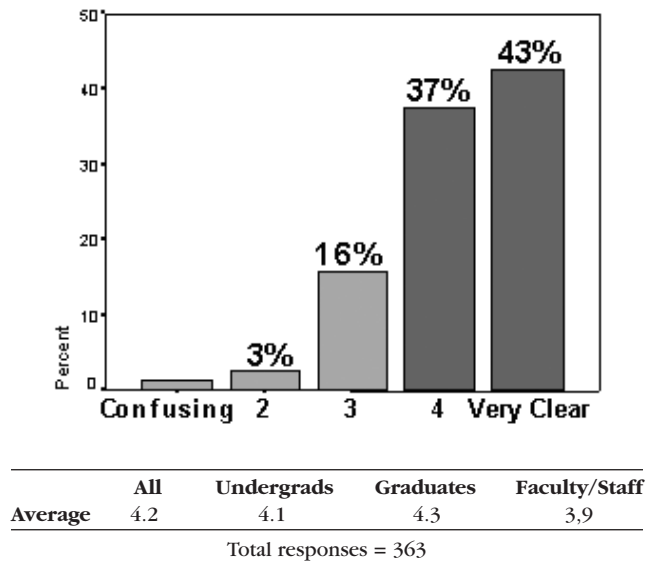
The vocabulary on the web site is

	All	Undergrads	Graduates	Faculty/Staff
Average	4.2	4.1	4.3	3,9

Total responses = 363

Figure 11

Visual Appeal. Only 40% of the respondents rated the visual appeal of the site as above average while approximately 60% rated it at the average or below average level (Figure 12). The results were fairly consistent among user groups with the average rating fluctuating around the midpoint (average appeal). Though no serious problems are indicated, only 21% rated it as below average in visual appeal, the ratings indicate that the front page might benefit from revision that focuses on a simple, clear, uncluttered design. Strong consideration should be given to reducing the number of links. For example, many respondents commented that it was too cluttered and poorly organized saying, "[I] don't think a more interactive, fancier web page is more helpful than a simple but reliable one."

The visual appeal is
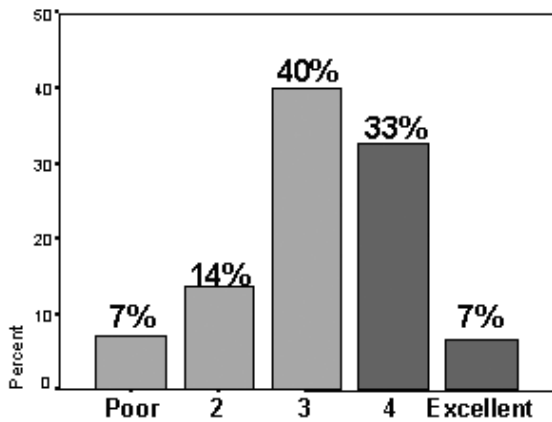
	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.2	3.0	3.4	3.1	3.0

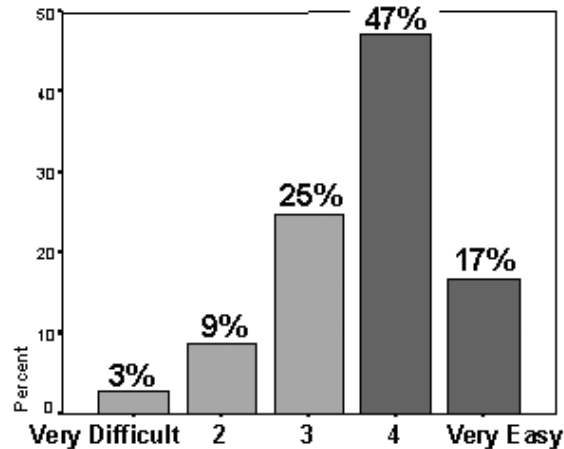Total responses = 363

Figure 12

Finding information on the site

Finding information. The majority (64%) rated find-ing information on the site as above average, though only 17% rated it as "very easy" (Figure 13). Though less than 12% felt that it was either "very difficult" or "below average", most of the respondents were fre-quent users of the site. The responses by the occasion-al users are slightly lower than for other user groups. Users who are less familiar with the site and first time users might have more difficulty. Many comments indi-cated that users are having trouble finding information:

"there is just too much information and one becomes really frustrated to think where to start from"

"Frequently I find myself looking for something in a wrong place…"

Finding information that I need on the web site is

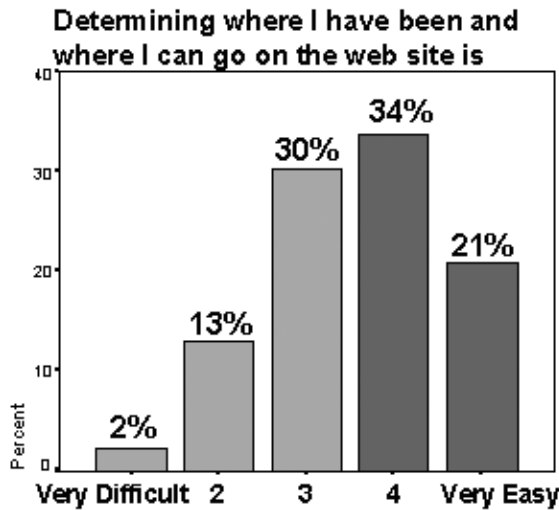|	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.7	3.6	3.7	3.7	3.4

Total responses = 364

Figure 13

Navigating. Though the majority (55%) rated navigat-ing through the site as above average, nearly half rated this item as average or below average (Figure 14). Respondents seem to be having a little more trouble "determining where I have been and where I can go". The rating for occasional users was slightly lower. Ratings and comments suggest that revision efforts focus on improving the navigation:

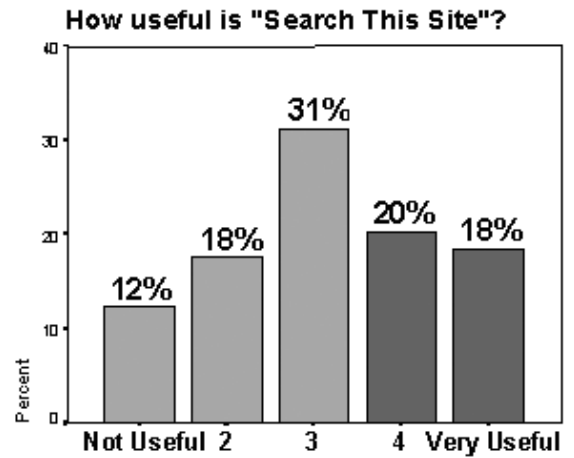"Links do not interact well within the site, therefore making it difficult to navigate and find information."

"I'm also not always able to go back to the pages where I began an initial search, I get stuck in a loop…"

Determining where I have been and where I can go on the web site is

	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.6	3.4	3.6	3.8	3.4

Total responses = 347

Figure 14

How useful is "Search This Site"?

	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.2	3.1	3.1	3.2	3.1

Total responses = 347

Figure 15

Search. Only 38% of respondents rated "Search This Site" as above average in usefulness (Figure 15). The average for user responses hovered around the mid-point. This was consistent across all user groups. An almost equal proportion rated this item as below average. These ratings indicate that if the "Search this Site" option is to be useful, it will have to be revised. Also important is that approximately 30% rated this item as "not applicable". This could indicate either that respondents chose not to use this "search" option or were not aware the option was available. Again further testing could provide some insight, but consideration must be given to making it more visible and more useful. One option is to provide a site map to improve the user's ability to find information. These sentiments were echoed by some of the respondent's comments, "…it would be helpful if there was a small site map explaining where to go for what."

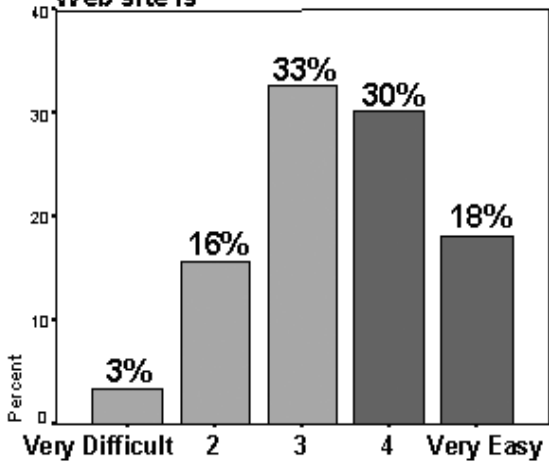### "Ask a Librarian"

The Library web site provides an option called "Ask a Librarian". This option provides an opportunity for patrons to receive help from a Carnegie Mellon librarian using the "real-time" chat service or by sending an email to a librarian. One item rated how well users could find the option and the second item rated the usefulness of the service.

Finding assistance. Approximately 48% rated "Finding librarian assistance" as above average in level simplicity (Figure 16). Respondents seem to be having more trouble finding this option than in using the service. The average of all responses was closer to the mid range. This rating fluctuated among user groups with faculty/staff and graduates' responses slightly above the group of occasional users. Apparently it is more difficult for inexperienced users to find. Many users failed to rate this item. These ratings strongly suggest that users might not be aware of this service and the "Ask a Librarian" option might be more useful if it were more visible on the web site and easier to find.

Finding librarian assistance on the Web site is

	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.4	3.3	3.6	3.6	3.2

Total responses = 205

Figure 16

"Ask a Librarian". Approximately 61% rated the "Ask a Librarian" option as above average in usefulness (Figure 17). Most users reported that this option is useful or very useful, occasional users rated the item somewhat lower. More significantly, over half of participants failed to rate this service. This can indicate that they're not aware that it is available or that they don't know exactly what services are provided.

Librarian assistance on the web site
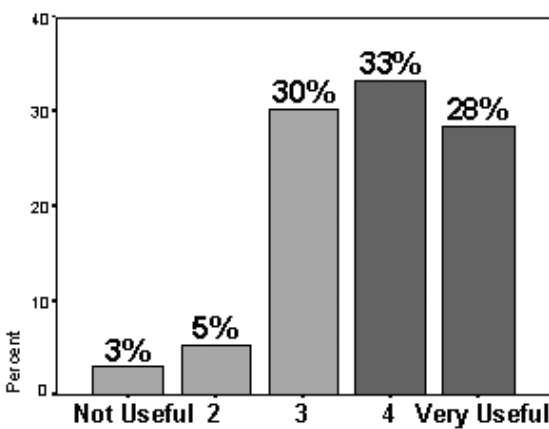
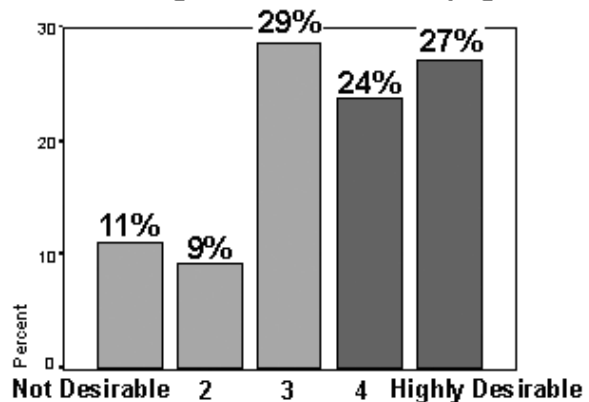|	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.8	3.6	3.8	4.0	3.4

Total responses = 172 (475 of participants)

Figure 17

Customizing the site

Approximately half of respondents expressed an above average interest in the option to customize or personalize the site (Figures 18 and 19). Two items asked participants to rate their interest in some form of customization of the site. The first item asked about providing an option for users to customize a web page with preferred links, while the second focused on providing a site that is designed for specific user groups. Though respondents seemed to be indicating some interest in customization, these results, should be interpreted with caution because the descriptions are general. Specific designs for personalization would be determined useful and desirable only after additional testing of specific design options.

Providing an interactive Web page

	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.5	3.2	3.6	3.7	3.3

Total responses = 324

Figure 18

Providing a version of the Web site for specific user groups
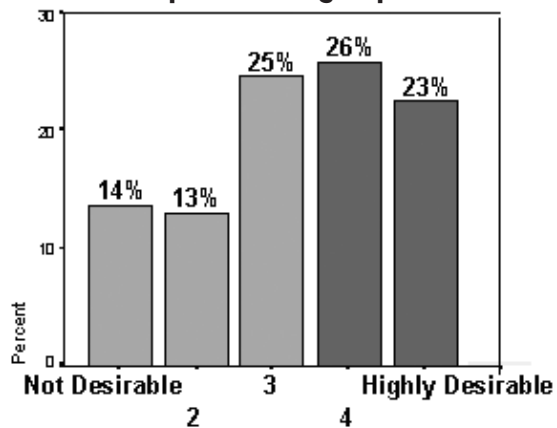
	All	Under-grads	Gradu-ates	Faculty Staff	Occasional Users
Average	3.3	3.4	3.3	3.4	3.3

Total responses = 337

Figure 19

306

Suggestions

The final open-ended item provided an opportunity for participants to offer suggestions and comments. These are categorized based on key areas that are summarized in Table 2. All of the feedback generated through the suggestions, of course, should be considered in the context of the whole system. Some are the opinions of a few and might not represent the views of the majority. Some, however, are repeated often and would be important considerations for a redesign effort. These key areas are summarized below.

Table 2: Suggestions – Library Web User Survey
Total respondents – 130 or 35% of participants
Total response areas – 180

Area	Number	Percent	Comments
Cameo	32	18%	Cameo - Library's online catalog
Front page	26	14%	Links, labels, layout, organization
Finding information	25	14%	Finding information, navigating
Satisfied	18	10%	What they like about the site
New features	18	10%	New options, features and links
Journals, databases	14	8%	Searching, listing, and descriptions
Collections	12	7%	New materials and online collections
Miscellaneous	12	7%	A assortment of suggestions
ILLiad	9	5%	Library's inter library loan service
Links	5	3%	New links
Aesthetics	5	3%	More visually pleasing
Technical	4	2%	Technical suggestions
Total	180	101%*	

*Will not sum to 100% due to rounding error.

Front Page and Finding/Navigating

As mentioned previously in this report, a few areas received a great deal of attention from respondents. About 28% of comments were about the design of the front page, finding information, and navigating. All relate to similar problems. Respondents expressed difficulty moving from the front page to a location in the web site that has the information that they want and also moving within the site. Many of the comments referred to the multitude of links and the difficulty in understanding their meaning. And others commented on the difficulty of moving through the web site from one page to another and still being aware of where they are and how to get back.

Cameo, the online catalog

The online catalog to the Library's holdings, Cameo, received a great deal of attention from the pool of suggestions. Respondents expressed frustration with several aspects of the catalog including the search engine, the interface and results list, and requested new features. Most of the attention (22 responses) was focused on the Cameo search engine with criticisms about the lack of appropriate results, inability to do Boolean searches, and poor operation of the search engine, even though some of these options are currently available. For example, comments included:

> "I often finding myself struggling to find even books I know the authors and titles for!"

> "Searching for books should be made less confusing. I should be able to use Boolean searches."

They commented that the terminology was difficult to understand and requested options to change the number and display of results.

Satisfied with the site

About 10% of the comments expressed satisfaction with the site as it is. These are users who know how to navigate the system and find what they want.

> "I am impressed with the plethora of electronic resources available on the website…"

> "I also find the 'ask a librarian' feature intriguing…"

Of course everyone has their favorites.

> "I love the Hunt! The Third Floor Librarians are superstars (Gloria and Geraldine)."

New features

Approximately 10% had suggestions for new features, options, or links to include in the web site. Some suggested including options to customize their space, adding a place for suggestions on the web site, adding abstracts of books, adding a materials request page. They also wanted some additional links such as to other top colleges, for feedback/suggestions, and a link from Carnegie Mellon home page to the web site.

> "…create a material request page for books/cds/whatever…"

> "Group sites for business school students (company research)."

Online database, full-text materials

Many requested more online databases and easier access to those available. Some requested the ability to

search over several online catalogs. They also requested better access to a list of those available and better definitions or descriptions of databases.

"More full-text articles online…"

"I would like the library to subscribe to better biography index-type databases."

"Simple, short description of each of the databases for searching articles."

Other feedback

In addition to making some suggestions for improving Illiad, respondents requested better feedback regarding requests, a more user-friendly system, and faster responses. Some comments referred to technical difficulties, problems with web availability, use of databases at home, and browser defaults. Some suggested making it more aesthetically pleasing by using more color and graphics. Additional miscellaneous feedback included some of the following comments.

"More training to students, ideally without using class time."

"Continue to work with HCI, MAPW, and/or Design classes to evaluate and improve site."

"Improve the login processing for book renew

Recommendations

Many of the following recommendations relate to several different categories; for example, "consistency in design and labeling" listed under front page is also an aid to navigation. These will be listed in only one category, however. Many of the suggestions listed below are consistent with the principles of Jakob Nielsen.

Recommendation: Prototype

Design a prototype and focus on an iterative process of development with user testing that evenly consists of undergraduates and graduates with minor representation from faculty/staff. Include inexperienced users.

Recommendations: Front page – visual appeal

- Focus on a redesign that is simple, uncluttered and contributes to a clearly functioning site.

- Focus on student interests with links in reference areas and student services emphasized.

- Treat the "Information" and "Organizations" areas with less emphasis (smaller font, less prominent on the page) or eliminate links from the front page.

- Use colors effectively and consistently in the navigation bar and footer throughout the site as well as with the links and labels. Use colors, fonts and positioning to draw attention to areas or information on the page.

- Use a consistency in design, labels, and buttons throughout the site to provide a cohesive site that is both visually pleasing and easier to navigate.

Recommendations: Finding information

- Reorganize and re-categorize the links on the home page. To create a simpler design, links can be limited to major categories of frequently used areas related to reference and services and create secondary links as subdivisions for other links (information and organization) or included but with less emphasis (smaller font, less prominent part of the page).

- Reevaluate the labels to make them clearer using vocabulary consistent with user's own. Group by content.

- Continue user testing regarding the organization of the links and the labeling.

- Provide a global navigation bar and footer for a more cohesive look and feel to the site and to ensure that users can always get "home" and avoid "getting caught in a loop".

- Provide a site map displaying an overview of what information is available.

- Improve the functionality of the "Search This Site" option.

- Make the Librarian Assistance, "Ask a Librarian" link available at all areas of the site preferably on the navigation bar and more prominently displayed.

Recommendations: Cameo search and interfaces

- The Library might have little, if any, ability to change the catalog's search engine. However, other methods might prove helpful. Librarians currently recommend search terms words, and offer advice on how to find information in workshops and online. To make this service better known and available, it might be helpful if the "Ask a Librarian" feature were easily accessible on the Cameo interface with new labeling e.g. "Need Help With a Search".

- Examples of Boolean searches might be included on the Search interface

- The "help" section might also include definitions of terminology used in the bibliographic descriptions and some clues as to how to find the materials that are desired.

- Continue to focus on using the search options in workshops.

Recommendations: New features

• Add links that were suggested by respondents when possible e.g., suggestions for new databases, books, or materials; top colleges; materials request page; feedback/suggestions; group sites for business school students

• Provide a dedicated space on the front page for "What's New" features.

• Provide an email feature that alerts users to new information or features. This might operate something like a brief newsletter or bulletin of new features, books, links, or even feature services that the site already offers, but might be little known.

Recommendations: Online database, full-text materials

• Increase the number of online databases and full-text materials.

• Make available databases more obvious to users and easier to find by using color and font size to subject headings.

• Provide a list of available journals in addition to using Cameo to search for materials.

• Though descriptions for journals are available, they require an additional click to access. Providing short descriptions with a "more" button where necessary would place the information on the same page.

• By making the "Ask a Librarian" option more readily available, librarian help would be more accessible and questions regarding the Library's collection and resources easier to ask and answer.

Recommendations: Customization

Consider a form of customization or personalization for the site and test with users.

Conclusion

In general the survey revealed no major problems with the Library web site. However many ratings, which were often in the average to slightly above average range, and feedback indicated that the site would benefit from a redesign or revision. The major problems indicated by the responses suggested that users a.) had difficulty finding information; b.) had difficulty navigating the site; c.) preferred a visually pleasing site; d.) had difficulty using the Cameo search engine and interfaces and e.) wanted new features and links. Recommendations for focusing revision efforts would emphasize a.) reorganizing and re-labeling links and terminology; b.) emphasizing the reference and stu-

dent services links on the home page; c.) providing a global navigation bar and footer; d.) providing a logical movement through the site; e.) providing a site map, increasing visibility and improving the functionality of the "search this site" link; f.) improving the access to the "Ask a Librarian" link; g.) creating a simple, uncluttered, visually pleasing design and h.) adding new features and links that have been suggested by users.

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