The Information-Conscious University and *ASCA* Software

Universities are prodigious producers and consumers of information. But despite this day-to-day involvement with information, most universities have failed to take advantage of modern methods of *disseminating* information to faculty members and students. University libraries, for the most part, continue to play the passive role of storage depots. It is assumed that researchers designing new projects, scholars preparing articles for publication, and graduate students writing theses will learn about newly published, relevant information one way or another, such as by using abstracting publications or *Current Contents®* . But teachers faced with increasingly knowledgeable students need a more reliable way to provide awareness of current information.

One effective way of improving the flow of published information into and through a university is by the use of an automated system for selective dissemination of information (SDI). In an SDI system the user's requirements are defined by a collection of descriptors called an "interest profile." This profile is used to provide a periodic automated search of the new information added to a database. If articles or books indexed during that period specifically relate to one's profile, the computer will print out a list of those items. The key point is that the search is done automatically and regularly, without repeated requests from the user.[1]

There are a few SDI services that can be used on a subscription basis. Biosciences Information Service offers *C.L.A.S.S.* (Current Literature Alerting Search Service) and ISI® offers *ASCA®* (Automatic Subject Citation Alert).[2,3] With these, users pay to have BIOSIS or ISI regularly search for items relevant to their profiles. Every university and many colleges, however, have enough potential users to seriously consider operating their own SDI service. While this is not a trivial undertaking, it is not as formidable nor as expensive as you may imagine.

To operate an SDI system, three components are essential: a computer, one or more relevant databases to search, and software (computer programs) capable of searching the databases. ISI is not in the hardware business, but it does provide databases and software with significant technical and economic advantages.

ISI supplies two databases on magnetic tape—the *Science Citation Index®* (*SCI®*) and the *Social Sciences Citation Index* ™ (*SSCI* ™). Both offer multidisciplinary coverage of the journal literature. Both are extremely current (weekly). And both are formatted to allow a variety of searches. Any university which uses both these databases

can cover the information requirements of all its departments, with the exception of certain arts and humanities subjects. (Next year, when ISI's *Arts & Humanities Citation Index* ™ is launched, even that exception may be eliminated.[4])

It is in the area of software, however, that ISI provides what may be the single most helpful item for operating an SDI system. Unlike many other database suppliers, who will sell or lease you their tapes but leave you on your own to figure out how to search them, ISI offers a complete software package capable of searching either the *SCI* or the *SSCI* database. Actually, the software we make available to tape subscribers is the same software we use to operate our own *ASCA* service. The significance of this is not small. To my knowledge, *ASCA* is the only SDI service for the journal literature that is able to exist on a fully commercial basis. It is now in its twelfth year of serving thousands of subscribers. One of the prime reasons for this success is the efficiency of the *ASCA* software.

Consider these salient facts. If necessary, the *ASCA* system is able to run on an IBM 1401 computer and requires only 16,000 bytes of core memory. A few years ago, we were even able to set up an SDI system using only 12,000 bytes. Most SDI systems operating today require core memories in excess of 500,000 bytes. I don't think I have to belabor the obvious implications of this for developing countries and smaller universities. They often cannot obtain access to anything but second generation computers with small storage capacities. And most universities with larger computers hesitate to operate a large-scale SDI system because much of the available storage is consumed by

the data processing requirements of administration and research. In these cases, the miniscule storage requirements made possible by *ASCA* software may make the difference between having and not having an SDI system on campus. And for those universities whose finances preclude the use of *any* full size computer, most minicomputers today provide sufficient storage for an SDI system.

Another important characteristic of *ASCA* software is that it can both accept an unlimited number of interest profiles and deal with a document collection of unlimited size. The system is organized so that a single pass of the database and profile tapes is all that is required to match all profiles against all documents. Most other systems require successive passes whenever the number of documents or profiles exceeds some fixed number.

The miserly storage requirements of *ASCA* software by no means imply that only crude, unsophisticated searches can be run. Quite the contrary. In addition to permitting all kinds of citation searches, *ASCA* software offers searches by words and word stems, by author, by author's organization, city or country, by language of the article, by journal, and by just about any conceivable permutation of these. In this way one could publish a weekly list of faculty publications.

Several years ago I offered to provide our databases and software free of charge to a university here in Philadelphia, provided it would do a proper sociological study to evaluate the impact of the service on university life. The university administration was unwilling to take up this challenge, fearing the cost of the work involved in preparing profiles and providing access

to the journals. While one can make a profession out of profile compilation, there are also means for reducing the effort. By obtaining each faculty member's bibliography, one can use the obvious descriptors it contains (such as title words, co-authors, and the references themselves) to construct an initial profile. With this basic work done in advance, a much shorter in-person or telephone discussion with the user can refine the profile.

When an organization purchases *ASCA* software, ISI provides a complete training program which includes every facet of setting up and operating the SDI system at the subscriber's location. In fact, we can provide a turn-key operation. Less than a year ago, we were happy to provide this training in conjunction with the installation of an SDI system at the National University of Mexico. The system is by no means limited to the university population, which is one of the largest in the world.[5]

University administrators are sometimes concerned that providing SDI systems to make faculty members and students more aware of relevant journal items will increase subscription costs. Since the ISI databases cover over 5,000 journals, this is not a trivial considera-tion. However, it is hard to imagine a university library system that would not already receive the core of the significant journals. Furthermore, we know that academics frequently write to authors for reprints. Authors' addresses are a significant part of the SDI weekly report. What is more important is that the existing journal collection will be more effectively utilized.

One can also provide SDI service through on-line services such as *SCI-SEARCH®* , but I don't think they are as cost-effective as so-called batch systems when large numbers of people must be served regularly.

I am hopeful that my discussion here will put to rest a few of the misconceptions that have kept many universities from even investigating the feasibility of an on-campus SDI system. In spite of the wide availability of computers on most campuses, universities have generally been unwilling to take this step into the future. It is not enough for a university to be merely information conscious. It must also aggressively seek better ways to satisfy the real needs created by that consciousness. As I see it, SDI will only have come of age when every faculty member and student takes such a service for granted.

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