

Working with Consultants to Test Usability

The Indiana University Bloomington Experience

Julianne Bobay, Diane Dallis, Gwendolyn Pershing and Mary Pagliero Popp

1. Introduction

In the spring of 1999, Indiana University Bloomington Libraries contracted with two consultants to help review goals for the Libraries' Web site, to lead usability tests with various user groups, and to provide a plan for the architecture of the site.

At that time, the Indiana University Bloomington Libraries (IUB) had developed a very large and rich web site. The site had developed in the libraries over the prior four years in an "organic" manner: a consciously chosen decentralized approach that encouraged individual initiative and participation in web development throughout the libraries. Library units (branch libraries, library departments, etc.,) were given the authority, the tools and a structure in which to develop rich content that best suited the needs of their primary users, and they went at it with vigor.

The resulting web site, encompassing more than 5,000 pages, is actually a loosely knit federation of individual sub-sites, some of which are quite noteworthy and have received national attention. This collection of sub-sites is bound together by a mandated template that all library units must use. The template ensures consistent headers, logos, colors, and page layouts, as well as functionality across browsers, equipment, etc.

Over the years as the site grew larger, navigation became inadequate and the site posed usability problems. The size and decentralized structure of the site also led to

problems with maintenance. These and other problems of an “organically-grown” site resulted in the decision by the IUB Libraries to engage outside consultants to conduct usability testing and provide advice on how to evolve the site to its next level.

Following discussions with a usability specialist from the Indiana University Information Technology Services, and interviews with potential consultants, the IUB Libraries contracted with two consulting firms and the IUB usability specialist to lead an evaluation of the IUB Libraries web site. The consulting firms had complementary skills and expertise, and they agreed to work together on the project. One consulting firm, recommended to the IUB Libraries by University Information Technology Services, specialized in user-centered design and field research, and had worked primarily with corporate clients. The second consulting firm, Argus Associates, had its roots in the library world, had a staff that included many librarians, and had consulted on web design and information architecture in both library and corporate spheres.

The IUB Libraries web evaluation was conducted in two stages. The usability consulting firm and the IUB usability specialist performed field tests and usability studies and interviewed library administrators and web developers. They issued design recommendations based on the data collected. Those findings were used as background information by the Information Architecture consultants for the in-depth analysis of the site itself and investigations of the suitability and sustainability of various information architectures.

The Libraries appointed a Web Assessment/Architecture Working Group to work with both consultants. This group was composed of librarians and library staff who had been actively involved in developing library web resources, as well as individuals with new perspectives for further development of the site. The formal charge to this group included:

- ▼ helping consultants to identify audiences/stakeholders
- ▼ drafting library goals for the web site
- ▼ providing documents, background information and data to the consultants about the present web site and its development
- ▼ establishing goals for the web site assessment project
- ▼ providing input and facilitating the usability research by identifying users/participants
- ▼ providing input on the plan
- ▼ assisting with survey administration and with data analysis
- ▼ facilitating communications within the IUB Libraries

2. Preparing for consultants

The Web Assessment/Architecture Working Group (Working Group) provided historical context in preparation for the consultants’ work. They performed a study of use statistics, identifying the most heavily used parts of the site by internal and external users, and tracked changes in use patterns. In addition, the Web Assessment/Architecture

Working Group drafted the following goals to guide the consultants' work. These goals echoed a "vision statement" for the web site prepared in March 1998 by the Libraries' Web Policy Committee, and were approved by the Libraries Management Team in February 1999.

Primary Goal

The IUB Libraries' public web site will be judged by our primary users, (students, faculty and staff in Bloomington and on other campuses,) as the BEST site to find the scholarly information they need for their teaching, research and studies. The web site is a critical component of the set of services and resources that make up the IUB Libraries, and will provide members of the IUB community with a centralized entry point for information about and access to all library resources in printed and electronic form.

Other Goals

In addition to serving the research and teaching needs of the faculty, students and staff of Indiana University, the Libraries' web site will provide users from the community, the state, the country and the world with:

- ▼ accurate information describing and spotlighting the IUB Libraries collections, services and achievements, especially those that have national or international visibility and interest.
- ▼ well-organized and usable access to internet resources created or selected by subject specialists throughout the IUB Libraries.

The content and organization of the site will capitalize on the abilities and knowledge of staff and librarians throughout the libraries to create, maintain and continually develop web resources and services.

The IUB Libraries' web site will provide a positive impression on all visitors to the site, acknowledging that users' satisfaction is determined by many factors, ranging from the availability and ease of finding of key resources to visual and aesthetic concerns.

3. Stage 1

Usability Tests, Field Studies, and Surveys

During February and March 1999, the usability consultants conducted in-depth user research in order to more thoroughly understand how the IUB Libraries web site was being used, to pinpoint areas for improvement, and to plan for a re-designed web site. Seventeen participants were selected by the Working Group to participate in field studies or usability sessions. These participants represented the widest possible range of user groups and perspectives, and included five faculty, four graduate students, and four undergraduate students from social sciences, sciences, humanities; three members of university staff; and one outside person. The individuals came with a wide range of experience in both computing and in library research.

table 1. table title

Usability Studies: Consultants and working group members observed and videotaped eight study participants in a usability laboratory as they used the Libraries' web site to perform specific typical tasks. The Working Group developed the list of tasks below for the usability studies, many of which were designed to explore known or suspected areas of difficulty.

Field Studies: With the participation of the Working Group and input from the information architecture consultants, the usability consultants planned and conducted field studies with eight participants. During the field visits, consultants and members of the Working Group interviewed, observed and videotaped participants in their natural work environments as they performed tasks they would normally use the web site to accomplish. Observing the current use of the web site allowed the usability consultants to identify ways the site could be improved to better suit users' needs.

Surveys: In order to focus the libraries' attention on the primary use of the web site, the usability consultants administered a survey to identify the "top ten" tasks users did at the library web site. The survey consisted of a list of twenty tasks developed by the Working Group based on web use statistics and their experience. The consultants asked

Usability study tasks:

1. Where would you check to see if the IU Bloomington library has a copy of the book *Catcher in the Rye*?
2. You are researching about the causes of panic attacks. Find a list of references to journal articles on this topic.
3. You plan to stay and get some work done during spring break next week. When will the main library be open?
4. Find information about the Indiana University Digital Library Program. What is it and who is involved in the program?
5. You know that the IUB Libraries have a very good collection of manuscripts of Sylvia Plath. How can you find more information about this collection from the library's web site?
6. You are a student at IUB, and your professor has given you a reference to an article she wants you to read in a journal called *Communications of the ACM*. Find a link to the electronic version of the journal.
7. Your book from the HPER [Health Physical Education and Recreation] library is due today. You want to keep it longer. How can you request this from the library's web site?
8. You are a returning adult student taking one class a semester and rarely visit any library on campus. You need to copy some articles your professor said he put on reserve. Find out if the libraries have the required readings on reserve for your H105 history class with Mr. Katz.
9. Does the IU library at Bloomington have a collection about Poland? Who is the librarian in charge of the Polish collection and how can you contact that person?
10. You are an instructor, and your student asks you how to prepare a bibliographic citation for an article he obtained from an electronic journal. Can you find such information from the library's web site?
11. Imagine that you are a faculty member who is involved in publishing a book. You need to know how ISBN numbers are assigned. How would you use the library's web site to find out who assigns those numbers and additional information about the process?
12. Imagine that your research area is English Literature and you want to find what internet resources are available. What location on the library's web site would lead you to a listing of recommended internet resources on this subject?

table 1. Table title

the seventeen participants in field studies and usability studies, as well as library administrators and web developers, to perform two rankings on the list: listing the ten most important and ten most frequent tasks they did at the site.

To supplement the information gathered from the usability consultants' survey, the Working Group administered a web-based version of the survey to all users of the site. In this survey, participants were asked to rank the same list of twenty tasks, but instead of doing two rankings (importance and frequency,) they were asked to rank only by frequency. The Working Group decided to do this after observing the study participants struggle with the often difficult and time-consuming process of two rankings, and decided that it was unlikely that the web survey respondents would be as motivated to contribute this much time as the study participants. Each person who participated in the web survey was entered into a drawing for \$25 or \$100 gift certificates for the univer-

table 2. table title

The twenty tasks on the survey were:

- ▼ Locate information describing the IUB Libraries' collections and services
- ▼ Use IUCAT, the IU Libraries online catalog
- ▼ Read an electronic journal online
- ▼ Verify a citation
- ▼ Use a library database for information on a topic (e.g., ERIC, Academic Search Elite)
- ▼ Ask a question
- ▼ Contact a particular librarian or library specialist in my subject field
- ▼ Recommend a book, journal, or database for purchase by a library
- ▼ Request that materials be placed on reserve for a class
- ▼ Guide students in your classes in their research projects
- ▼ Learn about library instruction sessions or request a library instruction session
- ▼ Locate handouts or tutorials about how to use library resources and services
- ▼ Complete a transaction with the library (e.g., renew a book, request an interlibrary loan)
- ▼ Find "when and where" information about the libraries (e.g., hours, locations, workshops)
- ▼ Get help/get started on library research
- ▼ Find materials on reserve for your classes
- ▼ Find public information about the libraries: press releases, announcements, statistics, etc.
- ▼ Search the World Wide Web for information on a research topic
- ▼ Learn about career opportunities
- ▼ Use librarian-created views of the web to find research materials in a discipline

table X. Table title

figure 1. figure title

IUB Libraries Web Site
Task rankings for Web Evaluation Project
4/26/99

TOP TEN TASKS														Consultant Survey		
Web Survey 4/3/99-4/16/99																
All	By affiliation		By Status										Over- all	Study subj.	Lib staff	
	IU-Eton	Non-IU Eton	Fac.	Grad	Under- grad	Univ staff	Lib staff	Ind. Res.	k-12 stud	IU alum	other					
n=626	n=576	n=50	n=7	n=233	n=295	n=27	n=35	n=8	n=8	n=9	n=4		n=17			
TASKS:																
Search www for rsch info	1	1	1	3	3	1	2	2	1	1	1	1	2			
Use IUCAT	2	2	3	2	1	2	1	1	2		4	4	1			
Use Library Database	3	3	4	1	2	3	4	4	4	3	2	2	2	4		
Info on IUB Libs. coll/services	4	4	2	9	5	5	3	3	3		5	5	3	10		
Complete transaction with lib	5	5	7	7	4	9	6	5	8	6	10		4	6		
Find reserves	6	6		5	7	4								8		
Career opportunities	7	7	5		10	6	5		5	5	9	6				
Verify citation	8	8	9	8	6		8	6	7	8	7	3		9		
Read an ejournal online	9	9	8		8	8	9	7	6	7	6	7	8	7		
Ask a question	10		10(tie)			7	10			2		10	6	3		
"When and Where" lib info		10			9		7	8	9				7	5		
Subject views of internet			6	10				9		4	3	9	9			
Get help/get started on lib rsch					10					10		8	5	5		
Locate handouts/tutorials													10			
Contact librarian in subject field		10(tie)						10								
Recommend purchase		10(tie)								9						
Put materials on reserve				6												
Guide students in lib research				4												
Find public info about libraries		10(tie)							10		8					
Learn about lib instruction																

figure 1. figure title

sity bookstore. To encourage users to complete the survey, a button was added to the IUB Libraries homepage and to many sub-site homepages on the site labeled "Win \$100". Demographic data on survey respondents was gathered, but the surveys themselves were guaranteed to be anonymous. Respondents were required to fill out a brief demographic information form that indicated their status, department/school, campus, major, job title, and their frequency of web use form before accessing the survey itself. Results were sent to two files on the server. Each respondent's email address was checked against a list of respondents to make sure no user submitted multiple surveys. The username list was kept separate from the survey responses. The responses, including the demographic info, the domain name of the computer where the survey was filled out, and the survey ranking were stored in a delimited flat file which was imported into Excel for analysis and manipulation.

Of 626 responses, 7 were faculty, 233 were graduate students, and 295 were undergraduate students. Results were in general consistent with the top-ten list developed by the consultants; nine of the "top ten" tasks in the two lists are the same. There were, however, important and sometimes subtle differences among various user groups. Because of the population demographics of the web-based survey, functionalities that were relevant to instructors did not make the 10-ten list on the web survey (e.g., place materials on reserve,) and functionalities of particular interest to students ranked high (e.g., find information on career opportunities). Only six of the top ten tasks identified in the web survey made the librarians/library staff "10 most important" tasks.

IUB Libraries
IUCAT/Databases
IUB home
Ask a librarian
Site Search

[To Logoff](#)
[Telnnet to Infogate](#)

[Having trouble Connecting?](#)
[Unable to find Application?](#)

[Handouts](#)
[Workshops](#)

Indiana University Bloomington Libraries
Search IUCAT/Databases

Notice: Changes/improvements will be made to this page on August 24th.
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[OED](#) | [Contemporary Authors](#) | [English Poetry Database](#)

Search for a database:
Hint: Use * for right truncation; Use " " to search for a phrase

figure 1. figure text

figure 2. figure title

In addition, the web survey documented important differences between users affiliated with IU and those coming in from the outside.

These data support the very important caveat that surveying large populations and generalizing the results can mask important differences among user populations. Analyzing these survey data requires the knowledge gained by experience and observation of public services staff to differentiate among various needs and uses of library resources by different user groups. When developing a library web site, the Libraries must identify which users' top ten list (faculty, graduate students or undergraduate students) they want to target in the structure and architecture of the site.

In addition to studying users through field studies and usability tests, the usability consultants interviewed library administrators and web developers to learn their perspectives on goals for the site, definitions of success, and barriers to success.

figure 3. figure title

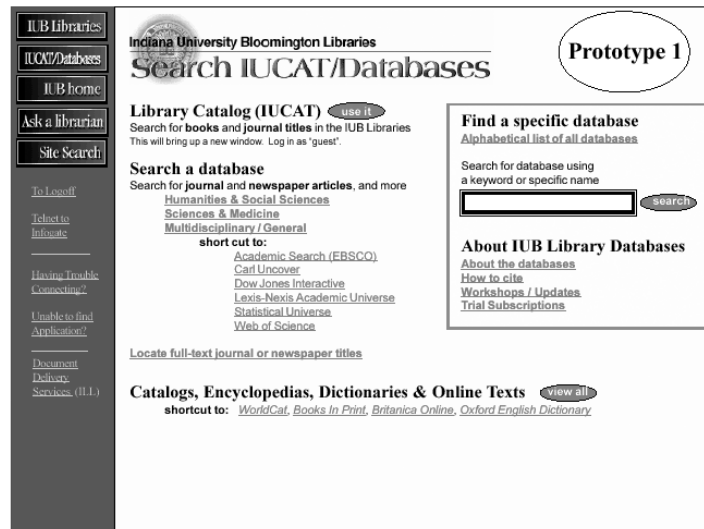


figure 3. figure title

Usability Recommendations

The usability stage of the project yielded mountains of data. One of the most valuable contributions the usability consultants made to the IUB Libraries was the organization and documentation of this data. From the data, they issued a report with findings, noting an overly complex information structure, documenting user difficulties with selecting appropriate resources, difficult/confusing terminology, and problems with navigation strategy. Included in their report were recommendations for solving these problems. Some of their recommendations were:

- ▼ Structure the site around the Top-10 most important and frequent tasks.
- ▼ Provide helpful descriptions of resources that people can easily read before they open the resource.
- ▼ Integrate searching tips throughout the web site, not just in the online help
- ▼ Explain key terms on the page where they are used.
- ▼ Notify users when they are entering a resource and leaving the IUB Libraries web site.
- ▼ Designate a consistent location on each page where a list of any “related links” can always be found.

In addition to the general recommendations, the usability consultants described major usability findings with supporting observations, and made specific suggestions for change.

4. Stage 2: Information Architecture

Using the data gathered from the user studies, particularly the lists of top ten tasks, the information architecture consultants performed an in-depth study of the existing web

site. They met several times with the Working Group, library administrators and other groups in the Libraries to ascertain organizational ability to implement and sustain alternative structures for the site. As part of their data gathering, the consultants administered a survey to library staff and administrators asking them to name the three most important things they'd like to improve or enhance regarding the existing web site under the broad categories of "information architecture," "graphic and interface design", "content" and "functionality." The Working Group provided information on the structure of the overall site, the structure of the IUB Libraries themselves, and historical reasons for choices in the existing sites.

figure 4. figure title

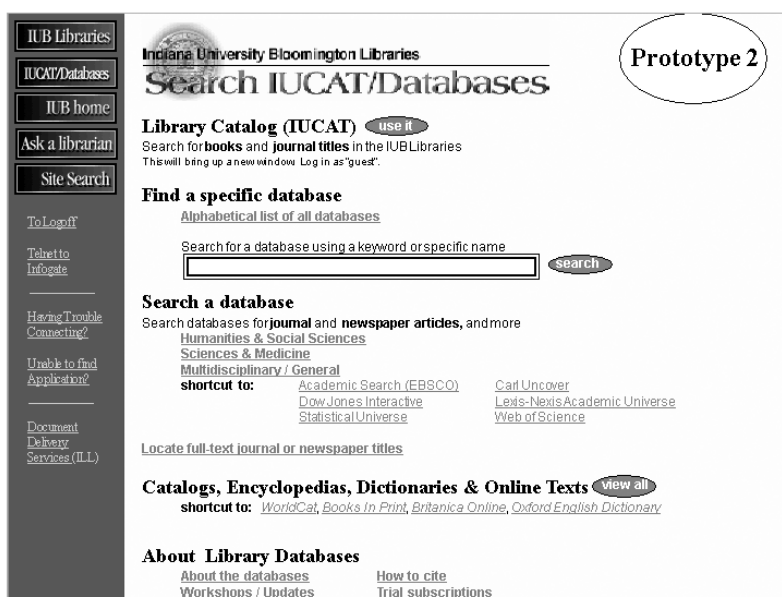


figure 4. figure title

Information Architecture Recommendations

The information architecture consultants issued a report that listed specific and concrete short-term and long-term recommendations for the architecture and structure of a redesigned web site, including page mock-ups, menu structures, and information architecture schemes. The information architecture consultants' report included a discussion of long-term investments and actions the IUB Libraries could take to build a site easy to navigate, feasible to maintain, and that could continue to scale up in size and complexity. They suggested some actual page designs and menu constructions that could be considered for this longer-term project, and library organizational and structural changes that would have to occur to support such a project.

figure 5. figure title

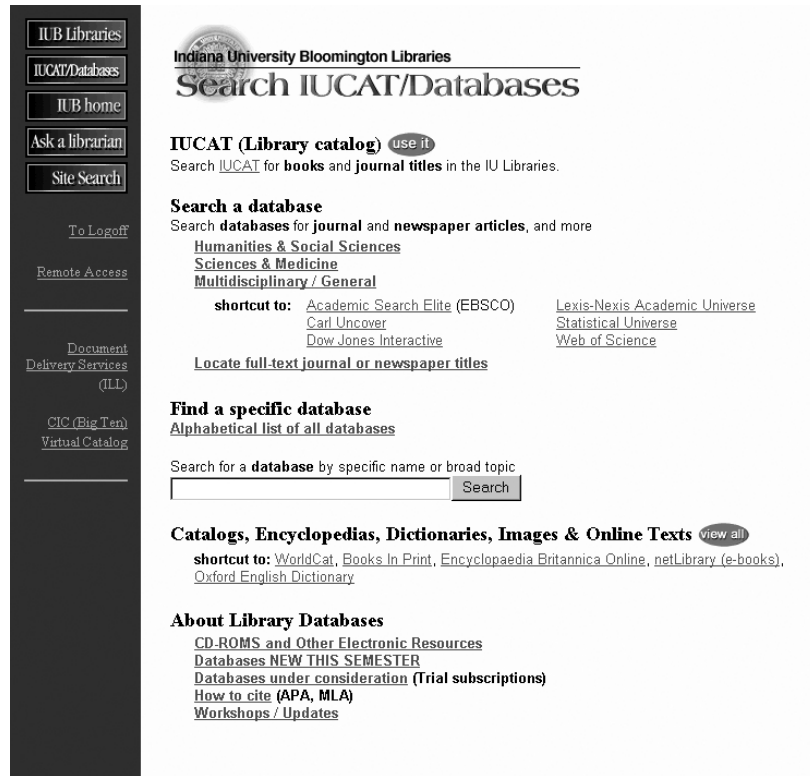


figure 5. figure title

The information architecture consultants also strongly recommended some short-term projects; most importantly, providing interim fixes to the site's most visible and vexing problems on the "Search IUCAT/Databases" page. Problems with this part of the site were becoming painfully obvious and had been documented in the usability studies in the first stage of this project. The consultants stated:

"The Search IUCAT/Databases" main page currently on the site is very difficult for inexperienced users to navigate—this is mostly a factor of the pull-down menus, insufficient labeling and general busy-ness of this page. The page should be re-organized so these users can view resources by subject, as well as having access to the full list of titles (linked as a separate page). Although this area of the site cannot be effectively leveraged without a behind-the-scenes database that holds all the records for the resources, the page layout can be effectively managed to make it easier for the user to find the resource they are looking for. In particular, pull-down menus might be discontinued and instead links to resources be provided. Balloon or mouse-over help can be utilized to aid users in determining the resource of their choice. To effectively determine the correct layout and help aids for this page, we recommend specific user tests with a number of alternative prototypes."

This recommendation for a behind-the-scenes database to manage this growing body of resources validated a recommendation that had been made in the IUB Libraries earlier, but had not gained sufficient internal support to be implemented.

5. Using the consultants' recommendations to make improvements

While the IUB Libraries were not in a position to create several new positions or reallocate staff to develop a new site (as suggested by the information architecture consultants), they recognized the importance of improving the "Search IUCAT/Databases" page (from this point on this will be referred to as the "Search Page"). The Search Page was designed for a much smaller collection of resources and had outgrown the original design.

This page is the gateway to most of the IUB Libraries' electronic databases, web-based periodical indexes, reference tools and the IU Libraries Catalog (IUCAT). The Search Page receives over 40,000 visits each month and is the first screen that library users see when they log into an in-library workstation. The page was documented as one of the most frequently accessed pages over the past several years, and access to "IUCAT" and other research databases consistently ranked in the top three most frequent and important tasks across all user groups.

The Libraries appointed an interim Web Coordinator and a Task Force to improve the Search Page. The Task Force included public service librarians and technology staff. Many members had also served on the Web Assessment/Evaluation Working Group that was co-chaired by the previous Web Coordinator librarian. The following is an excerpt from the charge to the Task Force to Improve the Search IUCAT/Databases page (Task Force):

"Your charge is to review the present main page with usability results from the usability study along with the specific recommendation from the information architecture study and to suggest changes that will improve use of the site. Prototype redesigns should be tested with users. You should consult at appropriate times with the Bloomington Electronic Resources and Services Committee and with individuals who served on the expanded Working Group for the Assessment Project.... Implementation of this important work should be completed by the beginning of the fall 1999 semester."

The Task Force had about six weeks to meet the goals outlined in the charge. They reviewed the consultants' reports and extracted sections that focused on overall usability and architectural improvements and sections specific to the IUCAT/Databases Page. The usability recommendations included:

- ▼ Remove library jargon, where possible.
- ▼ Explain key terms on the page where they are used.
- ▼ Provide search tips for different types of searches.

- ▼ Provide tips for using particular resources, especially those that are most difficult or confusing.
- ▼ Notify users when they are entering a resource and leaving the IUB Libraries Web site.
- ▼ Develop a consistent navigation strategy that enables users to access the key areas of the Web site from any IUB Libraries Web site page.
- ▼ Designate a consistent location on each page where a list of any 'related links' can always be found.
- ▼ Make sure there is always a way to "Go Back".

An important factor in the redesign process was that the IUCAT/Databases page would be the sole section of the Libraries' web site to be changed. The redesign would keep the basic appearance of the template upon which entire site was built. Due to the time constraints the Web Coordinator created the first draft prototypes. The Task Force responded to them and participated in further developments and improvements. The Web Coordinator created three paper prototypes. The design of the prototypes were based on the consultants' reports and usability test results, they preserved the template as their design. Task Force members used the consultants' reports as well as their experience with library users to suggest changes and improvements in the prototypes. The first set of prototypes served as the starting point from which to develop improved labeling and organization of the page.

The Task Force re-worked the prototypes and continued their discussion of labeling, jargon and organization. Throughout the process the negative and positive aspects of the "old" page were discussed and comparisons were made to be certain the new page was moving toward "improvement". When possible, the Task Force made decisions using recommendations and criteria cited in literature of the field of usability and web design.

The Task Force eventually worked the three prototypes into two, but remained divided on which of the two presented the better solution. They agreed that usability testing would be the only way to decide which to choose or which parts of the prototypes to integrate into one. Several members of the Task Force had experience in usability testing; however, no one had ever attempted to test two prototypes at the same time. They reviewed the literature and consulted with the usability expert on campus to learn how to attempt such a test. Based on the information gathered the following plan was developed.

"Each prototype will be tested on a group of representative users. Both groups will consist of one faculty instructor, one graduate student, and two undergraduate students. Each group of test participants will use the paper prototypes to accomplish the same set of tasks. The tasks will be adapted from the original usability study that the consultants conducted. At the end of each test, the participants will be asked open-ended questions about the prototype that they tested. They will also be asked to look at the prototype that they did not test and comment on it and state a preference between the two versions. After the initial testing determines a single prototype to use, a final electronic version will be tested for ease of navigation and functionality."

The prototype tests were conducted with an observer and a note-taker and all sessions were audiotape-recorded. The test participants from each group were very similar. The faculty participants were familiar with the current Search Page and used it for their teaching as well as their research. The graduate students had similar background and experience using academic libraries and the two groups of undergraduate students included one user who was familiar with the page and one who was not.

The test participants were asked to complete the following tasks:

1. Where would you check to see if the IU Bloomington Library has a copy of the book *Catcher in the Rye*? How would you use your mouse to access it?
2. Could you access an online/electronic encyclopedia from this page? Where would you look and how would you access it?
3. You are researching about the causes of panic attacks. Where would you look to find articles on this topic? What would you do to access this information?
4. How could you find the ERIC database on this page? What would you do?
5. There is a "Newsweek" magazine article that you would like to read and you want to know if it is available in full-text. Is there a place on this page you can find that type of information? Where is it and how would you select it?
6. You need to know how to prepare a bibliographic citation for a full-text article you obtained from a database. Can you find such information on this page? How would you access it?
7. Please read through the categories on this page and tell me what you expect to find when you visit this part of the page.
8. This is another prototype we are testing. This prototype has all the same information as the one that you tested. Which of the two would you prefer to use and why?

Better terms for labeling and wording for both prototypes were discovered through usability testing. The Task Force intended to use the results from the user tests to select the better of the two prototypes. However, the prototypes produced equal test results in almost every aspect. The prototypes received almost the same number of successful responses, and length of time it took each of the participants to complete the tasks was also very close. The preferences stated by the test participants were also equal. Four participants liked the first prototype, four liked the second and there was no distinction between the user categories. The faculty each had a preference for a different prototype, as did the graduate students, as did the undergraduate students. The prototypes looked the same on Internet Explorer and Netscape. The single factor that placed one prototype above the other was that the second prototype layout adapted better to a Lynx browser than the first.

Though the Task Force chose the second prototype screen layout, all the information gathered from both prototype tests was used to improve labeling and categorization for the final screen design. For example, the category label "Research Databases & Electronic Journals: search for journal and newspaper articles" was changed to "Search a database: Search databases for journal and newspaper articles, and more". Another

label change that discussions with test participants facilitated was the change from “Reference Databases & Online Texts” to “Catalogs, Encyclopedias, Dictionaries, Images & Online Texts”. The Task Force did not want to lose appropriate library terminology so whenever possible more descriptive text was added to help the user understand the labels and categories. The Task Force members also learned that none of the test participants understood what they would find under the link “Trial subscriptions”, they did understand the label “Databases NEW THIS SEMESTER”.

The final paper prototype was made into a web page and the Task Force gathered three more users for one final round of testing: one faculty instructor, one graduate student and one undergraduate student. There were two main purposes of this final test. The first was to learn whether the navigation between the layers of the new screen design were effective. The second was to learn if the new categories and labels were clear. The final test participants were asked to complete the following tasks using the electronic version of the new prototype:

1. Where would you check to see if the IU Bloomington Library has a copy of the book *Catcher in the Rye*? Using the mouse, how would you access it?
2. Could you access an online/electronic encyclopedia from this page? Where would you look and how would you access it?
3. You are researching about the causes of panic attacks. Where would you look to find articles on this topic? What would you do to access this information?
4. How could you find the ERIC database on this page? What would you do?

The final test only resulted in small changes before the final design was implemented. To prepare the users for the change there was a notice posted on the “old page” for one week prior to the implementation of the new design. The new design was implemented immediately before the new academic year in 1999 with little notice. The charge given to improve the layout of the Search Page was met. The screen still has many limitations and the IUB Libraries will need to find a better long-term solution. Since the revision, however, the site has endured other small changes well.

After the redesign of the Search Page, the IUB Libraries established a new position of Web Administrator. Because that position has not yet been filled, work on the redesign of the Web site is on hold. A Web Interim Team of librarians and technologists has been appointed to maintain the current site, make suggestions on policy changes and new services, and to work on projects in preparation for the new Web Administrator.

6. Working with consultants: Lessons learned

Consultants are often in a position to provide an unbiased, expert view of a situation that has become too close and familiar to people working in the institution. Consultants can bring specialized expertise, experience, and knowledge gained across institutions to identify and document known or unknown issues and solutions. They can provide data

and/or expert opinions that allow an organization to “get off the dime” of internal disagreements. They can ensure neutral usability testing, a task that can be extremely difficult for people who are invested in the design and content of the site.

At the same time, librarians and library staff often possess in-depth knowledge developed from years of specialized experience and close observations of users’ frustrations and triumphs. Consultants who are not experienced in working with students and faculty will not be able to bring that knowledge to their reports. In addition, consultants cannot ensure the wide internal communication that is critical to the success of a viable web site. Ideally, if a consultant is used, a knowledgeable committee of librarians and technologists should work closely with the consultant. A combination of usability expertise and library expertise can provide the best of both.

While there was certainly not 100% agreement in the Libraries with all the recommendations offered by the consultants, many of their recommendations were accepted and led to concrete actions. The project convinced library administrators that a dedicated Web Administrator position was needed. It also led to the quick redesign of the most problematic and heavily used part of the site, the “Search IUCAT/ Databases” pages.

There were intangible benefits as well:

- ▼ Working with experts in usability testing and information architecture was a valuable learning experience for librarians and library staff, who developed skills in conducting usability tests and learned about industry trends in information architecture.
- ▼ The consultants’ use of a “Top-Ten List” was a very useful tool to focus the institution’s attention on the categories/tasks identified by users as the most important or most frequent. Such a list is very difficult to achieve internally, always subject to questions and challenges from various user groups and perspectives. Another valuable by-product of the “Top-Ten List” was as a vehicle for a campus-wide survey on use of the libraries’ web site.
- ▼ The consultants’ work produced mountains of valuable use data and analyses to ensure that the redesign of the site would be done with full knowledge of user needs and difficulties.

Potential problems:

- ▼ The Libraries’ commitment to close involvement in the process guaranteed that this would be a resource-intensive endeavor, including not only the consulting fees, but also librarians and library staff time.
- ▼ Conceived in isolation, consultants’ analyses and perspectives may miss important local or content-specific issues, and result in off-base, irrelevant, or even destructive recommendations. Decision-makers must take special care to balance consultants’ recommendations with expertise and knowledge in the organization itself. The IUB Libraries experience with consultants strengthened the belief that such studies must be structured to make the best use of both the con-

sultants' and the librarians' expertise. Librarians and library staff provided input at every stage of the project: the Working Group's identified test subjects, developed typical tasks, directly observed the sessions. The library administration participated at key stages in the analyses. Broad input from throughout the libraries was made possible by various communication avenues sponsored by the Working Group.

- ▼ The usability studies at IUB Libraries were structured to identify problems. Most of the usability tasks were specifically chosen to explore and document known problems with the site. Decision-makers must remember that such studies, while very useful at documenting problems with a site, may not be as effective in identifying useful features that should be retained and developed further. This is much more critical in a redesign of a large site than in building one from scratch.

7. Conclusion

Outside consultants can provide libraries with expertise, objectivity and broad experience in the development of web sites. In order to gain maximum benefit from the consultants, libraries should clearly articulate the desired outcomes for the usability testing and recommendations. Clearly stated objectives help both the libraries and the consultants make recommendations that are relevant to the libraries' needs.

Working with consultants can provide significant benefits. Consultants use the data gathered about the characteristics and habits of the libraries' users to shape their recommendations for design changes and their insights on growing and sustaining complex web sites. In addition to the reports and data produced by consultants, working with consultants can provide invaluable professional development opportunities for library staff. Observing the consultants at work, participating in the design and implementation of user and field tests, learning about technical and organizational structures for web site design, observing how to structure discussions to lead to informed decisions; all are valuable experiences that can prepare the library staff to manage its web site. At IUB Libraries, library staff used the consultants' data and recommendations as well as the usability testing techniques and expertise gained from working with them to improve a key part of the web site and plan for more expansive development.

At the same time, libraries must consider the potential disadvantages of working with consultants. Most obvious, perhaps, are the costs, which include not only the consultants' fees, but also a substantial commitment of staff time and resources to fully participate in the process. This is particularly critical if consultants are not experienced with academic libraries or higher education institutions, in which case they must work very closely with library staff or risk misguided tests and results. At IUB Libraries, the consultants at times misjudged or misdiagnosed a problem because of inadequate understanding of the research process and the educational mission. For example, a test participant's lack of understanding of a resource or term was mistaken for a usability violation rather than a user education opportunity. Educating the consultants about the library's collections

and services as well as about the library's major groups of users is key to making the assessment of the web site or library system meaningful and successful.

Libraries should be aware that consultants are very thorough in their analysis of a site or system, and working with them will require a commitment to sometimes costly analysis. The reports, plans, or recommendations that the consultants produce are helpful tools that can be used to guide a library in changes or a redesign of a web site.

WORKS CITED

Argus Associates. Architectural Framework for the IUB Libraries Web Site. 1999
Gomoll, Kate and Cathrine Spiaggia. User Research for the IUB Libraries Web site. 1999.

WORKS CONSULTED

Nielsen, Jakob "Testing Paper Mock-Up of Homepage" <http://www.useit.com/papers/sun/papertest.html> May 1995 (Accessed 3-19-01)
Rosenfeld, Louis and Peter Morville. Information Architecture for the World Wide Web. Sebastopol, CA: O'Reilly & Associates, 1998
Rubin, Jeffrey Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests. New York: John Wiley & Sons, Inc., 1994.
Spool, Jared M. Web Site Usability: A Designers Guide. San Francisco: Morgan Kaufmann Publishers, 1999
Indiana University Bloomington Libraries: <http://www.indiana.edu/~libweb/index.html>