Title: Students, Librarians and Subject Guides: Improving a Poor Rate of Return
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Abstract: Librarians use subject guides to introduce students to library materials. Surveys, usability tests, and usage statistics demonstrate that students do not relate well to subject guides. We suggest that library resources organized or delivered at a course level are more in line with how undergraduate students approach library research.

This article examines the apparent disconnect between how library subject guides fit into the undergraduate student’s and the librarian’s mental models of information organization within academic disciplines.¹ We find evidence of this problem in surveys, usability tests, and usage statistics: the data indicates that students do not relate well to subject guides. Yet, librarians continue to produce and rely on them as tools for introducing students to library materials. Recognizing this disconnect can provide the foundation for changes that better align guides with student needs when conducting their library research.

History of Subject Guides
Library subject guides, sometimes called pathfinders or research guides, are usually annotated bibliographies of reference materials, Web sites, databases, and journals within a specific discipline. Most often the guides list basic sources rather than serve as comprehensive bibliographies, although some are, in fact, very inclusive. Dating back to at least the 1970s, subject guides were conceived of as print starting points for research in a discipline or on a topic and as curriculum tools for bibliographic instruction.² The
guides helped library users find materials or helped those unfamiliar with a discipline understand the key sources.³

While subject guides are primarily designed for library users, the librarians, themselves, gain significant career benefits by writing them. Pathfinders reduce workloads by standardizing answers to common yet complex questions. Developing such guides engages the librarian in primary and secondary sources, which leads to informed collection development decisions and overall enhanced knowledge of the discipline.⁴ Authoring a pathfinder serves as proof of expertise in a subject area, a useful quantitative measure of a librarian’s performance during annual promotion and tenure reviews.⁵ Therefore, although written for students, the guides can also serve some important career needs of librarians.⁶ This may explain some librarians’ reluctance to explore alternatives to subject guides until assured that a new model can meet both student and career needs.

Student Use of Subject Guides
A recent survey undertaken by Duke University Libraries illustrates the misalignment between Web subject guides and the student’s mental model of content on a library Web site. The survey of over one thousand library patrons found that 53 percent had “never” used one of the libraries’ Web subject guides, with 24 percent reporting use “rarely.”⁷ Usage statistics of Web-based guides at several other university libraries were also reviewed. At the University of Rochester, with a population of approximately 7,000 students, only five of the 43 subject guides recorded more than 300 hits in April, a generally busy month for students who are writing papers.⁸ These hits do not exclude the many visits to the subject guides by bibliographers, reference staff, and search engine
harvesters. Similarly, at Wright State University, with a population of nearly 16,000 students, 55 of the 65 subject guides logged less than 300 hits in this month. At a large state college with more than 28,000 students, the most popular subject guide received only 289 hits in April. This trend is not limited to the United States. At Australia’s University of New South Wales, with a population of over 40,000 students, only 7.5 percent of 160 subject guides received more than 300 hits.

We are not suggesting, however, that the students do not need the information resources contained within the subject guides. Teaching faculties’ chronic complaints regarding students’ inadequate research skills and the lack of quality resources in the bibliographies of student research papers underscore this need. However, students fail to find available guides or, if found, fail to use the guides effectively. Libraries that have incorporated usability testing in their design process employ the techniques in part to gauge student interaction with a Web site. Usability tests indicate that students are unable to match their information needs with the appropriate guide(s). A 2002 usability test conducted at Massachusetts Institute of Technology (MIT) Libraries, in which students were asked to use the subject guides to find two resources, resulted in the observation that users “weren’t familiar with our Subject Guides.” During a May 2003 usability study at the University of Rochester, test monitors observed that students typically did not use the subject guides, even though the test questions were designed specifically to be answered by the guides--leading to the conclusion that “students have no idea what subject guides are.” During the test three undergraduates were asked seven questions designed to be answered by information contained within the subject guides, including “You are doing an independent study on film and the holocaust. How would
you start?” For six out of the seven questions, all of the students used features of the library’s Web site other than appropriate subject guides. Only when the subject guides were displayed on the computer screen at the beginning of the testing did students regularly use them to answer the questions.

At the University of Rochester, librarians repeatedly observed in usability testing that undergraduates lack an understanding of an academic discipline. A student might begin with a single course in political science, for example. Through immersion in that course, or perhaps several more courses in that discipline, the student begins to understand what falls under the intellectual domain of political science. Some never grasp the concept of a “discipline.” Others may gain an understanding in their majors, but do not transfer this comprehension to other academic domains. The concept of disciplines is not usually part of a student’s mental model; therefore, the collocation of resources by discipline is not recognized.

A study at Bucknell University Library concluded, “Students do not understand the subject categorization or organization of pathfinders…. Students tend to wander, guess, and appear to be confused and not confident of their choice of subject.” For instance, when seeking research material on bioterrorism, which subject guide should a student use: the biology guide, the political science guide, the medical anthropology guide? The university curriculum is becoming increasingly interdisciplinary as evidenced by such fields as visual and cultural studies, gender-based studies, medieval studies, sport studies, and artificial intelligence. Even the “traditional” majors are more interdisciplinary in their approach--for example, combining music, art, and literature into a history course. This blending of disciplines is not usually reflected in the categorization
of subject guides, only adding to students’ confusion about how to address their information needs within the context of discipline-based subject guides.

Usability test results on information retrieval reveal that students, when confronted with a much more open-ended task than a directive to find books or articles, typically exit the library Web site and use Google or another search engine. Many do not explore the library site for content other than books or articles. When the University of Rochester Libraries posed usability questions such as “Find a Web site on Chippewa Indians” or “Find information on how to include a Web site in your bibliography,” students did not explore the library site for answers. They used neither the subject guides nor site search, even though both open-ended questions were covered in the subject guides. Instead, they proceeded immediately to a Web search engine.17 Similarly, observers noted during testing at the University of Washington Libraries that when asked to find a resource to help in writing a biology paper, the student “immediately wanted to leave the Subject pages. She felt uncomfortable and wanted to search on Yahoo, Looksmart, and HotBox.”18

College students are increasingly working in a world of customization and personalization. Amazon.com® provides the convenience of tailored suggested readings lists. The State University of New York at Buffalo’s student portal offers local weather and news, with links to grades and even personal parking permit information. Course management systems, such as WebCT™ and BlackBoard™, create learning environments tailored specifically to the needs of the students enrolled in a course. Students arrive at the library Web site with expectations raised by these numerous personalized and customized systems. When they do not find resources that appear to be
tailored specifically for their information needs, they move on to other information resources. Undergraduate students’ mental model is one focused on courses and coursework, rather than disciplines. This mental model is not well suited to library subject guides that require an understanding of disciplines and do not impart the needed personalization nor customization.

In spite of the intrinsic value of the library subject guides--surveys, usability and usage evidence indicate that students fail to connect with them. Students lack a mental model that includes subject guides, while librarians have a mental model that supports their value and purpose. What can be done? One alternative is to offer the content of subject guides in new ways. Another alternative is to find techniques to make subject guides, as they exist, more contextual to students.

Offering the Content of Subject Guides in a New Way

At the University of Rochester, we present subject guide content in a new context specifically related to the students’ courses. The CoURse Resources System, developed by staff at the University of Rochester Libraries, is a ColdFusion (CFML) system with an SQL table structure. Through this Web-based system, librarians are able to quickly create library resource guides tailored for individual courses. When a student arrives at the library’s Web site looking for information resources for an Anthropology 101 paper, the student discovers a library resource guide specifically for Dr. Freeman’s anthropology course. In essence, the system is a relational database of "best library resources" and course offerings. The system includes valuable print resources as well as electronic ones, presented with equal prominence. This blend of formats differs from a subject list of
useful websites or a MyLibrary system, which is typically limited to electronic resources. Librarians can place books and journals, in paper and electronic formats, article databases and paper indices, Web sites, and multimedia items into our course guides. Associations between a library resource and a course carry over from semester to semester. Therefore, the course guide for a repeated class, such as Anthropology 101, requires very little, if any, editing from semester to semester. During both the fall 2002 and spring 2003 semesters, over 450 courses, or approximately one-half of the total courses offered, included a library resource guide tailored specifically for it.¹⁹

Building the CoURse Resources System took eight months of planning by a committee of six librarians and four months of a half-time ColdFusion programmer’s time. At the time there were no commercial products available for purchase. Moreover, we estimate the cost of creating this system to be far less than the purchase and ongoing maintenance agreements that any commercial vendor would charge. As of April 2003, the code is available as free, open-source software.²⁰ Libraries that do not use ColdFusion should be able to borrow the CoURse Resources System’s underlying architecture and functionality to create a similar system in another programming language.

It is worth noting that some of the librarians’ career needs for subject guides are met in the CoURse Resources System model. After using the system for four months, librarians reported how much more informed they were about the curriculum, thereby improving their collection development decisions. In addition, they found that the system directly affected reference work. With a photo of the librarian included on each CoURse Resources page, students developed relationships with the librarians before they even met them. Students are requesting subject librarians by name and appear more comfortable
approaching librarians they recognize from the photos. These and other anecdotal evidence during the first year of the CoURse Resources System implementation lead us to believe that students are beginning to see librarians as a part of the course context.

Finding Ways to Make Subject Guides More Contextual

For libraries supporting several thousand classes a semester, customizing research resources at a course level is simply not possible; discipline-based tailoring is the most precise customization possible. In these cases, relevant labeling and easy access points to subject guides are critical to ensure that students can find and utilize them. Several studies have demonstrated that labels such as “subject guides” and “pathfinders” do not adequately convey their purpose and scope to students. Once introduced to subject guides, students at Bucknell were invited to suggest alternate names. The students’ suggestions reflected not what the subject guides are, but what they do. Students chose practical wording, such as “Beginning Research Page,” “Where to Start,” “Researching? Start Here,” and “Getting Started.”\(^2\) This is consistent with the findings of Jared Spool, an expert in user-centered design, who found that Web users seek “trigger words” in Web links. “When the trigger words match the user’s [sic] goals, they find those words right away and the links make them more confident that they are going to find their content.”\(^2\) Apparently, “subject guides” and “pathfinders” are not the trigger words that students are seeking.

Equally important as descriptive labeling are well-placed access points. Access points to the subject guides need to be located in areas of the Web site that have high research and coursework context to students. For example, subject guides at Gettysburg
College will be piggybacked onto the very popular online database page, which in fall 2002 received greater than 900 percent more hits than the subject guides page. “When a student clicks on ‘Music,’ they'll get the databases recommended for music plus other recommended resources…with Databases at the top of the list.”  Another placement with high traffic and context would be with electronic course reserve material.

A third approach to the problem is to provide access to the subject guides at a course-specific level, even though the guides themselves are still at a discipline level. An ideal placement of links to subject guides would be within course management systems, such as BlackBoard and WebCT. At Mt. Holyoke College, the WebCT main menu for any class can include a link directly to the most pertinent subject guide. An alternative is to provide a research guide search box where students enter in their course code (i.e., Bio 241) and are presented with the appropriate subject guide (Biology). This system could be refined to be able to map a “Literature through Film” class with both the literature and film subject guides. In both of these examples, the goal is to bring the discipline-based subject guides to students at the class level, giving the guides’ content immediate relevance.

Conclusion

In writing about learning, Lee S. Shulman, president of The Carnegie Foundation for the Advancement of Teaching, describes the concept of meeting a student where he or she is. “Any new learning must, in some fashion, connect with what learners already know…[because] learners construct their sense of the world by applying their old understandings to new experiences and ideas.” In other words, the learner’s context and
past experiences and knowledge are strong determinants of how and if new learning will be achieved, because “the most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly.”

To affect student learning, a librarian must meet the student on the student’s experiential terms. Once a connection is established, the librarian can then bring the student to a place of broader knowledge, awareness of content, and greater information literacy.

As librarians, we influence student learning in many ways during our workday. This happens in a reference interview and may last only a few minutes. Sometimes by choice or by necessity, a face-to-face encounter between student and librarian is not possible. The library’s Web site or print publications distributed at the reference desk can extend librarians’ educational role, if these tools meet the students on their terms and context. Evidence points to a current disconnect between the subject guides of most university libraries and students who can benefit most from the guides. It is argued here that this disconnect occurs because of differences between how subject guides fit into both the student’s and the librarian’s mental models of the way that information within a discipline is organized. Guides that are organized or delivered at the course level appear to be more in line with how students approach library research. If librarians are to meet students where they are, we need to move away from the traditional use of discipline-based to more course-based devices for organizing library resources.

ENDNOTES

1 A mental model is a preconceived expectation of an outcome, based on previous experiences in the same or similar situation.

Several contemporary and historical articles discuss subject guides:


Bill Strickland, Director of the Turchin Business Library, Tulane University, personal e-mail June 25, 2003.

Personal conversations with librarians from University of Rochester (2003) and discussion on the Academic Business Library Directors (ABLD) private listserv (June 2003).

“Survey Results -- Draft: Combined Results: Pop-Up and E-mail: Summary.” Available from Emily C. Jackson Sanborn, Reference and Digital Services Librarian, Duke University Libraries <emily.jackson.sanborn@duke.edu>
At the bottom of any page on the University of Rochester’s Web site <http://www.library.rochester.edu> is a freely accessible “Web Page Statistics” link, which will display the usage statistics for that given page.

Web Team, Wright State University Libraries, “Usability Test 2003,” provided by Brett Powers, Web Coordinator <brett.powers@wright.edu>

Institution wishes to remain anonymous.

Data provided by Ken Klippel, Web Coordinator, University of New South Wales, Australia.

Numerous studies have been conducted to support the anecdotal evidence of students’ poor information literacy skills. A good sampling of these studies can be found in Philip M. Davis, “Effect of the Web on Undergraduate Citation Behavior: Guiding Student Scholarship in a Networked Age,” portal: Libraries and the Academy 3, 1 (2003): 41-51.

A Web site usability test typically includes 3-5 users. Through observation of this small number of people interacting with a site, major design flaws or major use patterns can be successfully extrapolated to the entire population of users. Test findings are qualitative, not quantitative. Two favorite illustrations of this rule are Jakob Nielson’s “Why You Only Need To Test With 5 Users,” Alertbox (March 19, 2000).


15 Usability Group, River Campus Libraries, University of Rochester, “Testing Live Homepage, Round 1. January 2003. Clickpath Chart and Major Summary.” Within the next few months, the University of Rochester usability test results will be made available on a public Web site. In the meantime, contact Brenda Reeb <breeb@library.rochester.edu> for copies.

16 Bucknell Information Services and Resources, “Pathfinder Survey Results: Post-Survey Comments.” Contact Isabella O’Neill <ioneill@bucknell.edu> for copies.

17 Within the next few months, the University of Rochester usability test results will be made available on a public Website. In the meantime, contact Brenda Reeb <breeb@library.rochester.edu> for copies.


20 The code for the ColdFusion system, called LibCB, is available as open source from SourceForge at <http://sourceforge.net/projects/libcb/> [October 2003].

21 Bucknell Information Services and Resources.

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