ONLINE BIBLIOGRAPHIC SEARCHES IN REPORT WRITING COURSES

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One of the major challenges facing professionals in business is information retrieval and management. Obtaining even an adequate sampling of recent articles and reports on a topic is difficult because, as Roger Summit of Lockheed observes, "so much information is being printed that it is impossible to keep up with it." Because information increases exponentially, the problem of retrieving it will become even more difficult in the next several years. Information specialists claim that by as early as 1985 the number of articles and reports published will have increased 300 to 400 percent.

The computer-assisted bibliographic search (the online search), an important innovation in information retrieval, has helped researchers wade through reams of reports, articles, and government documents. Since one goal of the Business Report Writing courses offered at the University of Arizona and the University of Alabama is to teach students the most efficient methods of gathering information, we have integrated online bibliographic searches into the research component of the courses. This article will briefly define the online search, describe how it is used in our Business Report Writing courses, and give an example of how a search is conducted. By informing other communication instructors about online searching and its advantages, we hope they will speak with their research librarians about the online facilities on their campuses and schedule sample searches for their classes.
Defining Online Searching

Citations and abstracts to articles, reports, government documents, and dissertations can be converted into a format that can be "read" by computer. During an online bibliographic search a computer scans in seconds millions of citations and abstracts stored in a variety of data bases. These bases, supplanting traditional subject indexes, are collections of references and abstracts from related disciplines or on similar topics. For example, Environline is a topic-related data base containing citations and abstracts to literature on the environment gathered from special reports, conference proceedings, and over 3,000 international journals; ERIC is a discipline-related base housing references to articles and reports on education.

The researcher must first select data bases (there are over 150 to choose from) that will yield useful citations. Although only one data base may be used at a time, many different bases can be tapped during an online search. To acquire references from the data bases, the researcher types into the computer key words or phrases—also called search statements—important to the topic being examined. If the researcher, for example, wanted citations to articles about the pedagogy of business communication, he might choose terms such as "teaching methods," "business writing," and "professional communication" for his search. The choice of these key words and the combinations in which they are used constitute a search strategy. After using the search strategy to survey appropriate data bases, the researcher usually has acquired a tailor-made, annotated bibliography.

Obviously this brief description of an online search oversimplifies its complexity, but it should supply enough information for an understanding of how the search is used in our Business Report Writing Courses.

Advantages to Using Online Searching

Students enrolled in Business Report Writing are required to do extensive secondary research to prepare a 6-8 page informative report and a 15-20 page analytical report. Because our primary concern is to teach students to organize, analyze and com-
municate their findings, we want them to gather information quickly and thoroughly. We have found that online bibliographic searches not only provide students with citations and abstracts much faster than manual searches, but they also give them access to a far wider range of sources than a traditional search. Students using the online search estimated that they spent 40-60% less time on the information-gathering stage of report writing and believed that using this method of finding citations was less frustrating. They claimed they had more time and energy to organize and analyze their information and to write and revise their reports. Indeed, the quality of these reports was superior to those of students in past classes who did not conduct online searches. The reports contained more information and better analyses of it compared to past reports. And because students were able to spend more time on revision, their writing had a clarity and force that made their reports persuasive.

Online searches have the additional advantage of requiring students to limit their report topics before retrieving citations, thus decreasing the likelihood of their tracking down references that will be of little use to them. Before conducting a search, the student must first determine the kind of information he needs by defining the problem he wants to solve; also he must choose terms and phrases that reflect concepts central to that problem. By having to develop a working search strategy before going online, the student has already done some hard thinking about his topic before he starts reading articles and reports. As a result of this planning and thinking, his reading is directed toward finding specific information to solve a specific problem. A student conducting a manual search often devotes much of the research phase to discovering the topic about which he needs information. Although reading articles and reports about a general topic is one way of finding and limiting a topic, the student using such a serendipitous research method is likely to expand too much energy tracking down citations and noting information that will not be used in the report.

A student conducting a manual search doesn't know if his search strategy is effective until he has spent quite some time surveying indexes; however, a student conducting an online search is able to determine immediately if his search strategy is effective and to quickly modify it if he is not pleased with the
citations and abstracts it is generating. By choosing different key words, putting them in different combinations, and adding more qualifying terms, the student can broaden or narrow the search. Furthermore, if the search results need updating, the student can run the same search strategy against the new citations that have been added to the databases already tapped.

The Role of Traditional Library Research

Although we want students to know about the advantages of online searches and to be able to develop a search strategy, we realize that online searching does not meet all students' information requirements. The student needing only a handful of citations should use a manual search; preparing for an online search and tying up the library staff and the computer for only several citations would only waste time and resources. We also believe that for students to appreciate fully the capabilities of online searches, they should learn to use traditional library research sources. In fact, we integrate instruction about online searches with traditional methods of finding citations.

To acquaint students with important business bibliographies and indexes, sources for finding company information, government documents, and indexes to state and local information, we distribute an eighteen page Library Research Guide. We spend about a half-hour of class time discussing the contents of the Guide, and we then schedule two library instructional sessions—one of the Central Reference Department, another of Government Documents—to show students where business sources are located and to teach them to use the printed tools. Students are introduced to online searches only after they have become reasonably familiar with the more traditional sources of business information.

Disadvantages of Online Searches

Although online searching may appear to be an El Dorado for researchers, the searches do have a number of limitations. First, because a computer can not think or make decisions on its own, it will only print citations to those articles that contain the
key words and phrases chosen by the researcher. In short, the quality of the bibliography depends almost entirely on the quality of the search strategy. Second, most data bases contain only citations to articles and reports that have been published in the last seven to ten years; therefore, the researcher needing historical data will find little advantage in using online searches. Third, some fields, primarily literature, humanities, and the fine arts, do not have extensive online coverage. At present, online searches are most useful to researchers working in the sciences, social sciences, and business. Finally, the cost of conducting an online search may prevent some students from taking advantage of it. Obviously, the fee will vary, depending on the data bases accessed and on the time spent in those bases, but an average search costs between $15-$30.

Preparing Students for the Search

Requiring students to submit proposals for their term projects helps insure that they are well prepared for the online search. Writing the proposal compels a student to define carefully the problem he wishes to analyze, to divide the problem into its major components, and to devise a research strategy for compiling a bibliography. Also, doing preliminary research and writing the proposal make him aware of the important concepts associated with the topic. Therefore, when students meet the research librarian to devise an online search strategy, they already have limited their topics and have tried to determine the key words and phrases that will produce a useful bibliography. Up to the time of their online searches, students have been using traditional research methods to prepare limited working bibliographies that are included in their proposals. They realize that finding useful citations is hard work; consequently, they look forward to the library instructional session on computer-assisted bibliographies and to using a research method that will quickly supply the citations and abstracts they need to complete their bibliographies.

Online Search Demonstration

A reference librarian trained to conduct online searches
introduces students to computer-assisted bibliographies through a lecture and brief online demonstration. During the lecture the librarian defines online literature searches, data bases, descriptors, and other key terms. In addition, he describes the subjects that can be searched online, the advantages of online searches over manual searches, and the information that will result from the search. The librarian also tells students how to prepare for the search and how much an average search will cost. The students are then given a handout which reinforces the points made during the lecture.

After the lecture, the reference librarian performs a brief online search demonstration. The demonstration solidifies students' understanding of online terminology, shows how a search strategy is developed, implemented, and modified, clarifies the kind of information received from a search, and dramatizes the advantages of online searches. After the demonstration, each student makes an appointment with the librarian to do a search on his topic. Prior to the appointment, the student prepares a detailed search statement and chooses key terms that reflect important concepts in that statement.

Before conducting the search, the student and librarian meet to discuss strategies for compiling an online bibliography. During the appointment the search topic is discussed, clarified, and narrowed or broadened. For example, the term "shoplifting" is so broad that a search would result in hundreds of citations. To locate a manageable number of references, the student would need to narrow his topic to, say, "shoplifting in grocery stores and supermarkets." The student and librarian then decide which data bases to use. The search topic, the extent of the search, and the amount of funds available all determine which data bases can be searched. Finally the student and librarian select the terms they will use in the search and form a search strategy.

The search appointment is essential to the success of an online search. The planning done during the appointment is another check that helps insure that the search topic is limited, that there is a workable yet flexible search strategy, that computer time will not be wasted, and that the student has a good chance of getting the tailored bibliography he needs.
Sample Online Search

To demonstrate how an online search is run, we have included a brief, sample search on "windfall profits of oil companies."

First, a search strategy is developed. For information about oil company windfall profits, the ABI/INFORM, a business and marketing oriented data base, and the Public Affairs Information Service (PAIS) data bases will probably yield useful citations. Also, it is obvious that the search topic has two key terms: "windfall profits" and "oil companies." The next step is to go online and use the search strategy.

After the librarian has taken the necessary steps to be connected to the computer and to be identified as a legitimate user, the computer prompts ENTER DATA BASE NAME and the librarian types INFORM. After being connected to the INFORM data base, the computer prompts with 1_:, so the librarian types the first key term, WINDFALL PROFITS. The computer searches the citations and abstracts in INFORM and retrieves all references that contain the phrase WINDFALL PROFITS. There are 67 citations.

Next, the computer prompts with 2_:, and the librarian types OIL COMPANIES. The computer again scans the data base and reports that there are 489 citations containing this phrase. The computer prompts with 3_: and the librarian types 1 AND 2, which commands the computer to search the two sets of citations that have been created, combine them, and retrieve only those citations containing both the term WINDFALL PROFITS and OIL COMPANIES. There are 17 citations which have both terms. The computer then prompts with 4_: and the librarian types PRINT 3 TITLE/DOCUMENTS=1-5 which instructs the computer to type the titles of the first five citations in set number 3. By examining, say, the first five citations, the researcher can determine if they are useful and if the search strategy is effective. A quick glance at the five citations retrieved from INFORM shows that the search strategy is finding useful references about oil company windfall profits. The same procedure which isn't illustrated, is performed in the Public Affairs Information Service data base: thirty-two citations are retrieved.
Citations and abstracts gathered from the search can be immediately printed at the online terminal; however, it is more cost-effective to have them printed offline, at the site of the computer, and mailed to the library. The citations and abstracts are received in about seven days.

Conclusions

There is no doubt that online searches significantly increase the ease with which students can retrieve citations and abstracts. And there are strong indications that online costs will decrease, more disciplines will be indexed in data bases, and more facilities will be available to conduct the searches. But we believe the benefits of online searches extend beyond the scope of effective report writing. Students using online searches become confident that they can find information needed to make decisions to solve business problems, and, as we stated earlier, these students provided more evidence and better analyses to support their conclusions and recommendations than those using manual searches. We were pleased to find that the online users were not controlled by the information they had gathered, but were able to analyze and evaluate their secondary sources, shrewdly choosing the sources that would add strength to their conclusions. In short, the online users became better decision makers.

Students who are confident that they can summon and manage information on a wide range of topics may begin to believe that they need not train to be specialists interested solely in cost accounting, information systems, or banking. If we can convince students that they are thinkers who have the means of quickly retrieving a universe of information and that their range of inquiry encompasses all disciplines, we will have taught them something more important than composing effective reports.

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