

Automated Information Retrieval At UNC-CH: An Introduction to Online Computer Searching

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Online searching of computerized bibliographic data bases is one of the most notable technological developments in reference services of the past decade.¹ Offered first by special libraries, it is now commonplace at many academic libraries as well. A directory being compiled by the North Carolina Online Users Group indicates that over fifty institutions in the state presently offer online search services and that twenty organizations, libraries or library departments, will make these services available to the public.² As librarians at institutions not presently offering online services are confronted by patrons who would like to avail themselves of such services, it becomes increasingly important that these librarians understand the rudiments of online searching and the policies of North Carolina libraries regarding such referrals. This article is intended to provide an introduction to online searching, to point out its merits and limitations and to describe briefly the referral policy of one such institution, the Academic Affairs Library of the University of North Carolina at Chapel Hill.

The Basics of Online Searching

Online searching—that is, interacting directly with the computer—is a rather simple process. Using key words or phrases, such as “Management by Objectives” or “Higher Education,” in a limited number of combinations, the librarian attempts to identify pertinent publications which match the patron’s expressed research interests. If the initial combination of words and phrases, or search strategy, does not yield the desired results, the search can be modified while being engaged with the computer, which is called “being online.”

Key words and phrases can be identified by consulting printed or online thesauri and guides, such as the *Thesaurus of Psychological Index Terms* or the *Thesaurus of ERIC Descriptors*, for the databases being searched. These may be supplemented with other terms, drawn from the initial reference interview or from the patron’s written search request. Once such a list of terms has been identified, they are combined using the designations “Or,” “And” and “Not,” also known as Boolean operators.

Let us suppose that a library science student wants to survey the literature on stereotypes as they apply to librarians. The shaded portions of the Venn diagrams (Figures 1-3) show what each of these Boolean operators would yield searching the key words “Librarians” and “Stereotypes.”

The first combination (Figure 1), using the Boolean operator “Or,” is the most inclusive and general of all. Its use might result in many titles that would not be directly relevant to the search topic, such as “Sex Role Stereotyping in Mass Media” and “Directory of Chinese American Librarians.” The resulting number of citations might well be overwhelming.

Boolean Operators

OR

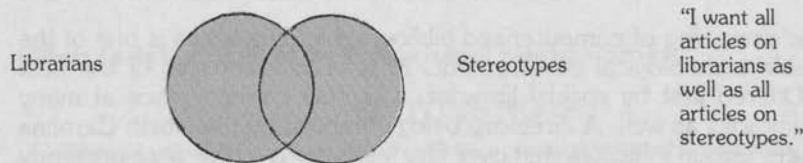


Fig. 1

AND

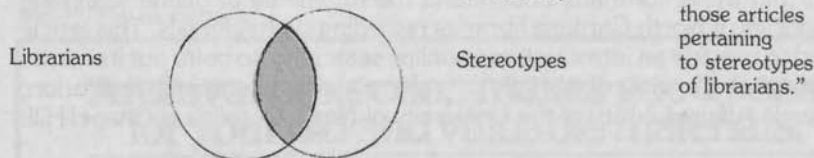


Fig. 2

NOT

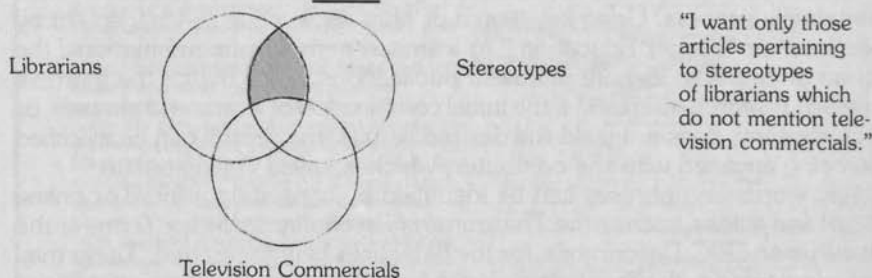


Fig. 3

A more appropriate search strategy might be to use the Boolean operator “And,” which would limit citations to articles indexed under both “Librarians” and “Stereotypes.” In this instance, criteria for inclusion are more stringent than in the previous example, and the shaded portion of the Venn diagram is correspondingly smaller. (See Figure 2.) A typical citation from this search would be “The Personality and Occupational Stereotype of Public Librarians.”

A patron can specify subject areas to be eliminated as well as those to be included. A clinical psychologist searching "Stress Effects of Overcrowding" may want to exclude animal studies; the library science student may want to exclude stereotyped portrayals of librarians in television commercials. In these instances, use of the Boolean operator "Not" would be appropriate. (See Figure 3.)

Using the same logic, searches can be modified online. As each combination of key words is entered, the computer responds by indicating the number of citations that combination will yield. If the search strategy as initially conceived yields too many citations, it can be narrowed by the introduction of another subject term or limited by language or year of publication. The search on stereotypes of librarians, for example, can be narrowed by confining it to stereotypes of male librarians or by limiting it to those articles written in English and published since 1975.

Similarly, if the initial search strategy yields a disappointingly small number of citations, it can be broadened to include other terms. The patron may decide, for example, to search the literature for articles on stereotypes of teachers, doctors, nurses and lawyers as well as librarians; or he may decide to limit the search to librarians but to search personality traits as well as stereotypes pertaining to librarians. It should be noted that broadening and narrowing a search are not mutually exclusive; both can be done in the same search. Accordingly, one might search for articles on stereotypes of doctors, lawyers, teachers, nurses and librarians published in English since 1975.

It is particularly important that the advantages and disadvantages of online searching be fully understood. The outstanding advantage is the savings in time the service offers in regard to traditional manual literature searches. Most manual literature searches take hours; corresponding computerized literature searches take only minutes. As the number of variables to be searched increases, so also does the amount of time saved by a computerized literature search. Another advantage is the greater flexibility that is available when searching new concepts and terms. A manual search by subject is limited by the terms indexers have assigned to each publication. Indexers are usually cautious about adopting new terms and, as a result, a "cultural lag" in subject indexes occurs. Since the computer searches key words in a title or abstract as well as the traditional indexer-assigned subject terms, the patron receives a more thorough and up-to-date scan of the literature. The computer printout may also provide "hard copy" weeks in advance of traditional printed information.

There are some limitations to computer searching. The first is cost. Online searching may be expensive. The cost of a search depends on three variables: the database being searched, the amount of time spent online and the volume of printout generated. Searches at UNC-CH's Academic Affairs Library may cost as little as \$5.00 or as much as \$150.00. Most, however, fall into the \$10.00 to \$15.00 range. For example, a recent search on flex-time and job sharing cost \$6.00; one on post-industrial society cost \$13.00.

The computer itself has limitations. It cannot think. It is programmed to search words and subjects in a limited number of combinations. It searches abstract concepts such as "relationship to" or "effect of" with difficulty. While a patron's topic may be "Middle-class librarians' concepts of inner-city patrons," one is as likely to "pull" articles on "Inner-city patrons' concepts of middle-class

patrons," all using the same subject terms. Although special techniques such as specifying the position of one word with regard to another can be employed to circumvent such problems, this is a difficulty which should not be overlooked. Another limitation is that computerized versions of printed indexes and abstracts date only from the early or mid-1960s; if a patron wants to do a retrospective literature search covering more than twenty years, some manual searching will be inevitable.

This, in a nutshell, is what online searching is all about. The success of each search will to a large measure be based on the suitability of the research topic to the available databases, the patron's skill in defining his topic and communicating it to the librarian and the librarian's skill in searching.

Online Policy and Procedure at the Academic Affairs Library, UNC-CH

The Academic Affairs Library at UNC-CH comprises Wilson Library, or the research library, the Undergraduate Library and nine departmental libraries. Three of the departmental libraries, the Chemistry, Geology and Math/Physics Libraries, as well as the Business Administration/Social Sciences and the Humanities Reference Departments in Wilson Library offer online search services. In all, some fifty databases can be searched. Like other reference services, online searching is available to faculty, students, North Carolina citizens and others.

For all patrons contemplating use of online search services, the procedure followed is the same. At the time of the initial inquiry, the librarian is usually able to tell the patron whether his research topic can be searched on the databases offered. If the research topic seems promising for a computer search, the patron is asked to fill out a computer search request form. Following that, an appointment is made—usually for a day or two later—to enter the search on the computer. During the interim, the librarian prepares a search strategy using the techniques described above.

When the patron and the librarian meet, they review the search strategy, modifying it where necessary. After this initial review, the search is entered online. Three to five working days later, the printout is mailed to the library. (If the patron prefers, the bibliography can be printed online, but this significantly increases the cost of the search.)

Four points should be emphasized. First, no searches are run at the time the patron makes his initial request. Each search requires that the librarian invest considerable time reviewing the database(s) to be searched as well as the research topic itself. For this reason, an appointment, allowing enough "lead time" for the librarian to construct a thoughtful and effective search strategy, is necessary. Second, each patron is required to fill out a computer search request form so that the librarian can use it to prepare the search strategy. Third, the patron must be present at the time the search is entered online so that he can assist with online modification if necessary. Finally, the patron is required to pay for the search at the time he picks up the printout. If no printout is generated, he is required to pay at the time of the search.

As mentioned earlier, costs vary. Some data bases are expensive (\$1.50 per minute) and some are relatively inexpensive (\$.22 per minute). The Academic Affairs Library passes on all direct costs—data base royalties, vendors' charges and telephone connect fees—to patrons. Although it does not attempt to recover equipment and staff training expenses, it attempts to defray cost of maintenance and supplies by adding a \$1.00 fee to each search. Rates are the same for all; there are no additional charges for people who are not members of the UNC-CH academic community. Computer search services are available Monday through Friday between the hours of 9:00 a.m. and 5:00 p.m.

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REFERENCES

1. Kathleen Heim, "The role of mechanized services in the provision of information with special reference to the university environment," ED 119 725 (Arlington, Va.: ERIC Document Reproduction Service, 1975).
2. The North Carolina Online Users Group *Directory* is expected to be available at the time this article appears in print. For further information regarding its availability and price, the reader may contact the author.

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