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Abstract

Barriers and Obstacles to Use, Satisfaction, and Success: The Response of the Million Book Project

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The Problem

The quintessential mission of academic libraries is to support teaching, learning, and research. The primary values of librarianship are to support intellectual freedom, equitable access to information, and stewardship of our cultural and intellectual heritage. In the 21st century, fulfilling this mission and upholding these values are tied to a new ontology for libraries. Libraries must discover and support new online information-seeking behaviors and user expectations precipitated by the Internet, while simultaneously continuing to acquire – and find space to store – traditional materials. They must purchase, integrate, or exploit new technologies, including enterprise-wide technologies like portals, course management systems, and institutional repositories. They must recover and renovate space to provide quiet study carrels, group study areas, and coffee shops. They must market their offerings and skills to students and faculty. They must write grant proposals, cultivate donors, and demonstrate fiscal accountability. They must be both advocate and comply with policies and legislation that shape what is allowed and forbidden in cyberspace. And they must collaborate in the design of a curriculum and assessments to retain accreditation based on new criteria. Add to this mix the escalating economic crisis in scholarly communication, concurrent budget cuts, and a context of ominous predictions that the Internet or a super bookstore will replace the library, and the depth and breadth of challenges faced by libraries today can appear overwhelming.

How can libraries deal with all this? What, if anything, do we know for sure? An overview of findings from recent user studies can help us organize our thinking and set priorities. This paper summarizes the results from research conducted 2001-2003. Taken together, these studies suggest a path for libraries to become more visible and viable by adopting a user-centered perspective. The paper concludes with a description of an international undertaking exemplary of user-centered, collaborative, visionary, flexible work effectively championing open access to copyrighted books, reports, and journals.

User Needs, Expectations, Preferences, and Priorities

The Academic Work Paradigm

Students and faculty today want to be self-sufficient. From their perspective, personal control hinges on easy access to information. Roughly 90% of the students and faculty who participated in a survey of the scholarly information landscape sponsored by the Council on Library and

Information Resources (CLIR) and conducted by Outsell Inc. indicated that ease of access is their second most important information need, topped only by the need for quality resources. However, fewer than half of the survey respondents indicated that libraries are adequately meeting their need for easy access. Respondents rated ease of access to information as their third most significant problem. Having enough time to do their work was their number one problem, followed by knowing what resources are available.[1]

The Expectation of Convenience

Students and faculty associate convenience with easy access to information and easy-to-use online tools and resources. An OCLC survey of college students revealed that they encounter problems navigating and searching the library web site and online resources, and perceive these difficulties as barriers to library use. Their number one recommendation for libraries is to make it easier to access and use library resources.[2] Results from two other studies – a study conducted under the auspices of the Pew Internet and American Life Project [3] and a study conducted as part of the Evaluation of the Distributed National Electronic Resource (EDNER) Project [4] – indicate that students use the Internet more than the library because it is easier to find resources using the Internet. Jakob Nielsen's recent research revealed that, on average, users fail to accomplish their tasks 35% of the time when using web sites.[5]

The results of the Outsell study indicate that 50% to 90% of faculty and students perceive a significant gap between their top priority needs – for example, for easy access, speedy delivery, and system functionality – and the service their library is providing. Approximately 24% of the respondents indicated that they often cannot get information when they need it.[6] These findings are confirmed by the Association of Research Libraries' LibQUAL+ survey results from spring 2002 and 2003.[7] LibQUAL+ indicates problems in the areas of access to information and personal control. Speed and convenience are key characteristics in both areas. In terms of access to information, users want convenient business hours and timely document delivery and interlibrary loan. In terms of personal control, users want easy, convenient, remote access and easy-to-use tools and web sites that enable them to find the information they need without assistance. While libraries are meeting minimum needs in these areas, the gaps between what we are providing and what users really want is significant.

The Expectation of Remote Access

According to the Pew study, 69% of undergraduates live off campus and 59% of them use their home computer more than computers at school. Over half (54%) of the students and faculty in the Outsell study said they access library resources from their residence; the percentage is higher (68%) for undergraduate students. Faculty said that they spend 10% of their information-seeking time in the physical library, graduate students 30%, and undergraduates 34%. Almost a third (31%) of the respondents indicated that having to go to the library was a problem.[8]

According to the OCLC study, 90% of students access the web from their home computer, and 78% prefer remote access.[9] Four out of five students indicated that they sometimes use the library for web access, but only one in five prefers this access point. Students perceive vendor licensing restrictions and password requirements as barriers to easy remote access to library

resources. Problems with proxy servers and virtual private networks do doubt also prevent barriers to remote use of online library resources.[10]

The Path of Least Cognitive Resistance

According to the EDNER study, efficiency, or the amount of time and effort required to find information, appears to matter more to students than the relevance of the information found.[11] A research report published by the Library and Information Commission suggests that user satisfaction is multi-dimensional, occurring within a framework of expectations comprised of the information-seeking task, the functionality of the retrieval system used, the assistance provided, the user's own abilities and immediate goals, and (finally) the information retrieved. Efficiency and the user's experience of interacting with the retrieval system – in short, the ease and speed of finding information – can be equally as important in satisfying the user as the utility or appropriateness of the information found. Low expectations will be highly satisfied with low precision results.[12]

The Outsell survey revealed that 11% of undergraduates are not concerned with the authoritativeness of the information they find, and 5% do not verify the information with other sources.[13]

The Need for Training

Respondents to the Outsell survey rated having sufficient training to use the tools and resources available as their third most significant problem – tied for third place with ease of access to information. A recent Task Force report from the Online Computer Library Center (OCLC) entitled “Libraries and the Enhancement of E-Learning” highlights the need for better, more focused training for faculty, students, and librarians. The report strongly encourages the integration of library resources and services with course management systems, and urges libraries to embed training within these systems. OCLC in effect introduces a new paradigm shift for libraries: not just-in-case, not just-in-time, but “just-enough-just-in-time-just-for-me.”[14] Progress in this area could be encouraged or facilitated by recent revisions to criteria for accreditation of institutions of higher education, which define and require outcomes assessment of information literacy.[15]

Changing Perception and Use of the Library

The Outsell study revealed that though students and faculty trust the library more than the Internet, they turn to a popular Internet search engine like Google to satisfy their daily information needs. Almost half (48%) of the students and faculty participating in the study indicated that they start their search for information using an Internet search engine, while only a third start with the library web site.[16] The figures are strikingly different for undergraduates: almost twice as many undergraduates (54%) start with an Internet search engine as start with the library web site (28%). The OCLC survey of college students [17] and the EDNER Project study [18] confirm the Outsell finding: students turn to an Internet search engine first when they need information – probably because Internet search engines are more convenient and easy to use.

Though most (86%) of the Outsell survey participants indicated that their campus library meets most of their information needs, almost as many (80%) said that the Internet has changed their use of the library. Over a third (35%) said they use the library less now than they did two years ago. Most (87%) indicated that they find more relevant information on the Internet now than they did two years ago. Few respondents (16%) said that the Internet has not changed their use of the library.[19]

Roughly 80% of the college students who participated in the OCLC survey said they use the library fewer than three hours per week.[20] Approximately 40% of the students indicated that they use an Internet search engine for every class assignment, while only 11% said they use the library web site for every class assignment. Current college students acquired their information-seeking habit of using Internet search engines in high school, and they see no need to change their habit because they can successfully find adequate information using Internet search engines. Similar results were attained in the Pew study: 73% of graduate and undergraduate students use the Internet more than the library; only 9% said they use the library more than the Internet when they need information.[21]

Almost all (96%) of the students in the OCLC study believe that the information they find on the open Internet is good enough to use in their coursework. Alarming, almost half of them (46%) believe that other sites have better information than the library web site.[22] An analysis conducted by Steve Lawrence and Lee Giles in 1999 revealed that only about 6% of the web sites indexed by popular web search engines like Google was appropriate for academic use.[23] Though the percentage might have increased in the past few years, the gap between student perception and the reality of web content is reason for concern – a concern often articulated by faculty.

The findings of a study sponsored by McGraw-Hill Ryerson in 2002 suggest that the Internet has more current materials than the library. The results of the Outsell survey question these findings: only a third of the respondents indicated that they turn to the library to stay abreast of current knowledge in their discipline or area of study, but slightly fewer (30%) turn to the open Internet for the most current information.[24] So where do users go for up-to-date information – television? magazines? personal journal subscriptions? listservs?

Use of Online and Print Resources

Almost all (94%) of the participants in the Outsell survey indicated that they are comfortable with electronic resources, though most (77%) print online information to facilitate reading. Nevertheless, students and faculty continue to rely heavily on traditional print resources for research, teaching, and learning. Fewer than half of the faculty and graduate students indicated that they can find online most of the information they need for teaching (30%) and research (45%). Most graduate students (71%) also rely heavily on print resources to do their coursework. In contrast, almost half (48%) of participating undergraduate students indicated that they use online resources, not print, “all” or “most” of the time to do their assignments.[25]

Approximately 66% of faculty and graduate students said that they get at least half of the information they need for their research from their campus's physical or digital library. Almost half said they get at least half of the information they need for teaching from their campus's physical or digital library. Two-thirds of graduate and undergraduate students indicate that they get at least half of the information they need for their coursework from their campus physical or digital library.[26] Where do they get the rest – other libraries? the open Internet? super bookstores? classmates or colleagues?

The Outsell study suggests that students and faculty prefer electronic resources. Users indicated unmet needs for electronic resources more than twice as often as unmet needs for print materials.[27]

Perceptions of Technology and Student Success

Results of a study sponsored by McGraw-Hill Ryerson in 2002 indicate that most faculty (83%) rate new technology among the three key factors in student success, just behind course preparation and faculty training and development.[28] Approximately 77% of the U.S. faculty participating in the study cited computer technology, not the library, as the most important and effective resource for students. Far fewer participants (56%) cited the library as a valuable resource for student success, and they positioned the library on a par with tutoring.

A somewhat parallel pilot study of student perception of learning success, conducted by Dieter Schönwetter, indicates that students also believe technology is critical.[29] When asked what the library could do to enhance their success, 46% of the students responded provide more technology, 30% said provide more assistance, but only 24% requested more materials. When asked what their institution could do to enhance their success, 26% responded provide greater exposure to technology. When asked what their professors could do to enhance their success, 32% responded provide greater exposure to technology. When asked what textbook publishers could do to enhance their success, 55% of the students mentioned online access or CD ROMs. When asked in general what would enhance their learning success, 43% responded greater exposure to technology; only 26% mentioned academic courses.

The LibQUAL+ results indicate that students and faculty want libraries to provide state-of-the-art equipment.[30] Often incoming students have more up-to-date equipment – and more computer skills and savvy – than campus libraries and faculty.

Enterprise-wide Technologies

Pedagogy, learning styles and methods, and technology have become intimately linked (but not well understood) in course management systems, which according to OCLC are becoming “a kind of primary gateway” to meet student information needs.[31] In addition to course management systems like Blackboard and WebCT, many institutions are providing a customizable, personalizable web-based portal to the full panoply of their institution's resources and services. Course management systems are destined for integration with the campus portal, along with resources and services offered by other campus units like the registrar, dining services, etc. Meanwhile, managing and preserving the emerging array of digital intellectual

assets created by the academic community present their own set of problems. As institutions create repositories for these assets, the complexity of integrating (and funding the integration of) content management systems with course management systems and portals looms on the horizon.

A recent OCLC study of e-learning practices reveals two new challenges and opportunities for libraries in pursuit of “just-enough-just-in-time-just-for-me”:

- Integrating and exposing their systems, resources, and services in course management systems that deliver them directly to students
- Designing and disseminating new services that better meet student needs, expectations, preferences, and priorities.

Libraries are also challenged to leverage their strengths in creating, maintaining, and controlling access to digital repositories and developing associated metadata standards and best practices. Careful deployment of these interdisciplinary skills should enable libraries to play a leadership role in developing interoperable systems and overcoming the cultural barriers and resistance to change required to converge services across campus. Without such integration and collaborative leadership, OCLC cautions, libraries will face further budget cuts as their services are seen to be less relevant. “Libraries are particularly exposed in this emerging e-learning environment because they are seen as a large cost center in terms of traditional service delivery outside of the e-learning model” [32].

The Million Book Project: Open Internet Access to Copyrighted Books, Reports, and Journals

Notes

1. See Amy Friedlander, “Dimensions and Use of the Scholarly Information Environment: Introduction to a Data Set” (Council on Library and Information Resources publication 100, October 2002). Available: < www.clir.org/pubs/reports/pub110/contents.html >
2. OCLCa – “How Academic Librarians Can Influence Students’ Web-Based Information Choices” (OCLC White Paper on the Information Habits of College Students, June 2002). Available: < <http://www2.oclc.org/oclc/pdf/printondemand/informationhabits.pdf> >
3. Steve Jones and Mary Madden, “The Internet Goes to College: How Students Are Living in the Future with Today’s Technology” (Pew Internet & American Life Project, September 15, 2002). Available: < <http://www.pewinternet.org/reports/toc.asp?Report=71> >
4. “How students search: Information seeking and electronic resource use” (EDNER [Formative Evaluation of the Distributed National Electronic Resource] Project, Issues Paper 8, 2002). Available: < <http://www.cerlim.ac.uk/edner/ip/ip08.rtf> >

5. Jakob Nielsen's Alertbox, "Two Sigma: Usability and Six Sigma Quality Assurance," November 24, 2003. Available: < <http://www.useit.com/alertbox/20031124.html> >
6. Diana B. Marcum and Gerald George, "Who Uses What? Report on a National Survey of Information Users in Colleges and Universities," *D-Lib Magazine*, Vol. 9, No. 10 (October 2003). Available: < <http://www.dlib.org/october03/george/10george.html> >
7. [FIX – ARL LibQual+ results]
8. Jones and Madden, *ibid.*
9. OCLCa, *ibid.* Over 40% reported having high-speed access from home via cable modem, T1/T3 line, ISDN, or ADSL/DSL.
10. Denise Troll Covey, "Filling the Gap Between Commercial Vendor and Academic User Practice," *portal: Libraries and the Academy* 3, 4 (October 2003). Available: <http://muse.jhu.edu/journals/portal_libraries_and_the_academy/v003/3.4covey.html>
11. "How students search: Information seeking and electronic resource use" (EDNER Project), *ibid.*
12. F.C. Johnson, J.R. Griffiths, and R.J. Hartley, "DEVISE: A framework for the evaluation of Internet search engines" (Library and Information Commission Research Report 100, 2001). Available: < <http://www.mmu.ac.uk/h-ss/cerlim/projects/devise/devise-report.pdf> >
13. Marcum and George, *ibid.*
14. OCLCb – Neil McLean and Heidi Sander, "Libraries and the Enhancement of E-Learning" (OCLC E-Learning Task Force, October 2003).
15. See, for example, *Characteristics of Excellence in Higher Education* (Philadelphia: Middle States Commission on Higher Education, 2002), pp. 32 and 50.
16. Friedlander, *ibid.*
17. OCLCa, *ibid.*
18. "How students search: Information seeking and electronic resource use" (EDNER Project), *ibid.*
19. Marcum and George, *ibid.*
20. OCLCa, *ibid.*
21. Jones and Madden, *ibid.*

22. OCLCa, *ibid.*
23. Steve Lawrence and Lee Giles, "Accessibility and Distribution of Information on the Web." *Nature* 400 (1999): 107-109. Summary available: < <http://www.wwwmetrics.com> >
24. Campbell, Michner, and Lee, "Technology and Student Success in Higher Education: A Research Study on Faculty Perceptions of Technology and Student Success" (McGraw-Hill Ryerson, Ltd. [Canada], 2002). Available: < <http://www.mcgrawhill.ca/highereducation/administrators/research.php> >
25. Marcum and George, *ibid.*
26. Marcum and George, *ibid.*
27. Marcum and George, *ibid.*
28. Campbell, Michner, and Lee, *ibid.*
29. Dieter Schönwetter, "Student Perception of Learning Success with Technology" (University of Manitoba, 2002). Available: < <http://www.mcgrawhill.ca/highereducation/administrators/research.php> >
30. [FIX – ARL LibQual+ results]
31. OCLCb – Neil McLean and Heidi Sander, *ibid.*
32. McLean and Sander, *ibid.*, p. 8.