

# Online Reference at the Library of Congress

Sarah M. Pritchard

Within the past several years, reference services have been changed by the advent of computer technology for information retrieval, and the sight of a computer terminal in the library reading room is almost commonplace. Today I will be giving an overview of how automated systems are an integral part of public reference at the Library of Congress. I will present some of the characteristics of the SCORPIO system, a programming package developed at LC which provides access to an online book catalog and some inhouse data bases. SCORPIO is a part of the Library of Congress Information System (LOCIS) which also includes MUMS (Multiple-Use MARCH System), and several other administrative and information retrieval subsystems. Although we are continually working toward unifying all of our systems, at the present SCORPIO is the portion of LOCIS most frequently used by the public and by Congressional staff and will be the focus of this paper. The Library of Congress Information System has had a great impact on our public services and has received a very positive reaction from patrons. It is the public users I will concentrate on, as opposed to LC or Congressional staff users.

## The SCORPIO System

The beginnings of the SCORPIO system (Subject-Content-Oriented Retriever for Processing Information Online) date from the late 1960s, when the needs of the Congressional Research Service (CRS) led to the development of an online information retrieval system for legislative and bibliographic data. The full SCORPIO programs, created by LC's Information Systems Office (now the Automated Systems Office), were in use in Congressional offices by 1974. In April, 1975, the first computer terminal for public use was installed in the Science Reading Room, providing access to the National Referral Center file (NRCM) and to the Selected Science and Technology data base: 90,000 English-language monographs in LC classes Q, R, S, and T selected from the MARC file. Without any special announcements or training, the system was launched to test the software, hardware, and public acceptance.

This experiment was quite successful and in May, 1977, the Computer Catalog Center (CCC) was opened adjacent to the Main Reading Room, at the rear of the card catalog area. Located in the CCC were six Sycor CRT terminals, two with Tally printers attached. Brief printed instructions were available, and a reference librarian was on duty to assist users with the system. Currently, in addition to the CCC (where two more printers have been installed), there are six terminals and two more printers for public use in the Main Reading Room, and about fifteen terminals scattered throughout other public reading rooms. The Library's computers now support over 1,500 terminals for reference, processing, and administrative operations (including

terminals in Congressional offices). Refinements in command language and file content are ongoing, with input from both individuals and interdepartmental committees.

Library users have free access to the following files: 1) Library of Congress Computerized Catalog (LCCC), allowing searches by author, title, LC subject heading, class number, and card number of the entire MARC monographs data base; 2) National Referral Center file (NRCM), serving as directory of organizations which offer information resources in science, technology, and social science; 3) three files produced by the General Accounting Office based on the *Congressional Sourcebook* set. Congressional and LC staff have access to additional non-public files. The most heavily used file is the LCCC, which represents about 80% of the use on public terminals, and 40% of overall use.

Patrons use the system directly, without a librarian as intermediary, except for initial instruction or read-reference checks. There is no service on SCORPIO whereby the public can arrange to have extensive searches performed by a librarian and the printed results delivered later, although this is offered for a fee by the Catalog Distribution Service using other LOCIS capabilities. While offline prints cannot be generated for public users of SCORPIO, those users may print at no charge on local terminal printers. Presently there is an informal 30-minute limit on using a printer, which may be extended if no one else is waiting. Time limits are rarely imposed on patrons using just a terminal, and some users will search different topics for as much as an hour or longer. The average search time is about 11 minutes, but we have not measured the average time any one user, who may perform several separate searches, spends sitting at a terminal. Time limits may be necessary in the future, as experience requires.

"SCORPIO" refers to a retrieval language which allows for uniform command and display techniques across the different files in this portion of the LOCIS. Access points usually include authors or other personal names, titles, corporate names, subject headings, and identifying numbers such as LC card number or other accession number. Searchers may browse through dictionary indexes of these access points, and then create as many stored sets as desired. Sets may be operated upon with Boolean logic or limited by various features such as language, date, or other elements in the record. Entries may be displayed in full or abbreviated formats. The commands are kept close to natural language, for example, "browse," "select," and "display," which are the most common. Spacing and punctuation, however, are quite important and this is sometimes a problem for users.

Our instructional methods have evolved as we have gained experience with teaching the user. Different methods have been tried including flip-charts, one-to-one instruction, ready-reference cards, and wall posters. LC and Congressional staff receive separate training usually in small groups. At the Computer Catalog Center we focus on individual coaching, referring to a flip-chart as we go. Some users have learned from a friend, or by using only the flip-chart, but generally they have to ask a librarian later to fill in the gaps. Some users feel the chart is too complicated while others wish it were even more detailed. There is little online prompting and we would like to have more informative error messages and a full online tutorial program. As I will discuss later, the user survey we conducted revealed a strong desire for both of those fea-

tures. Some instructional problems are not unique to SCORPIO, such as the need to use correct LC subject headings, but require more care in an automated system than in the card catalog since subject authorities for the book file are not yet online to the public. The lack of a cross-reference structure may go unnoticed as users browse unused terms or perhaps find only title entries.

## **The LOCIS in the reference environment**

It is hard to isolate the impact of the LOCIS because it has become so integrated with our traditional public services. In direct patron interaction, for indirect assistance via the mail or telephone, and in our personal research, LOCIS plays a constant and natural role. The Computer Catalog Center is staffed on a rotating basis by reference librarians, opening a new "delivery point" for services and altering the daily patterns of librarians' work. Instructing the users allows us regular feedback and an opportunity both to learn more about the system and to make constructive suggestions for improving automation services. We also do much general reference work in connection with SCORPIO instruction, as we determine the user's full needs and suggest ways to supplement the automated resources.

Apart from actual instruction, we use the LOCIS heavily in reference work in the reading rooms. In many areas of the Library, notably in our other buildings, there is no full card catalog close by and the LOCIS is essential. Even in the Main Reading Room it is often faster when talking to a reader in person or on the telephone to consult a computer terminal near the desk than to search the catalog, particularly if several different access points need to be tried or if the patron's information is incomplete. We refer users directly to SCORPIO in preference to other sources for some of its unique capabilities, for example, when the need is for books published as of a certain (recent) date, books only in a certain language, or a scan by LC classification number (not a complete shelf-list, though) which is valuable in a closed-stack library.

Although word-of-mouth publicity sometimes brings in readers with unrealistic expectations, recognition of SCORPIO's benefits has spread throughout local universities and agencies. Some professors consider it essential for their students to learn to use the system and make SCORPIO use an assignment.

The LOCIS has facilitated answering reference correspondence, which is handled by reference staff throughout the Library. We can run off a printout much more quickly than transcribing or photocopying entries from the card catalog.

Although it was difficult initially to develop instructional methods and policies, institute a rotational staffing pattern, and keep the librarians themselves trained in new techniques, I think there is no question of the success and value of LC's automated systems in public reference. However, this assumption needed to be examined from the public's side, which brings up the user survey conducted last May.

## SCORPIO User Survey

Since a more detailed report of the survey may be published later this year, I am just going to discuss the process and results on a general level. Over a period of two weeks, we distributed a ten-page questionnaire at selected times in the Computer Catalog Center (a limited number of copies are still available). Of 493 total users, 123 were surveyed constituting a sample of 25%; the return rate was 85%. There were several broad categories of information addressed by the questionnaire: characteristics of the population, the SCORPIO user environment, instructional effectiveness, search access points, and comparisons with the card catalog. SCORPIO was the only segment of the LOCIS under study.

The survey population was composed of about half new SCORPIO users and half experienced users, and about a quarter were new to LC overall. Two-thirds of the respondents lived in the Washington area. Forty percent of the population were students, about half and half undergraduate and graduate. Another 25% were adults doing work-related or professional research, and 10% were there for personal, non-work interests. Other users included academic faculty, LC and Congressional staff, and government employees on business.

The SCORPIO user environment described earlier received few complaints, although almost 90% of the respondents felt we needed more terminals. Forty percent reported having to wait sometimes to use a terminal, but 90% did not have to wait on the day of the survey. Users rarely form lines at the CCC, preferring to stop back later or find another terminal. Only 4% of the users felt there should be no limits on terminal or printer use; most favored a 30- or 45-minute limit with "express" terminals separately available. There was no indication of any physical problems with our hardware except setting printer margins.

Users are willing to pay for some services, especially printing either at the terminal or offline. They are less willing to pay for personal instruction manuals (even though they want more of these) or for having searches performed and printed out by a librarian. Patrons who had experience with other information retrieval systems were more likely to accept fees for services, but otherwise their use patterns were not significantly different. Respondents were split on the issue of reserving or making appointments for computer services.

Most users had learned either from a librarian at the Computer Catalog Center or by using the flip-chart. When asked whether SCORPIO was easy or hard to learn to use, 6% said hard, 57% said easy, and 37% said it was neither hard nor easy. This perception did not vary much among different categories of users, between new and experienced users, or among those who had learned from different sources. Nevertheless, 85% indicated they wanted more training or written material. It was not hard for users to decide on the order and form of commands, but they had significant difficulty figuring out what to do when problems occurred. Understanding the subject heading structure (again, a lack of authority records compounds this) and the system error messages were other problem areas.

From a list of choices for improving instruction, the most popular option was for online instruction. Users also wanted personal copies of instructions, and more complete error messages, which is consistent with some of the problems revealed above. Respondents were definitely not interested in group



instruction, and were ambivalent towards both audio-visual methods and increased staff assistance.

Analyzing the approaches patrons take to SCORPIO and the card catalog is affected by the coverage of the two tools. Thirty-seven percent of the survey population were looking for materials published after 1969, the approximate cutoff date for inclusion in the LCCC data base. Only 10% were interested exclusively in items published before 1969, and 51% were using materials covering all dates. Most respondents were using SCORPIO to scan the available literature, as opposed to preparing an extensive bibliography or checking on a few specific items. For many users, SCORPIO is a novelty, and they just want to see "what's there." After the projected freezing of the card catalog, we will have a temporary "add-on" card catalog, but when this is discarded and we are fully dependent on the LOCIS for current information, we expect to have heavy demand for quick online call-number identification.

In describing more precisely the types of information sought by users, we found the outstanding category, circled by 76% of the respondents, to be "what books LC has on a particular subject." Even graduate students and faculty members showed this high percentage of subject searching, which contrasts with findings from other catalog use studies. The next most popular choices were "looking for books by a certain author," circled by 37% of the users (who could check more than one category), and "obtaining specific call numbers" (33%). Of those searching by subject, 73% just browsed randomly under a word they knew, and 54% used the *LC Subject Headings* set, kept on reference throughout the card catalog and terminal areas. Difficulty in making effective use of subject headings was noted earlier as a problem.

SCORPIO displays records in card (or accession) number order, not alphabetically by author or title. Eighty-three percent of the users felt this was satisfactory, even though it makes it difficult to compare SCORPIO bibliographies with lists from the card catalog or other sources. When asked to rate other sort orders, there was a very slight preference for reverse chronological order; others were not felt to be that much better than the existing order. One user asked to be able to choose any sort order needed, and this direction may be followed in the future, creating great flexibility in the files.

About half the population had used the card catalog in addition to SCORPIO on the day of the survey. Of those who used the cards, 62% were looking by subject, 50% by author, and 40% by title (users could indicate as many access points as they used). One third of the users who only needed post-1969 materials used the card catalog, even though they were also using SCORPIO. Seventy percent of those who used the cards said that SCORPIO could not replace the card catalog for their purposes; the respondents as a whole were split 50/50 on this question. The primary reasons cited for SCORPIO's not being able to replace the cards were the lack of periodical titles and of items cataloged before 1969. Other factors were the absence of non-Roman languages and the inconvenience of waiting for terminals. Both of these secondary reasons may be resolved through planned hardware additions and intensive programming work now in progress.

The questionnaire attempted to compare the ease of certain search operations between SCORPIO and the card catalog. Many people, however, left this

rather long question blank, or misunderstood it; so the data are unreliable. Most people tended to rate SCORPIO as easier for everything, even when the option given did not exist on the computer, such as finding cross-references.

The survey has helped us establish priorities for new instructional materials and has given us background to develop new features and services. The problems identified by users coincided with those observed by staff, but we have also been reassured on many points. Most written comments were highly complimentary, and usually asked for extended coverage of books and periodicals. One person stated that it was the best use of his tax money that he had seen in Washington, and several expressed the hope that SCORPIO might someday be available to other libraries. Unfortunately, we have not solicited information from non-users and this is necessary for a complete picture. A future study may incorporate a non-user questionnaire.

## Conclusions

The development of the LOCIS is an ongoing process, as reference and processing staff library-wide work with the Automated Systems Office to suggest and evaluate system modifications. Some areas we are currently pursuing in public reference include printer use policies, more complete instructional pamphlets for free distribution, improved system messages, and online tutorials. Many other issues are under consideration by advisory committees, and the projected freezing of the card catalog has of course stimulated much planning for the maximum effectiveness of the LOCIS. As in other libraries, online services may be enhanced by such possible expansions as an interface with circulation and order records, and the entry of new formats: serials, maps, music, and so forth. As we observe experienced users consulting LOCIS daily with ease and sophistication, we have confidence in the success of automated reference at the Library of Congress.

**Sarah M. Pritchard** is a reference librarian in the General Reading Rooms Division of the Library of Congress.