

# User Interfaces for Online Public Access Catalogs: A Research Workshop

by Trudi Bellardo

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Last fall, about 40 researchers from the Library of Congress, National Library of Medicine, University of Maryland, National Archives and other universities and information agencies attended an all-day session at the Library of Congress, sponsored by the LC Information Technology Services Directorate and the University of Maryland Human-Computer Interaction Laboratory. The group represented a wide variety of backgrounds and interests, but most were concerned with the design, implementation, usage or evaluation of user interfaces for OPACs or other online databases for library materials.

Marlye Ashley (LC-ITS) and Ben Shneiderman (director of UM HCI) were hosts and group coordinators. Herb Becker (director of LC-ITS) also welcomed the group. One goal of the meeting was to begin planning for an invitational conference on the theme of public access information systems, a conference for about 100 people some 18 months ahead. Attendees at this workshop would define the scope of the conference and develop a preliminary list of topics to be used as themes and as a call for papers. (Ray Larson of UC Berkeley took charge of organizing the conference.)

From a series of small group discussions, the attendees produced a long and diverse list, including topics concerning end users (information seeking behavior, user needs), computer systems (hardware and software development, file structures, searching algorithms), user interface design (navigation aids, help), subject access techniques (search filtering), information retrieval, subject indexing and others.

Attendees were also treated to two panel discussions about recent subject access research projects or theories.

In the first, introduced by Pauline Cochrane and Dean Wilder, Marcia Bates of UCLA emphasized that OPAC developers should be interrelating subject access (indexing) and system design. Currently, when users approach an OPAC for a subject search, they are almost as likely to fail as to succeed in retrieving even a single relevant hit. The challenge to subject in-

dexers and designers is to build devices for getting any retrieval at all and then to facilitate getting a good subject search. These devices need to include mechanisms for quality reduction of sets that are too large, means to increase a set that is too small (which is harder) and devices for selecting among items retrieved (e.g., ranking).

Mary Micco described developments in the prototype OPAC at Indiana University of Pennsylvania that give users alternatives to "brute force searching." These alternatives include weighting of primary subject headings, secondary subject headings, or words from text, truncation of several different types and use of classification to refine searches.

Ray Larson of UC Berkeley is also trying to build refinements into an OPAC that will reduce the large number of zero retrievals, not require users to deal with Boolean logic (which many cannot use correctly) and will improve the quality of subject searching by using LC classification numbers to form rank lists of associated LC subject headings.

In the second panel, introduced by Gary Marchionini, Joan Cherry of the University of Toronto described her study of the learning styles and backgrounds of 3000 OPAC users at five Ontario libraries. She discovered that the preferred method of learning was trial and error, followed by online help. OPAC users who own their own computers have higher performance expectations of the OPAC. There is now greater reliance on the OPAC itself for training and less on traditional forms of training.

Borgman studied the use of OPACs by children aged 8-12. She found that they lack skills and knowledge, such as typing, spelling, vocabulary and understanding of Boolean logic, for successful use of some OPACs. The children could, however, recognize terms they understood, manipulate hierarchical categories and use a mouse. Therefore, when Borgman and her colleagues developed an OPAC system for a science library, they made it accessible only by mouse. The system displayed a hierarchical vocabulary based on the Dewey classification and a map of the science li-

brary where the Macintosh PC was running. The screen showed where on the shelves requested books were located and identified books on similar topics. Borgman concluded from the evaluation that it is possible and desirable to tailor an OPAC to a particular population.

Belkin described a project in which data were obtained about library and OPAC users from observations, interviews, paper questionnaires and online transaction logs and questionnaires. The kinds of activities and tasks performed by the users, as well as their intentions, were categorized. Belkin and his colleagues discovered that users change their intentions as they progress through various information-seeking tasks and users are not always seeking to perform optimally. Belkin recommended that information systems allow seamless integration of a variety of information seeking activities (e.g., an OPAC should have an easy mechanism for sending a book request to the stacks and should include a map of the library).

By the end of the daylong workshop, many issues were raised and discussed, though not resolved. Among them were questions of understanding and appreciation between researchers and developers of information systems, concern about potential funding for future efforts and how research in this area might influence developments in NREN and other national information systems, and queries about how a research agenda for this group might be developed.

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## Calendar

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*May 10-13, Atlanta, Georgia, 39th Annual Conference of the Society for Technical Communication.* For more information, contact Society for Technical Communication, 901 N. Stuart St., Suite 304, Arlington, VA 22203-1822; 703/522-4114.

*May 10-15, Nice, France, 1992 IEEE International Conference on Robotics and*