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ABSTRACT

Document delivery support for selective dissemination of information (SDI) services provided by the Center for Information Services, University of California at Los Angeles, was measured by the following: (1) Obtaining copies of all steady-state SDI searches from Biological Abstracts' "BA Previews" data base delivered to the University of California at Berkeley campus; (2) Determining potential availability of the citations by look-up in the University of California at Berkeley library catalogs; and (3) Determining actual availability by placing hands on the cited publications. Twenty-three SDI printouts containing 680 citations, for thirteen users, were studied, 6 0/0 of the total citations were found on the shelves. Of the potentially-available citations, 85.4 0/0 were found on the shelves. This methodology is suggested as an unobtrusive measure of the extent to which a library's collection can support its patrons' current research interests in a variety of subject fields. (Author/SJ)

ILR-73-002

SDI Citation Checking as a Measure of the Performance of Library Document Delivery Systems

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ABSTRACT

Document delivery support for selective dissemination of information (SDI) services provided by the Center for Information Services, UCLA, was measured by the following

1. Obtaining copies of all steady-state SDI searches from Biological Abstracts' BA Previews data base delivered to the UC Berkeley campus.

2. Determining potential availability of the citations by look-up in the UC Berkeley library catalogs.

3. Determining actual availability by placing hands on the cited publications.

Twenty-three SDI printouts containing 680 citations, for thirteen users, were studied. 89.7% of the total citations were found to be potentially available, and 76.6% of the total citations were found on the shelves. Of the potentially-available citations, 85.4% were found on the shelves.

This methodology is suggested as an unobtrusive measure of the extent to which a library's collection can support its patrons' current research interests in a variety of subject fields.

TABLES

I. INTRODUCTION AND OBJECTIVES

The Campus Computing Network and the University library at UCLA are presently working on an NSF-funded project, the Center for Information Services (CIS), to develop a computer-based service for the processing and searching of large files of bibliographic data. CIS is presently providing selective dissemination of information (SDI) and retrospective searches to users at all University of California campuses through the respective libraries, and to users at several other interested organizations. The SDI service is now operating with almost 2,000 search profiles, and with several major data bases, including BA Previews, CA Condensates, CAIN, ERIC tapes, and Compendex. The publications cited at the end of this report provide a more detailed description of this system. In a manner similar to most SDI services, this SDI service establishes a user's interest profile in a machine encoded form, matches that interest profile against the contents of new computer tapes of bibliographic data bases, and prints a custom list of hopefully relevant citations for each patron. A significant fraction of the citations in each user's printout generally represents current publications of interest to that individual. Some of the printed citations, in fact, often are judged by the users as irrelevant to their interests.

The Institute of Library Research (ILR) staff at UC Berkeley is participating in the CIS project in several supporting roles; these include assistance in expanding this service to the northern UC campuses and providing some research and analysis support to the project. * This report stems from some of the supporting work which ILR has done on the CIS project.

The major objective of this ILR study was to analyze various aspects of the document delivery support system that was available to the recipients of the SDI services. In particular, we were interested in determining the extent to which the publications called to the user's attention by the SDI printouts were, in fact, readily and locally available for study by the user. This interest was triggered by one observer's suggestion that SDI printouts frustrated the users because the printouts cited so much good material that turned out to be unavailable when the user attempted to obtain it. Immediate document availability was thus the focal point for this study. Document availability was to be measured in two ways: potential or nominal availability, and actual availability. The potential availability was a measure of the amount of cited material that the library catalog stated was locally available. The actual availability is exactly what the name suggests: a measure of the amount of cited material of which the user actually could gain possession at the time that the

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* Support for the SDI citation study reported here was provided jointly by the National Science Foundation, Office of Science Information Services, and the Institute of Library Research at the University of California.

SDI printouts were received. Because of such factors as missing or checked-out materials, the actual availability figures generally would be expected to be less than the potential availability figures.

A secondary objective of this effort was to explore SDI citation checking as a method for evaluation of one aspect of library performance. In particular, this seemed to be one way to obtain a meaningful quantitative measure of the extent of document delivery support in selected subject fields. This procedure seemed to provide an unobtrusive measure of the extent to which a library's collections were able to support its patrons' current research interests in a variety of subject fields.

II. METHOD OF APPROACH

A. GENERAL

The general approach developed for this study consisted of the following simple procedure: (1) copies would be obtained of all the SDI citation printouts prepared for all the SDI profiles on a given campus, for a given data base; and (2) each of these citations would be checked to see the extent to which the corresponding publication was immediately available for use on that campus; and (3) the resulting data would be tabulated for further review and consideration.

It has been suggested that randomly selected citations from a given data base or from other representative sources could be used instead of using SDI citations for searching. Our view is that randomly selected citations would provide a useful measure, indeed, but not as good as that provided by the citations in the SDI printouts. Use of random citations would be appropriate for a test of a "universal" library whose collection covered all fields represented by the data base. However, it seems more realistic to measure, instead, the extent to which the library meets the actual academic and research interests of the present faculty and staff. This is done by selecting citations that are relevant to the interests of these people; for this reason we believe the SDI output citations to be a better checking tool than random citations. In fact, the procedure actually used in this study falls somewhere between these two alternatives, because not all the citations on the SDI printouts were judged by the users as relevant to their interests. However, we do know from experience with this and other SDI systems that typically 50% to 80% of the SDI citations are usually judged relevant by the users.

B. THE GENERAL APPROACH AS APPLIED TO A SPECIFIC SITUATION

1. The Campus and the Users

For this study, copies were made of the SDI printouts prepared for 13 users on the UC Berkeley campus as a result of a regular SDI run on BA Previews, Vol. 55, Issue 9. The tape for this issue was run with the SDI programs at UCLA on April 26, 1973; printouts were received at Berkeley on May 1, 1973. The corresponding hard copy of Biological Abstracts was received at Berkeley on June 26, 1973.

The 13 users had a total of 23 different interest profiles entered into the CIS system; all of these printouts, a total of 680 citations, were analyzed for this study. Most users were faculty members; the remainder were graduate students or staff. The profiles received by faculty and staff were, in many cases, to be shared by students and associates in research groups. All checked profiles had been run on two to five previous issues of BA Previews; several had been modified; and most important, most had reached a point of being a rather stable description

of the user's interests. The profiles were prepared as part of the regular UC Library service to its users, and were not prepared solely for this study. These 13 users represented the entire population of steady-state SDI profiles for BA Previews on the Berkeley campus at the time of this study.

2. Subject Coverage of the Profiles

The interest profiles covered in this study were from various fields of biology, botany, and entomology. The data bases of interest to these users were BA Previews and BIORI, which are the computer tape equivalents of all the citations printed in Biological Abstracts and BioResearch Index, respectively. The following are examples of the general topics covered by the profiles:

Echinoderm toxicity	Membrane permeability
Ecology of bogs	Nectar
Fossils	Paleobiology
Hormones and aging	Pollination
Hymenoptera	Root growth of conifers

3. Citation Searching

One objective of this study was to determine the extent to which the user could obtain the cited publications after having seen the citations on the printouts. We wanted to simulate the situation in which the user, having received the printout and noticed some interesting citations, immediately tried to see the actual publications. We carried out this simulation by having several ILR staff members* search for this material on campus as soon as the printouts were received. Each citation was searched and annotated to show whether the library catalogs indicated that the material was located on campus. Each citation that was noted as being potentially available on campus was then further searched to see if hands actually could be placed on the cited publication.

The searching and counting were done on a citation basis rather than on a serial title basis because we felt a citation count was more meaningful. Prior unpublished ILR work on the potential availability of cited articles at different UC campuses had indicated a considerable difference in the measurements obtained by citation counts versus serial title counts. A hypothetical example may serve to illustrate this point. Journal A, available on campus, yields four citations for a given SDI run. Journal B, not available on campus, yields one citation. A title count, indicating that one title is available and one not, gives an unfair picture, i.e., only 50% of the titles available on campus. The fact that four out of

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* Christian Aguolu, Beth Guillaumin, Ann Kennedy, Leon Megrian, Carolyn Salzgeber, Dianne Shirley, and Roberta Steiner searched for the materials in these printouts.

five citations are available on campus would be a better measure, i.e., 80% of the citations are available on campus. The user seems to measure the system performance in terms of citations rather than serial titles.

All the searching was completed within 21 days of the receipt of the printouts; most of the searching was completed within 10 days of the receipt of the printouts. This is considered to be a realistic simulation of the timing that users would have followed in their quest for the materials.

When potentially available material could not be found, the library staff and records were consulted to determine the reason for the non-availability of the material.

Some consideration must be given to the library skills of the person who does the initial citation searching. It is quite possible that a person who is very familiar with a large library and its reference tools would find a higher percentage of citations on the SDI printouts than would be found by some other persons. All the assistants who did the searching for this study were graduate students in the UC Berkeley School of Librarianship; all were familiar with the library and its tools, and several of them already had an M.L.S. degree. Even with this background, however, some citations were missed by the original searchers. One of the authors worked with the citations that were listed as not held on this campus and located an additional 12 citations (7 titles). Problems with language or foreign corporate authorship were the most frequent reasons for having missed these citations. In this context, the availability of such reference tools as book catalogs of serial holdings (hopefully liberally sprinkled with cross references) or title word index, such as that recently prepared for the UC Berkeley serials holdings, would be an enormous help. A more basic consideration indicates the value of second-checking and the importance of encouraging library users to ask the librarian before giving up.

A few cited journals were held by several libraries on campus. In these cases, the search continued through all potentially available locations until the material was found. In the two instances that a citation search continued unsuccessfully through all the stated potential locations, the reasons for the unavailability of the material at the first library was used in the data analysis. About 20 citations from 8 journals were unavailable at the first library, but were found at another.

III. FINDINGS

A. POTENTIAL AVAILABILITY

To expect any library to be able to serve all the needs of its users while working entirely from local resources is unrealistic. Any library that can serve 90% of the local information needs from its local resources is doing very well. Of the total 680 journal citations printed for the 23 profiles in this study, 610 (or, 89.7%) were identified by the library records as being available on campus. This performance figure of 89.7% potential availability has to be considered very good, and probably reflects the fact that we have studied a core subject area on a large university campus that has always had a reputation for good library resources.

The 89.7% figure represents a gross average for all citations. When examined for each profile, we found a remarkable system performance in which over half of the profiles had a potential availability figure of at least 95%, and only two profiles had potential availability figures which were less than 80%. Additional details for each of these profiles are given in Table 1.

B. ACTUAL AVAILABILITY

When follow-up efforts were made to place hands on the 610 potentially available publications, only 521 of them were actually located as available for reading or checkout. This means that approximately 85% of the potentially available material could have been read or retrieved immediately for the user. Approximately 15% of the potentially available material was temporarily unavailable because of the following major types of reasons: it was at the bindery, already checked out, or it had not been received yet by the library. Detailed data regarding the results of the search for potential and actual availability for each of the profiles is given in Table 1.

By far the major reason that potentially available publications were unavailable at the time of request was the fact that the publication had been sent to the bindery. This figure could be somewhat improved by speeding up the turnaround time at the bindery, or by delaying the binding for a year or longer after the volume is completed and ready for binding (but still of current interest to the users). Both suggestions, of course, have good counter arguments for staying with the present procedure.

Fortunately, many of the publications not held on campus are available from other campuses within the UC system, or from other neighboring facilities. Preliminary indications suggest that when these additional sources are considered, only a very few of the cited publications will not be rapidly available to the user from California sources.

C. UTILITY OF THIS METHODOLOGY AS AN EVALUATION TOOL

This study tends to indicate that with a moderate amount of effort, this approach can provide a meaningful performance measure of one difficult aspect for library evaluation (i.e., a collection's adequacy for current research interests in a given subject area). It is suggested that this approach be tried by other investigators for other types of library situations.

IV. FURTHER WORK IN THIS AREA

All the work done for this report was part of a more general program of ILR studies of the interface between SDI systems and their associated document delivery systems. The authors are presently doing additional work to collect more of the same type of data, but for different campuses and for different SDI data bases.

Table I

Availability of Journal Articles Cited in SDI Printouts from BA Previews
Vol. 55, No. 9 for Users at UCB

PROFILE NO.	TOTAL NO. JOURNAL CITATIONS IN PROFILE PRINTOUT	CITATIONS POTENTIALLY AVAILABLE AT UCB: Total Indicated As Potentially Available at UCB		Number of Citations Obtained Immediately	Number of Citations Unavailable At Time of Request (For reasons noted below)				TOTAL JOURNAL CITATIONS NOT POTENTIALLY AVAILABLE AT UCB	
		No.	% of Profile Total		In Bindery	Checked Out	Not yet Received	Other Reasons	No.	% of Profile Total
BA0780	4	4	100.0	4						
BA0790	1	1	100.0	1						
BA0800	42	41	97.6	36	2	1	1	1	1	2.4
BA0820	2	2	100.0	2						
BA0821	5	4	80.0	4					1	20.0
BA0830	6	3	50.0	2	1				3	50.0
BA0890	2	2	100.0	2						
BA0900	14	12	85.7	10			1	1	2	14.3
BA0960	24	20	83.3	17	1	2			4	16.7
BA1030	1	1	100.0	1						
BA1080	9	6	66.6	4	1	1			3	33.3
BA1081	116	111	95.7	96	9	4	1	1	5	4.3
BA1082	94	83	88.3	70	7	2	2	2	11	11.7
BA1083	8	8	100.0	6	2					
BA1084	165	148	89.7	124	11	3	7	3	17	10.3
BA1180	100	90	90.0	76	9	3	2		10	10.0
BA1190	7	7	100.0	7						
BA1200	60	48	80.0	42	4	2			12	20.0
BA1201	3	3	100.0	3						
BA1202	8	8	100.0	7	1					
BA1203	5	4	80.0	3		1			1	20.0
BA1204	1	1	100.0	1						
BA1206	3	3	100.0	3						
23 profiles	680 citations	610	89.7	521 (76.6% of total citations, or 85.4% of potentially available citations)	48	19	14	8	70	10.2

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