

Designing for WOW!: The Optimal Information Gateway

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Abstract

Increasing reliance on electronic systems for access to resources and services is a fact of life in today's libraries. Users have grown to expect reliable, powerful and intuitive systems that "do it all." The Web has raised library users' expectations for simplicity of use. At the same time the emphasis on customer service in academia has produced an atmosphere in which it is essential to adapt quickly to the changing needs of faculty and students. In this fast-paced, technology and customer-driven environment, the library as a slow-moving, stable institution is a thing of the past. To continue to succeed, academic libraries must transform themselves into high-performance organizations committed to delighting their users. This can only be accomplished if we have an accurate understanding of what the users need and want. This paper presents the results of a focus group study that was conducted to find out just that.

Introduction

The title for this paper comes from business visionary Tom Peters' *The Pursuit of WOW!: Every Person's Guide to Topsy-Turvy Times*.¹ Peters wrote the book—a collection of sometimes-brash stories, interviews and observations—to help individuals and organizations stay on top of the chaos of the nineties. Peters urges us not to be timid in fending off staleness, and he claims that "stepping out" (individually) and "standing out" (organizationally) from the crowd is and will be crucial for surviving and thriving in a world of uncertainty and upheaval.

For academic libraries, pursuing WOW! increasingly means producing easy-to-use yet powerful systems for information discovery and delivery. Such systems cannot be developed based on what we *think* users want. They can only be developed by people and organizations that can gauge and respond creatively and rapidly to shifting user needs.

To gauge user needs and reactions to the systems we develop, librarians need reliable tools and research methods. This paper reports the results of one attempt to uncover user needs and expectations for an informa-

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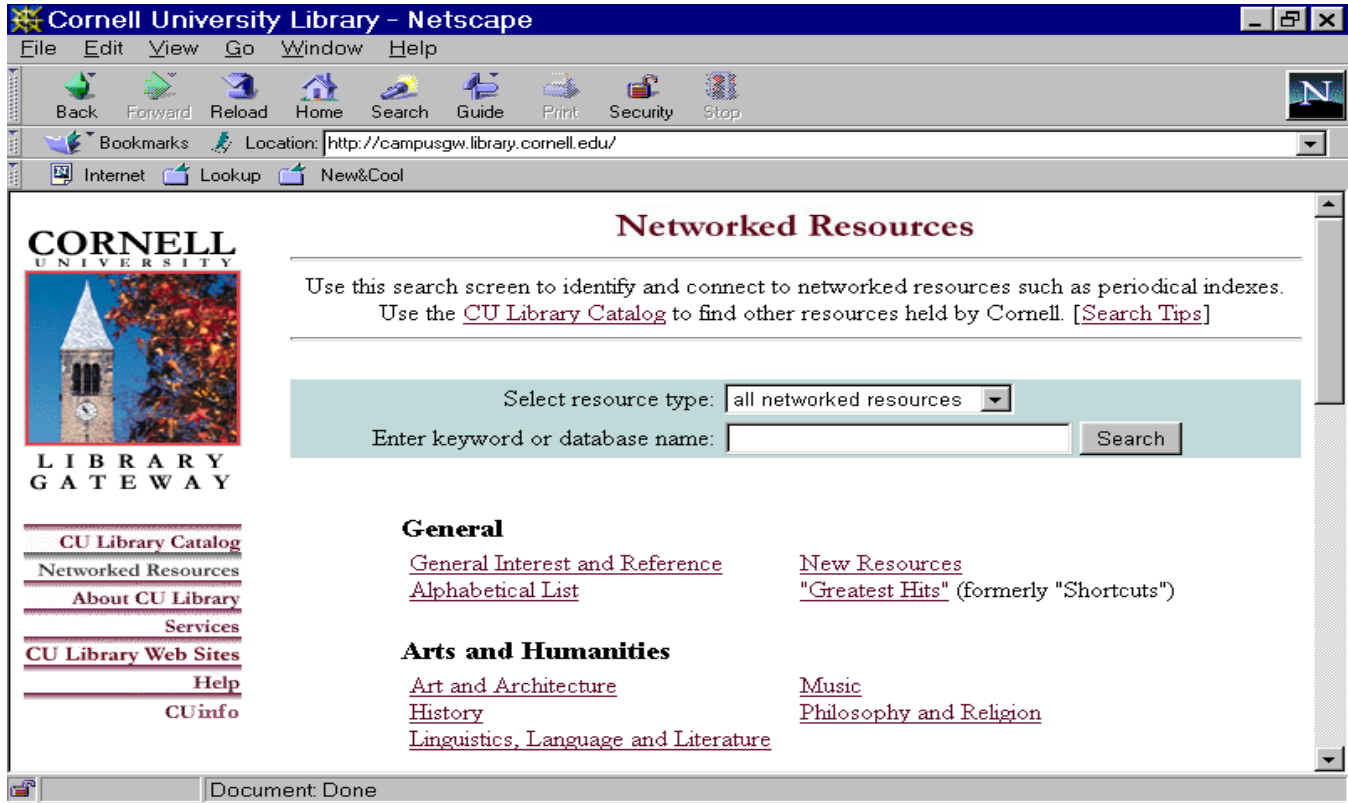


Figure 1. Cornell University Library Gateway (<http://www.library.cornell.edu>)

tion system, the Cornell University Library Gateway, using the focus group methodology.

What's the Gateway and Why Study It?

The Gateway is Cornell University's library on the Web (Figure 1). It is the common entryway to the networked resources, services and information that Cornell University Library (CUL) provides for its users. The system's introduction on January 5, 1998 brought to an end years of confusion for CUL users. Before the launch of the Gateway different unit libraries provided different ways to connect to different subsets of these offerings.

The Gateway uses a searchable (MySQL) database to provide access and connections to over 1200 networked resources. The resources are all cataloged in

CUL's OPAC and the MARC cataloging records get transferred into and augmented in the separate Gateway database. The system can be browsed by subject caption or searched by keyword (including resource title, LC subject headings and short descriptions) to help users identify the networked resources that will be helpful for them.

The Gateway was built in just seventeen weeks. Because of the tight implementation schedule, no user studies were conducted to guide the system design process. User studies had been conducted by Mann Library² about the Gateway's predecessor, the Mann Library Gateway, but extrapolating the results from the disciplines that Mann serves to all disciplines across campus seemed problematic.³ So the Gateway was essentially based on

the librarians' understanding of user needs and behaviors. We wanted to conduct a study that would give us a user-centered report card for the Gateway as well as a roadmap for future development.

Other Gateways

The literature has little to offer that is directly applicable to the present study. Therefore, to place our research into the context of what is happening at other institutions, we evaluated the library Web sites of the nine largest U.S. ARL university libraries and three additional peer libraries (Penn, Dartmouth and Brown). As a follow up, we queried the libraries about user studies they have conducted or plan to conduct of Web-based access to their collections.

Our evaluation of library Web sites suggests that the sample libraries, just like CUL, have striven to:

- Use their Web presence to pull together the catalog, networked resources, services, and library information into a single interface;
- Make networked resources highly visible;
- Raise awareness (i.e., "market" the library) and educate; publicize "what's new" and digital library projects;
- Provide access to both telnet and Web versions of the catalog;
- Integrate e-resources into the catalog (in varying degrees);
- Allow e-resources to be browsed and searched separately from the catalog;
- Provide separate lists of e-journals (searchable if possible);
- Point to individual library Web sites;
- Provide online forms, help and instruction
- Encourage online communication with librarians (most);
- Link to consortia resources (some);
- Provide subject guides to online resources (a few);
- Provide standard interface to databases (some).

Most sites treat "databases and reference tools" differently than they treat "Internet resources" despite the artificiality of this distinction. Most sites maintain an elaborate system of static Web pages to present their electronic resources separate from the library catalog. Only a few libraries use a searchable database of electronic resources, as CUL does. It has proved difficult to gather information about user studies that may have been

conducted or planned at these twelve institutions. To date we have received only four responses, all negative.

Methodology

We had four objectives in mind when designing and carrying out the study:

- Assessing how the Library Gateway is being used;
- Ascertaining Gateway users' satisfaction levels, likes and dislikes;
- Determining enhancements for the current Gateway;
- Identifying future, long term improvements.

To achieve our objectives, we decided to use focus groups to gather the information we needed. We, the authors, played instrumental roles in the development of the Gateway. Familiar with the Gateway's features and limitations, we knew what needed to be examined from a library user's point of view, but we lacked the expertise to conduct a methodologically sound, impartial user study. To assist us in planning, designing, and carrying out the study, we engaged the owner of Marketing Backup, a research consulting firm specializing in library-related projects and user studies.

Focus groups are a purposive sampling method—that is, participants are deliberately selected based on a set of criteria. They are not randomly or blindly chosen, as is often the case with other user research methodologies, such as transaction log analyses, intercept interviews, questionnaires or phone surveys. A tool for collecting in-depth, thoughtful feedback, focus groups represent a qualitative rather than a quantitative methodology. Focus group interviewing is well suited to the study of needs, perceptions, satisfaction, and user expectations, as it overcomes the limitations of pre-determined, closed-ended questions. While the results are not statistically representative (that is, they may or may not reflect the attitudes of all users), they provide useful information for planning and evaluation.

The focus group method involves choosing groups of eight to twelve participants. Selection is based on similarity of background (e.g., undergraduates who are Gateway users), but possible dissimilarity of attitudes (e.g., use different CUL libraries; come from different disciplines).⁴ Our study targeted current users' perceptions of the Library Gateway. We did not study non-users of the Gateway, because their inclusion would have required a different research design. Once the focus group con-

venes, a trained facilitator, who remains neutral throughout the session, provides a framework (called an “interview guide”) for the discussion and serves as the catalyst to solicit feedback from all and to encourage candor.

For our study, we had the consultant lead six focus groups for us—two each of faculty/graduate students, two each of undergraduate students, and two each of library staff members. We worked closely with the consultant on the design of the interview guide; canvassed for, screened and selected the participants; and made the local arrangements for the focus group sessions. Each session had a note taker and was audio- and videotaped.

We are glad we had the opportunity to engage an outside consultant to run the focus groups. Her training, expertise and impartiality were important in getting good results and having these results trusted. She also saved us a lot of time that we would have had to spend on preparing to run the groups and doing the initial analysis of the data. However, we did find that we had grossly underestimated the amount of time and effort that we had to invest into the project ourselves. The local arrangements took a long time and a lot of attention to detail, especially the recruitment of focus group participants. We also found that having some knowledge of CUL and its library system was essential in interpreting the results. Consequently the consultant’s report was only a first cut at the data analysis. To complete the final report to the library, we needed to go back to the session notes to rework and supplement her analysis. For example, it took some further analysis to be able to separate the “report card” and “roadmap” functions of the project.

Summary of Selected Findings

Awareness

Too many of our focus group participants “just stumbled across” the Gateway and learned to use it by trial and error. The primary use is access to networked resources; use of other Gateway features is less frequent, and awareness of them is low. Many felt a need for instruction but the level of awareness of the different kinds of library instruction available was disappointing. We need to be proactive about building awareness and educating users about our information services and systems. Another word for this set of activities is “marketing.” Whatever we call it, users want us to get their attention, connect with them, keep them informed, and reach out to them.

Hierarchy of use, hierarchy of needs

Undergraduates use the Gateway when they do papers; their use is intermittent, and usually their need is for quick information. Most come to a campus library to use the system. In contrast, faculty and graduate students use the Gateway more frequently and steadily, and they prefer access from their offices. Some go to the library so they have the help of a librarian. Their information needs are highly focused, and they typically use a handful of databases associated with their specialties, but they also want to be kept up to the minute on what’s new in their areas. This set of findings suggests that we should be designing for various levels of information system use and need.

The trouble with Help

Focus group participants admitted they not only rarely use Help, they laughed about how no one ever uses help pages and manuals. At the same time they reported initial confusion about what the Gateway is and how it works, and they suggested developing context sensitive Help, search tips, online tutorials, and online interactive user support. Most of all, though, they stated a preference for human (including e-mail) over system help. This set of findings suggest that we need to maintain personal connections (either physical or virtual) to users of our systems. This appears to be as critical to excellent service as the technology and design of the system.

Full text and more full text

With respect to the networked resources available on the Gateway, focus group participants said they want more resources, more full text, and more electronic journals. Asked what they liked *most* about the Gateway, faculty and graduate student participants chose full text.

Finding the (right) resource

Many participants found the process of selecting an online resource from the thousand plus available through the Gateway confusing and unpleasant. Comments from our focus groups suggest that systems should permit both searching and browsing of networked resources (e.g., by subject). Asked what they liked *least* about the Gateway, participants picked confusing searching, having to know multiple query languages, databases with more than one interface to choose from, and lack of immediate access to library holdings information from citation databases.

An embarrassment of riches

Even though they appreciate the variety and increasing number of resources available to them, and they want more, our focus group participants made it clear that the Gateway is already somewhat overwhelming to them. This finding suggests that we must keep working to find a design that can make a full (even cluttered) information space easy and intuitive to use.

Conclusions

The following issues emerged as overarching themes throughout the six focus group sessions.

Complexity of the information scene

The most often heard complaints were the sense of confusion that the novice user faces when using the Gateway, the complexity of the system, and the fact that keyword searching is “useless.” These complaints are related to each other and they all stem from the complexity of the information scene that the Gateway presents. Changing cataloging practices and redesigning the interface could provide a slightly better or slightly worse result, but they won’t fundamentally address the core of the problem.

In the print academic library most users expected and accepted complexity as a fact of life. Indexes, catalogs, reference books, encyclopedias, dictionaries, journals, monographs, magazines, manuscripts, etc. were somewhat daunting for the average user but since they had to come to the library anyway, they could ask for help at the reference desk and they had no expectation of simplicity. The librarian helped them acquire the basic research skills they had to have to translate their information needs into the language of the library, the first and most important step towards getting the answer.

Today the information scene is even more complex. By adding enough full text and bibliographic databases, numeric, visual and geospatial data to the mix to create a digital library, we have not eliminated the need to translate between the users’ information need and the available resources. The only thing that has changed is the users’ expectation that all this should be easy and their perception that they are alone in this process with no easy help available. In the era of remote access, the World Wide Web, and search boxes, needing library research skills is a hard concept to sell.

Any system that requires searching a metadata catalog of such diverse items as the full text of the Oath of

Hippocrates, Science Citation Index, LEXIS/NEXIS, the CRL Catalog, and the Americans and Food Quiz will cause some confusion for the novice user who is interested in something as specific as the link between anorexia in adolescent women and gender stereotypes in mass media. When they encounter the search box on the Gateway Networked Resources page, oftentimes they type in their specific keywords not understanding the granularity of the catalog, not knowing that their best bet might be a general or multidisciplinary index that they can only get to if they type something as broad as social sciences. Tweaking keywords in the records and changing the interface will not address the underlying problem that we have no intelligent agent to find the best databases for the user and no way to search multiple databases and present the different level results in a meaningful way. At this point we need the user to have the necessary skills to navigate by themselves, or ask for our help. This problem will no doubt be a major challenge for any future Gateway as well.

Overall satisfaction with the Gateway and the library

Overall, everyone in the focus groups seemed to be happy with library collections, services, staff, and online resources. Even when they were critical about something, users kept reminding themselves how lucky they were to be served by such a great library. The criticism and suggestions we heard came from users who are generally satisfied or very satisfied with the Gateway and their library. This comes in contrast with the widely shared perception in the library staff groups that users are very confused, that they need lots of help and that they don’t always get the help they need.

Personalized and subject-specific services

Because of the complexity and size of the system, users welcome any shortcuts we offer. “Greatest Hits” is a short list of the most widely used databases on campus with connection links just one click away from the top page. Users like “Greatest Hits” and are eager for a way to create their own “Greatest Hits.” They would also like to be notified of new resources that are of interest to them. In other words they would like to be able to bypass the Gateway but without missing out on new developments. This is mostly of interest to faculty and graduate students whose research interests are already quite focused and constant. They are also interested in getting suggestions for the best

resources for a specific subject or discipline now that the Gateway subject captions bring up too many resources to comfortably scan.

Recommendations and Lessons

The study produced a long list of recommended actions. The following is a short, somewhat generalized summary of these specific items.

Continue to do the good that we're doing, such as providing more resources, especially full text and e-journals; allowing for both searching and browsing the collection; providing both Web and telnet access to databases; and making networked resources highly visible as a separate category.

Improve what's not perfect, such as keyword searching; the display of search results; the degree of integration with the OPAC (especially holdings information); and expand the ways of "slicing and dicing" the collection such as allowing an easy way to search for e-journals.

Explore new ways of doing things, such as simplifying the task of navigating a complex information scene; providing personalized and current awareness services; adding features like "what's new," "hot topics," and subject guides; adding services like multimedia tutorials, document delivery and chat reference; involving users in systems design; and providing a common search engine and simultaneous searching of databases.

Aside from producing a list of recommended actions, our study also reinforced some general design lessons. First and foremost it served as a great reminder to always involve users in the design process, and the earlier the better. Yes, it takes time, yes, it slows down the pace, but the results will be better. Besides improving the final product it also sends a strong message to the users that the library clearly sees serving them well as its first priority.

One thing users will tell you time and time again is to always provide multiple ways of accomplishing the same task. In our case, for example, it became clear that providing the "institutional" entryway to the resources via browsing and searching is not enough. Users have a real need for a more personal way to approach the information scene, a way that is built on their specific interests and use patterns. Redundant? Yes, but it is worth it for the added comfort and convenience for the users.

Naturally, all system producers strive to build a product that is so user friendly that it practically "drives itself." Unfortunately, the result always falls somewhat short of this goal. Consequently, users often need help, but their reluctance to use manuals and help pages is legendary. The solution seems to be twofold. Making help indistinguishable from the system via good design, intelligent responses and error messages eliminates the need to click on that uninviting "Help" button. Also, building in some "real human" help such as chat or e-mail accommodates most users' desire to just ask someone.

Academic Libraries As System Producers

To operate in today's uncertain and competitive world, librarians are increasingly called to question their assumptions about what libraries are, what they do, who they serve, and what those users need. We are not sure what academic libraries are coming to be, but it is clear that they are in transition. Our highly standardized catalogs that provide access to collections housed in buildings are being transformed into scholarly information networks with a growing number of novel capabilities, and today's library gateways are only the beginning.

We believe the university library is becoming a producer of systems for gathering widely distributed resources and expertise into a unified whole. Such systems will support the creation, storage and transmission of scholarly information in at least two ways. One way is through attentiveness to library users (both in the immediate sense of eye contact and the more abstract sense of heeding what they say and do, then acting on it). Another is through information system design, production, support and enhancement.

So where does WOW! come from? It comes from the deployment of technology—the building of systems—to lead library users through the maze of available resources and to facilitate scholarly communication. At the same time, the system alone is not enough, and the power of personal connections should not be underestimated. Our research suggests that for an academic library information system today, connecting with users and system design are two sides of the same coin, contributing equally to a user's perception of the system.

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Notes

1. Peters, Tom. *The Pursuit of WOW!: Every Person's Guide to Topsy-Turvy Times*. New York: Vintage Books, 1994.

2. Albert R. Mann Library is one of Cornell's 19 unit libraries. It serves the College of Agriculture and Life Sciences, the College of Human Ecology, the Division of Biological Sciences and the Division of Nutritional Sciences.

3. Several studies of the Mann Library Gateway have been published. The most recent is Payette, Sandra D. and Oya Y. Rieger, "Supporting scholarly inquiry: incorporating users in the design of the digital library." *Journal of Academic Librarianship* (March 1998): 121-29.

4. The information presented in this section is based on several useful sources: Rao, Vithala R. "Identifying unmet needs." In *Analysis for Strategic Marketing* (Cornell University Press, date), 83-86; Paley, Norton. "Getting in focus." *Sales & marketing management* (March 1995): 92-95; and Connaway, Lyunn Silipigni, Debra Wilcox Johnson and Susan E. Searing. "Online catalogs from the users' perspective: the use of focus group interviews." *College & Research Libraries* (September 1997): 403-20.