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□ ONLINE DATABASES □

BY CAROL TENOPIR

The Impact of CD-ROM on Online

"MIGRATION" IS a word we heard a lot when online databases first became popular in the 1970s. To the publisher of an indexing or abstracting tool, migration was the fear that subscribers would abandon print subscriptions for online access. Print sources were (and still are) the major source of revenues for publishers and provide a fixed, predictable yearly income. The newer online use varies from month to month and requires constant selling to remind users to get online. Profits are shared with online vendors, and direct access to customers is reduced.

As it turned out, online sources never had much of an impact on printed works. Online opened up new markets and new users who never subscribed to print, plus libraries generally retained their print subscriptions for patrons to use in addition to online intermediary searching. For a long time the different media have peacefully coexisted while online revenues steadily increased.

CD-ROM migration

CD-ROM has reawakened the term migration, but this time the fear is of migration from *online* use of databases to *CD-ROM*. CD-ROM sources are much like print in that they provide a fixed yearly income to publishers and have to be sold to customers only once per year. Now that publishers have gotten accustomed to online revenues in addition to print, some fear that CD-ROM will replace both print and online while others look forward to the closer customer contact CD can provide over online. Large online systems, of course, are reliant on continued and increased online use for their existence and find they now must push the benefits of online access over CD-ROM.

Academic libraries

The first and biggest users of CD-ROM are academic libraries, many with multiple titles and multiple workstations. These same libraries have been longtime users of online databases, by intermediaries and, to a lesser extent, by end users. Unlike online access, each CD-ROM database is a big upfront investment (the average cost of a bibliographic database, for example, is around \$1200 per year).¹ Since CD-ROM purchases must be limited, it makes sense to purchase only those that are likely to get heavy use. One way to guess which ones will be used the most is to look at online searching statistics and to purchase CD-ROM versions (if available) of those databases that are most used.

It is no wonder that many academic libraries are reporting drastic reductions in the amount of online searching. Academic libraries rushed to buy CD databases such as ERIC, Psychological Abstracts, and Medline that were the mainstays of their online search services. In some cases the reduction is welcome—mediated online searching takes up librarians' time, is often available only to those who can afford to pay, and provides a level of research service that goes way beyond other academic library services.

CD-ROM searching returns the research function to the students and faculty, is highly visible, and is usually provided at no charge to users. Rightly or wrongly, in some academic libraries, the availability of indexes on CD-ROM allows the librarians to shove the intermediary role aside. In libraries that offer end user online searching, a switch to CD-ROM allows unlimited searching at a fixed price, although fewer and less current databases are available.

Views from Texas & Hawaii

Statistics have been collected at Texas A&M University since it began its extensive grant-funded CD-ROM operation. According to Vicki Anders, head, Automated Retrieval Service, "usage of the online equivalents of the databases [we have on

CD-ROM] began to decline only two or three months after the CD-ROM versions became available. ERIC, Agricola and PsycInfo had always been among the top ten databases accessed in both mediated and end user online searches; at present only Agricola is in the top ten of mediated searches, ranking fourth, and as end user databases Agricola ranks 18th, PsycInfo is 19th, and ERIC is 22nd."²

Part of the continued downturn in online use of databases is intentional. According to Anders, "We're affecting the amount of business we do on online databases" because at Texas A&M, "in order to avoid paying for the same information twice, we have begun actively discouraging the online use of databases available on CD-ROM by not subsidizing them To make our funds stretch as far as possible it makes economic sense to instruct patrons to use the compact disc database that we have already paid for, rather than pay connect and printing charges for the same data in an online environment."

Because mediated online searches tend to be done now on more expensive databases or only after a CD-ROM search has failed to turn up enough, the average cost of a mediated online search has gone up. Faculty and staff still prefer mediated online searches, graduate students still prefer doing their own online searches on BRS/AfterDark or Knowledge Index, but undergraduates overwhelmingly favor CD-ROM. They are the group that were infrequent online users but now, according to Anders, "undergraduates have a piece of the action, their own niche."

Online use at the University of Hawaii Library's Humanities/Social Science Department has also steadily declined since the heavy commitment to CD-ROMs began. The number of mediated online searches went from an average of 56 per month in a ten-month period between May 1988 and February 1989 to only 11 per month in the first ten months of 1990. At the same time, the number of CD-ROM searches has skyrocketed. An average of 166 CD searches are con-



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ducted every *day* just in humanities/social science reference. The University of Hawaii reference librarians consciously do not market their online intermediary search services and have never offered end user online searching. Most feel comfortable with CD-ROM, although it has resulted in many more reference questions per day and an increased demand for instruction.

Other academic libraries report similar trends. *Public Access CD-ROM in Libraries: Case Studies* relates several libraries' experiences.³ Kent State reported that "overall, the number of mediated online searches has declined about 30 percent" with notable drops in ERIC and PsycInfo—the most popular online databases—once they became available on CD. Vanderbilt's online searching dropped 58 percent in two years and Carnegie Mellon, Oregon State University, Cornell University, and others have reported drops.

As the Texas A&M and University of Hawaii cases show, the policies and attitudes of librarians can control how much of an impact CD-ROM has on online. If librarians see CD as a replacement for online, it can become so. In other cases, CD-ROM searches and online are both encouraged and are thriving side by side.

Boston College reported a 16.8 percent decrease in regular mediated online searches after CD-ROM was added, but an overall increase in online use because of an almost 44 percent increase in ready reference searching. The James A. Haley Veterans Hospital Medical Library continued to offer free mediated Medline searches when it added CD-ROM and found "that when cost to the patron was not a factor . . . the number of online searches remained basically constant. And although the number of librarian-mediated searches did not decrease . . . the number of end user CD-ROM searches increased dramatically."⁴ Brock University found that, while mediated searches dropped for databases available on CD-ROM, there was an increase in online searching on other databases.

Overall impact

Has CD-ROM had an overall impact on online use? The heaviest users of online databases are corporate libraries, not academic libraries. CD-ROM use is not as widespread in corporate libraries. Special librarians

tend to use a wider variety of databases on a wider variety of online systems. They often have a smaller number of users for any one database, which makes widespread purchase of CD-ROMs less cost effective. Currency and full-text retrieval are crucial, so for many special libraries, online cannot be replaced by CD-ROM.

Information Market Indicators (IMI), edited by Martha Williams, regularly gathers figures on database use by information centers and libraries in the United States.⁵ Current figures show that online use is still on the rise. "The growth in online database use for databases on the major U.S. systems offering word-oriented databases increased from 750,000 searches per year in 1974 to 13 million in 1984, 28.3 million in 1988, and to the high in 1989 of 31.3 million searches per year" (the latest date for which information is available).

CD-ROM is, however, beginning to have an impact in some markets and for some databases. According to Williams, "the development and distribution of CD-ROM databases has greatly increased the use of computer-readable databases in universities and colleges where cost has often been a barrier to access and at the same time, it has decreased the use of online for those databases that are distributed on CD-ROM."

Williams tells me her data show that online use for "some databases have dropped dramatically; ERIC was the first. CD is now having a big impact on online use but producers don't care; they are still making more money, they are just switching to another medium."

Dialog reports that online use has continued to increase with no slow down in growth. According to Libby Trudell, marketing manager at Dialog, "in some cases CD increases online use because it makes users more aware of electronic reference sources. We have seen some replacement, in ERIC for example in some customer sites, but there is not a consistent pattern. In general we think new media are good for the industry."

Information Access Company, which produces many online and CD-ROM databases, also reports that "the [usage] graph is going up" for both CD and online. "Online revenues are certainly going up; there has been no impact in our traditional online market which is corporate libraries. There has been some fall off in academic online

use, but they are doing more specialized online searches now." Morrie Goldstein, IAC's president, predicted at the Online '90 Meeting in November 1990 that "the number of users of online and CD-ROM data will continue to grow; so far the industry has taken off like a DC-3, not a 747, but we're going to get to the ultimate distinction—almost universal usage of electronic information."

Online will be used for currency and for access to traditional text-based services; CD-ROM can more easily accommodate added value such as a mixture of full text with other data types, graphics, and better interfaces. Most of the innovation in product design is coming at the CD-ROM level where database producers are not dependent on the willingness of a large online vendor to change.

CD-ROM is causing online vendors to rethink some of their policies. Goldstein says he has "heard more from vendors about Fixed Price Unlimited Usage contracts in the last few months than I've heard in years past—probably combined." The enthusiastic acceptance of CD-ROM by public and academic libraries "has demonstrated that market sectors exist for information sold on this basis." The unwillingness of online vendors to consider such creative pricing structures or to make innovative enhancements to their products are in part responsible for the growing success of CD-ROM.

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