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Opening the Front Door:
Designing a Usable Library Website

Andrew J. Keck

Abstract:
The library website is a significant access point to a library's collections, resources, and services. A website can and should provide information about the library in a way that can be efficiently navigated and used by all library patrons. The usability of a library website can be improved through changes in organization and design informed by the experiences of real users. User expectations should be primary in determining the content, purpose, organization, and design of the site.

Footnote:
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A favorite "Far Side" comic strip shows a boy pushing on the door to get into the "Midvale School for the Gifted" but the door is clearly labeled "pull." The virtual front door to our libraries is the library web page. Even with the best design, some users will misunderstand, misinterpret, and be misguided by the library website. This difficulty is due to the challenge of rendering within a single website the complex set of resources and services that are found within a library. Despite this challenge, a user's ability to efficiently use a library website can be improved through making changes based upon the experiences of real users. User preferences and expectations should inform the purpose, content, organization, and design of a library website.

Purpose and importance

The purpose of the library website is to be an access point to the library's collections, resources, and services. Libraries that have both a website and a web-enabled online catalog tend to view the online catalog as being a part of the website. The catalogs (both card and online) allow patrons to see what resources are available within the library but tend to be much more limited in their ability to offer information about library services, library staff, basic research advice, and resources available beyond the library collections. For this reason, the library website is perhaps the most all-inclusive access point to the library. The library's website derives its importance in ways both internal and external to the institution that it serves.

Internally, the importance of the library website is directly related to the library's significance within an institution. The primary users and patrons of an academic library tend to be internal: faculty, staff, and students. At a basic level, the library provides access to resources

that help faculty and students grow in knowledge, understanding, and (in theological libraries especially) faith. Patrons further distribute the impact of the library through their papers, sermons, and dialogues. Therefore, the library and library website have a very significant and critical role in the intellectual life of a seminary or theological school. Library web pages can serve primary internal users through providing efficient access to library services and collections.

The library website is a point of outreach for the institution, as well as the library, as it is widely available to people from outside of the institution and indeed around the world. A website can and should provide information about the library and its collections in a way that is understandable to outside patrons. Of course, there are some web pages that are useful for all users such as lists of recommended websites, online catalogs, and interactive reference forms. Alumni, local pastors, genealogical researchers, laity, and others that make use of library resources enhance the library and institution's reputation in the community and beyond.

On the one hand, the importance and purpose of a library's website comes from its users and their purposes. But on the other hand, part of its importance and purpose is generated from the information, tools, and services that are made available online. There is much competition for a user's time and attention on the web. In a World Wide Web of 10 million websites, websites of libraries with the largest collections are on equal footing with the websites of new theological libraries with no books at all! A library can still have an important web presence even if a library doesn't have a great physical collection. The difference is in the information and resources that are placed on that website.

Information and resources

The library web page has given librarians the ability to integrate digital and physical resources into a single information center. A library website brings together the physical resources housed within a library, the physical resources available in other libraries and research centers, and the virtual resources that are found, created, bought, or leased. Given the hypertext reality of the web, libraries are able to link to freely available resources around the world. In this way, the library's web pages are not only a potential provider of information resources but also a gateway to many other resources.

One of the roles of the library website is to deliver information about the library. Library pages sometimes forget the basic questions of patrons. In the excitement of incorporating virtual and physical collections, things like library hours, directions, maps, and borrowing privileges may be forgotten. They seem rather mundane issues but can be critically important to all users. Libraries must develop a web page that assumes that the user may not know anything about the library. Timely announcements about weather-related closings (or other changes in service) are as important on the web page as on the front entrance.

An important role of the library web pages is to allow access to the library's physical and digital collections to the greatest degree that it is possible. For libraries where this technology is enabled, bibliographical databases and online catalogs can be linked to and/or searched from the library's web pages. The library web page can allow some libraries to integrate bibliographic tools and digital resources into one place so that the digital materials can be found and delivered electronically. Even more exciting are developing technologies that allow users to search several bibliographic and full-text resources simultaneously. Vendors of bibliographic tools and

databases are allowing more and more customization to their interfaces so libraries can effectively manage and integrate these tools into the library web page.

Digital resources may not be available to all website users because they are often bought or leased to the library with certain licensing restrictions. Unauthorized users of the website need to know which databases and tools require authorization. Authorized users must know how to be authenticated in order to use much of this information. This usually means that they must be on the campus network or be able to configure their home computers in a way that makes this work. The challenge becomes ensuring that the authorized users know how to be authenticated and all visitors know which databases and tools require authentication.

Along with incorporating content and tools from other sources, librarians have a responsibility to use the website to teach, help, and inform. A library website can be a good place for tutorials and help screens to assist people in using our collections and associated online catalogs, databases, and electronic journals. Research guides can help users through the exploration process and give guidance in investigating specific areas of knowledge. Also, the library web page can highlight new acquisitions, new digital resources, and other events of interest to the library community. The challenge of adding features to a library website is organizing them in a way that is helpful.

Organization

Web pages notwithstanding; libraries are complex organizations. The exponential increase in the amount of information has corresponded with an increase in the information tools, which in turn has corresponded with increased user confusion. In the modern library, even the physical

library can be complex and confusing. Journals are a great example. Libraries have some journals in electronic format, some bound, some filmed, some unbound, some off-site, some on the current periodical shelves, some at the bindery, some available through other affiliated libraries, and some that can be obtained through interlibrary loan. Part of the challenge of creating a usable website is just the challenge of trying to simplify and organize information. The more important challenge, from the user's perspective, is for a website to communicate effectively about the library and its resources without the benefit of direct personal contact with a librarian.

The library makes a considerable investment of time and money into organizing print resources in order to provide access to them. This work is completed in order to simplify as much as possible the ability of a patron to find resources that fit his/her research need. No less is needed within the library website. The importance of the library website and the varieties of information and services that can be included on its web pages make the organization of the homepage and website as a whole an especially arduous challenge. Like print resources, the website must be organized in a manner friendly to the user so that user needs are most important.

One of the mistakes made by library webmasters is to make the library website too library-centered. In other words, librarians like to design library websites that are most useful and understandable to librarians. It's too easy to add library jargon, categories, and preferences to the web interface instead of considering how the average patron might approach the website. As much as librarians would like to create websites for themselves, library web pages should be user-centered. The average person hitting the library web page may not necessarily understand what "research guide" even means, much less intuitively know that he/she should be able to get information about researching the Bible in that category.

Librarians have used the web for making lists ever since it was began: lists of websites, lists of electronic journals, lists of databases, etc. Small lists can be navigated easily. Librarians have a compelling need to organize longer lists – to give them subject headings or classifications. This indeed can be very helpful to the user but in many cases creates confusion with a multiplicity of lists and the standard problems of subject classification.

In addition to the problems with lists, librarians must face the "let's put it on the web page" syndrome. This syndrome arises from the ability of the web to make documents widely and electronically available. Almost any document can become a web page since a least somebody, somewhere might be interested in it. Since web pages are cheap, it is easy to develop a large website filled with all sorts of arcane internal documents that are of little or no interest to the average user. It can be difficult for a single website to be both an Internet for library users and Intranet for library staff and may be necessary for these two functions to be separated within the website or separated into different websites.

However one deals with internal documents, there are two problems that arise as one increases the size of the library website: one is navigational and the other political. The navigational problem is that the number of web pages increases the complexity of the website and thus the layers of web pages that must be created. At a certain point, one can no longer have a link on the front page to all of the other pages on the library website. Consequently, the library webmaster must "bury" some pages into pages perhaps several layers (and several clicks for the user) beneath the "home page." This can become the political problem. When someone requests that a page be placed on the library website, they not only want it to be available but also easily accessible to users.

Although the problems of proper organization can never be completely solved, there are a few basic principles that should mitigate their impact. First, have a method of keyword searching all and/or part of your website. Although librarians have developed a healthy mistrust of keyword searching, when patrons are confused about the subject categories they head straight for the search mechanism. Second, patrons don't really care as much as librarians about issues such as format, origin, and cost. It is far simpler for the patron to find one page on Biblical studies that includes databases, ejournals, and websites than to search separate lists for each. Third, create a site map that users can refer to concerning the site's structure and organization.

Design

There is often a thin line between organization and design. Organizational challenges lead to design challenges and designs often lead to organizational problems. There are many ways to design a library web page – there is no standard template and indeed many different models. A major part of the design goal should be usability for the patron. One of the limits and liabilities of the web is that not all users will see and use a web page in the same way. Part of the way a web page is seen and interpreted will be personal—patrons will bring with them their experience of navigating other library and non-library web pages. Another determining factor regarding how a web page will be viewed is practical: web browser brand, web browser version and settings, operating system, and monitor resolution all change the way that a website is viewed. Perhaps most importantly, the type of connection to the Internet will determine the speed at which they can use and navigate your website.

The first thing that a website design should do is adhere to web standards. This can be difficult given the different implementations and interpretations of those standards by the major web browsers. The focus should be on designing for the majority's lowest common denominator. For example, the majority of people will be using a graphical browser but probably not the latest release since most people do not instantly upgrade their software. Even then, it is possible to include features found on new browsers as long as those features have no essential impact on the older browsers. New features that generate errors or gibberish on older browsers should be avoided.

Bandwidth is an essential issue that is often overlooked but makes a large difference to users connecting to the library's website over a modem connection. The bandwidth issue isn't always noticeable to library webmasters due to the fact that library web pages are developed on a campus network instead of over a modem line. According to Jakob Neilson, page sizes need to be kept below 34 kilobytes for modem users to achieve a 10-second response time[1]. That doesn't mean that you can't have high-bandwidth pages with graphics or compressed video of your latest renovations or booktalk. However, it is helpful to warn users about high-bandwidth pages on your site since users tend to be impatient unless they are forewarned and expecting a longer wait.

The impatience of users also needs to inform the way in which the library website is designed. Simplicity is one of the hardest things to achieve on a library website yet it is the most essential. What is simple for the user may not always correspond to what is simplest for the library webmaster to achieve. Web users have learned to scan and click. Therefore, it is important to attend to distractions, white space, short texts, descriptive and simple language.

The library webmaster should remove all unnecessary distractions. Distractions include anything that unnecessarily blinks, rotates, or moves upon the page. While these animations are fun to use, they do not belong on a library's home page. The use of frames is also a distraction. One of the most frustrating experiences on the web involves being caught in some "frame purgatory" that one cannot escape.

Just as in printed publications, white space and margins add to the readability of a document. One of the limitations of computer monitors is that it is difficult to read across the screen. Therefore, it is helpful visually to set up your pages in several columns or in one column with generous margins. Because of differences in monitors and their resolutions, what appears to be sufficient white space on one monitor may not be sufficient on another. Be sure to test the web page at different resolutions.

Since users tend to scan quickly, short texts are more likely to be read than longer texts. Sentences, paragraphs, and words need to be short. Be generous in your use of categories, subcategories, and bullets. Instead of putting a lot of text on one page, begin with a summary or enticing first paragraph and then link to its continuation on another page.

Keep titles simple yet descriptive from the title of the web page itself to the title of each subheading. This doesn't necessarily have anything to do with a user's vocabulary skills but rather the method by which users scan and pick out keywords and phrases. One of the new features incorporated in the HTML standard is the ability to add "titles" to links so that a user with mouse over a particular link can view a popup box that adds more description. If users aren't sure about what the ATLA Database is, perhaps the popup box could indicate that it indexes multi-authored books, journals and Doctor of Ministry projects.

Usability Testing

The library's website can be organized, simplified, and redesigned, but how does one determine if the web pages are really more usable? The way to test usability is to watch actual users accomplish common tasks utilizing the library website. There are several steps to a usability study: define the parameters, determine the tasks, develop the process, recruit the participants, complete the study, and evaluate the data.

The parameters of the usability study define which parts of the site to study. In most cases, one will want to primarily study things over which one has control. If the online catalog is bought from a vendor and the library has little influence regarding its redesign, there may be no use in studying the catalog. Some parts of a library website also may not be useful or of interest to most patrons. Most usability tests begin at the home page and investigate top-level navigation as well as the navigation within significant sections of the website.

The tasks for the user to perform must be actual tasks or questions that users would normally face. It is natural to pick tasks that highlight already recognized problems or tasks that require the user to find information buried deep within your website. It is usually good to have several questions of this nature, as you will be able to observe what users try to do in order to solve the task, which will be quite informative. In addition to several "tough" questions, be sure to include common (and potentially easy) tasks. This will help the self-esteem of the participant as well as perhaps highlight changes that could be made in the website to make the completing of these common tasks more efficient.

Although one could simply observe users completing the tasks, there can be some use in employing other kinds of observational measurement. Timing participants and/or counting mouse clicks as they complete each task can help determine whether a particular person's difficulty with a task is representative of a larger group. These measures may also provide a baseline by which to compare future studies on the redesigned website. Be sure to document which web pages a participant uses for each task. Testing sessions can be audio and/or videotaped to capture screen images and verbal feedback. Instructing the participant to think aloud while completing the tasks will assist in analyzing the thought processes of each participant.

The next step is recruiting the participants. Jacob Nielson recently suggested that a usability study could be done with just five persons[2]. Whether you do five or more it is important to have a group representative of most, if not all, of your primary patrons. Ideally, the usability study is done before the web pages go "live" so that the participants have no prior experience in using the site and so that you can make the necessary usability changes before it goes "live." As an incentive, it is often helpful to offer some small token of appreciation for their time and effort. Although the study is really about the website, your participants are ultimately considered "research subjects" and should be informed ahead of time about the purpose and time commitments of the study. Some institutions may need to have participants complete consent forms, especially if you use video or audio recording.

The study should be completed, if possible, in a room with minimal distractions. The participant should usually be given a list of the tasks/questions in writing so that they can refer back to it easily to make sure that all of the items have been completed. If you are timing the tasks, you will need to determine some arbitrary time to start and stop the test – perhaps when

the participant begins reading the question until the participant indicates that he/she is done. If you are trying to record numerous behaviors like clicks, pages clicked to, etc., you may want to consider having another person available to help you record the desired information.

Although the measurements are important, they should not get in the way of the observations. This is not a strictly scientific study and the difference of a few seconds or mouse clicks should not make any difference to the your overall analysis of the website. The analysis of the usability testing data will be critical to determining the redesign of the library website. The problem and its solution in some cases will be quite self-evident. However, some problems will be difficult to define and even more difficult to solve without a major redesign of the website. It is important to continue testing and retesting the design especially in these difficult cases.

Redesign

Once the data has been analyzed one can begin work on redesign. Some changes will be minor such as adding a more prominent link or changing the terminology used in titles or headings. Other changes may arrive at the very heart of how a website is organized and may entail a more complete redesign. The trick, of course, is to solve the problems discovered by usability testing so that the website usability is actually improved. To find solutions to some of the more vexing problems, it can be very useful to visit other libraries websites to see how they handle a particular task. This is a good practice not only for finding solutions to specific problems learned through usability testing but also to learn strategies that other libraries use to teach or inform their patrons.

For example, suppose usability testing showed that the library's web page containing annotated links to recommended web pages was difficult to find and use. One might consider putting the link in a more prominent location and adding a searching feature. But upon visiting several library websites, there may be other solutions in place that involve integrating the web pages in a "research guide" or highlighting a specific website each week, etc.

Ongoing and continual usability testing can be very useful in order to ensure improvement, especially as a website matures and grows. As the library changes, so must its website and one should periodically refresh one's web design. As technology and access to technology continues to change, the library website must continue to change. One may need to change the scale and design as monitors with better resolution become more common or add more multimedia elements to the design as faster connections become more common. If patrons prefer to obtain library information from other websites, it suggests something about the need for improvement in the design.

Conclusion

A library's website can be, and often is, a patron's first experience and impression of a library. If the library's website is judged difficult to use, then there can be an assumption that the library itself may be difficult to use (which may be true!). Since libraries are in the service business, it is critical that the library website be as service oriented as the library staff. In order to accomplish this goal, user's experiences and expectations need to inform the organization and design process of the entire library including the library website.

In the future, libraries and the World Wide Web will continue to change and grow. Libraries will continue to manage and integrate physical and virtual resources. The World Wide Web will continue to spread to new places and new users. Patrons may view the library website (or the future equivalent) in their cars, on their phones, on their televisions, and perhaps on their living rooms walls. Users will continue to expand around the world with the Internet becoming more heterogeneous in terms of language, class, and ethnicity. The browser and the web page will continue to incorporate new technologies that will add new opportunities to serve library patrons. At the same time, these same technologies will likely pose challenges to creating a usable library website that can facilitate the transfer of information between library and patron. By keeping the focus of design on the user, library websites can continue to be developed that will be useful, usable and used.

Notes

1.   Jakob Nielsen, *Designing Web Usability* (Indianapolis: New Riders Publishing, 2000), 48.

2.   Jakob Nielsen, "Why You Only Need to Test With 5 Users," *Jakob Nielsen's Alertbox* (March 19, 2000); available from http://www.useit.com/alertbox/20000319.html; accessed 10 April 2000.