REFERENCE USE OF COMPUTERS

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The most striking changes of the 1970's for many reference departments occurred with the introduction of using computers for reference purposes. At Indiana University's main campus in Bloomington two computer systems were added to the Reference Department of the Main Library in 1978. Computer Assisted Reference Service (CARS) was established to provide bibliographic information through computerized databases, and an OCLC terminal was made available for reference use. Both services are by now thoroughly integrated into the reference process. As a testimony to the increasing use of the two services, Reference now has a second OCLC terminal for public use and CARS provides bibliographic searching in a growing number of branch libraries.

OCLC has been used for a variety of functions; even more possibilities are expected to emerge in the future. Initially OCLC served chiefly to verify the existence of books. It was particularly useful when an author's surname was a common one, and the forename(s) unknown. It also became evident that OCLC provided a

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quick way to check possible variants of spelling when the name was unfamiliar. Furthermore, the ability to search by title when the author was unknown or incorrectly identified added a capability which had not existed when verification searching was limited to the printed *National Union Catalog.*

Even before the Interlibrary Loan (ILL) subsystem became available, OCLC's materials location listing was of great value. With the initiation of the ILL subsystem in April 1979, OCLC became the primary tool for verifying and requesting both books and photocopies of periodical articles.

Recent enhancements to the system have helped to overcome some of the problems encountered earlier. Today's user is seldom blocked by encountering the top limit of the system, a frequent problem in the initial two and a half years with OCLC. These added capacities have whetted appetites for future expansion of the system's capabilities. Recent reference requests illustrate some of the hoped-for future uses of OCLC.

An I.U. faculty member requested a list of recent books on the "quality of life" or "environmental quality." While entering these phrases as beginnings of titles produced a list, that listing was neither exhaustive nor true to its subject. Many titles which began with the phrases dealt with topics other than the focus of the search. Conversely, many relevant books bore titles which either did not contain the chosen phrases at all or embedded the phrases in titles which began with other words. A future enhancement to allow for subject searching would permit generation of more a relevant list not based solely on title terms. Even at present one can at times retrieve a few pertinent citations using such a phrase as a potential title, but the results are not nearly so satisfactory as they will be possible in the future.

Another patron requested a list of locally available Spanish translations of well known American authors. When it becomes possible to specify language along with an author's name, with a further qualification of using works held in a specific library, production of such a list will be a matter of minutes.

An Indiana University project to place into OCLC a full record of our serials holdings, including detailed copy-specific information on locations, has unfortunately been slowed recently because of the unavailability of continuing grant funds. However, the Indiana University Libraries remain committed to the completion of the project; the currently available segment of holdings provides a tantalizing glimpse of future possibilities.

The public-access OCLC terminal in the Reference Department has been in operation only since December. Student and faculty patrons have been using it to determine publishers' names, publi-

cation dates, and other libraries which own the book, as well as to verify proper forms of names. Recently a knowledgeable patron had already used *Books in Print* and the card catalog in a vain effort to locate a book on skin diving called *Diving for Fun*, by Joe Sky-kowski. Trying the author title search key on OCLC produced no results. However, the title key yielded information on three editions (none of them currently in print), and showed the author's name to be Strykowski, not Skykowski. The patron now has the information necessary to initiate an interlibrary loan request. A second public-access terminal will soon be installed in the Government Publications Department of the I.U. Main Library, and plans call for additional terminals for patron use in branch libraries.

Whereas OCLC is used almost constantly and produces its answers almost instantaneously, CARS has quite a different usage pattern. In a typical CARS search the patron meets twice with a librarian-search analyst and receives the results about a week later.

During the first meeting decisions are made concerning the appropriate databases to search, the search strategy, and the terminology to be used. The second appointment is generally at least 24 hours later, giving both patron and librarian time to give further consideration to the topic and perhaps to become more familiar with the database (s) involved. During the second meeting the search is conducted in the presence of the patron, who can assist in making decisions about alterations in search strategy based on the partial results as they become known. It may be, for instance, that a tightly-constructed search using prescribed index terms yields too few citations. The librarian and patron may then decide to add search terms which are not index terms but which are relevant to the topic, and instruct the computer to look for these terms in titles, abstracts or other free-language areas of the database.

The capacity to search for terms other than prescribed index terms constitutes one of the primary factors which distinguishes a computerized search from a manual search of a printed index. A second, often more important, feature of the computerized search is the computer's ability to combine terms through the use of Boolean logic.

An example might concern the incidence of child neglect in the families of unemployed workers. A number of synonyms for child neglect might be chosen and the documents containing those phrases grouped together as a unit. Similarly, documents containing such terms as "unemployed," "unemployment," "out of work," "laid off" and "fired" can be grouped by the computer. In a subsequent operation the computer is instructed to look for overlap between the two groups of terms, thus locating those citations which contain both the notion of child neglect and that of unemployment.

Neither of these is duplicated in existing printed indexes. The user of the printed source must follow up each occurrence of each term, and look for the second concept within that document or abstract. Such a procedure consumes enormous amounts of time, while the computer might use at most three to five minutes, depending in part on the typing speed of the searcher.

The result of a computerized search is a list of bibliographic citations, often with abstracts. While the search is conducted in an online, interactive mode, the results are generally printed off-line at the main computer facility and mailed to the librarian for delivery to the patron. It is, of course, possible to have the results typed online while the CARS terminal is connected to the main computer, but the cost for such retrieval is considerably higher than the cost of having off-line prints prepared and mailed.

CARS patrons pay fees which cover the costs of computer use, telecommunications lines, printed citations and a small surcharge. Average prices have been about $20 to $25, with extremes ranging from $4 to $150.

CARS began operations with two searchers for the Bloomington campus and one for regional campus queries. A fourth highly-experienced searcher was already active at the Chemical Information Center; her work has recently been integrated into CARS, which now has a branch location at the Chemistry Library. During the past semester seven librarians participated in searching, while training has begun for four more. As the range of databases increases and the demand grows it is anticipated that even more librarians will become involved.

In addition to the Main Library and the Chemistry Library, CARS searches have been done at the Biology and Swain Hall Libraries, the latter serving departments of astronomy, mathematics, computer science and physics. Equipment will soon be acquired for the Education, Geology and Optometry Libraries as well.

So far the most heavily used databases have been PsycINFO, the online equivalent of *Psycological Abstracts*, and ERIC, the education database. The high use of ERIC came as a surprise, since an excellent and relatively inexpensive off-line search service, PROBE, has been available for a number of years at the Education Library. PROBE usage ranges from 20 to 80 searches per month. The PROBE staff has frequently referred patrons to CARS when they felt that an online search would be advantageous because of cost or time considerations or because of the greater flexibility offered by the online system. Other fairly popular databases for Main Library use have included Dissertation Abstracts, Social Sciences Citation Index, and business sources.

The majority of CARS users have been IUB graduate students, many of them working on their dissertations. Two recent changes have been noted concerning other users. First, searches for off-campus patrons are declining, as more of IU's regional campuses and other institutions in the state acquire their own search capabilities. Recent statistics provided by the Indiana Cooperative Library Services Authority (INCOLSA) indicate that approximately 15 colleges, universities and regional campuses in Indiana have computerized bibliographic searching at present, while several others are planning to introduce such services.

The second change during this year is an increase in the number of faculty users. Some of this increase in faculty use can be attributed to a subsidy program established by the Office of Research and Graduate Development. A total of $3,000 was allocated to underwrite costs up to $35 each for approximately 100 faculty members. First made available in September 1980, the subsidy program was used by 26 facultv members during the first semester.

Departments and schools so far represented in the subsidized search program include African studies; Afro-American studies; anthropology; biology; business; chemistry; education; English; folklore; history; health, physical education and recreation; home economics; library; library science; physics; psychology; and school science.

In addition to the decline in off-campus searches and the increase in IUB faculty use, it should be noted that search activity during the first half of the current fiscal year has been more than twice as high as during the comparable periods of the first two years. The increasing popularity of CARS suggests that the information needs of our patrons will continue to grow and that an increasing number of librarians must develop the new body of skills required for this augmented reference service.