A PILOT PROJECT ON DISSEMINATION OF INFORMATION TO HIGHER EDUCATION PERSONNEL. FINAL REPORT.
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THE USE OF AN ELECTRONIC DATA PROCESSING PROGRAM CALLED "SELECTIVE DISSEMINATION OF INFORMATION" (SDI), WAS STUDIED AS A TECHNIQUE FOR SEARCHING THE LITERATURE OF HIGHER EDUCATION ADMINISTRATION AND BRINGING TO THE ATTENTION OF UNIVERSITY ADMINISTRATORS THAT SELECT PORTION WHICH IS OF DIRECT RELEVANCE TO THEIR PROFESSIONAL INTERESTS. THE TEST POPULATION INCLUDED 60 ADMINISTRATORS AT WAYNE AND EIGHT OTHER MICHIGAN COLLEGES AND UNIVERSITIES. QUESTIONNAIRE RESPONSES FROM 52 SDI PARTICIPANTS INDICATED THAT INFORMATION SUPPLIED BY SDI HAD BEEN USEFUL AND CURRENT, AND VERY PROBABLY WOULD NOT HAVE BEEN OBTAINED WITHOUT THIS SERVICE. EVERY RESPONDENT REPORTED THAT SDI HELPED KEEP HIM INFORMED IN HIS PROFESSIONAL AREA. THE QUESTIONNAIRE RESPONSES SUPPORTED THE CONTENTION THAT LITERATURE IN THE FIELD OF EDUCATIONAL ADMINISTRATION HAS INCREASED BEYOND THE ABILITY OF ADMINISTRATORS TO LOCATE NEEDED INFORMATION. THE RESULTS OF THIS PILOT PROJECT SUGGESTED THE NEED FOR A NATIONWIDE INFORMATION DISSEMINATION PROGRAM AND INDICATED THAT SDI HAS THE POTENTIAL FOR PROVIDING SUCH A SERVICE. (TC)
A PILOT PROJECT ON DISSEMINATION OF INFORMATION TO HIGHER EDUCATION PERSONNEL

Cooperative Research Project No. 5-8245

Karen Baird
Wayne State University
Detroit, Michigan, 48202

1965

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THE PROBLEM

The flood of new information which has inundated scientific and technical disciplines has its counterpart in the academic world. The problem of locating and obtaining information is becoming increasingly critical. Before initiation of this project no systematic means had been employed for identifying and disseminating to administrative personnel in higher education timely and relevant information from current professional publications. The increase in the quantity of available literature has made it impossible for even the most conscientious administrator to keep up with needed current material. The successful use of electronic data processing equipment for information dissemination and retrieval in scientific and technical fields suggested that the literature of educational administration might be similarly handled. The program which appeared to be most promising is known as SDI, the Selective Dissemination of Information. Specifically, this project tested the use of SDI as a technique for searching the literature of higher education administration and bringing to the attention of university administrators that select portion which was of direct relevance to their professional interests.

OBJECTIVES

In testing the application of SDI on a pilot group of university management personnel the following questions had to be answered:

1. Was there a real need for an information dissemination service?
2. Could the standard SDI techniques—interest profiles, abstracting formats, etc.—be used as previously developed, or were adjustments necessary?

3. Were the interests of university administrators sufficiently definitive to lend themselves to an SDI system?

4. Could the system provide more complete coverage of the professional literature than administrators currently had?

5. Could the system provide for more rapid dissemination of information than the usual channels available to administrators?

**RELATED RESEARCH**

There were two areas of literature directly related to the project: (1) the general use of electronic data processing procedures in information handling, and (2) the descriptions of a specific computer solution developed by IBM and called SDI (Selective Dissemination of Information). The first focus did not specifically concern the problem of information flow to management personnel in higher education, although the present project drew heavily from the basic concepts therein. The second category of published materials contained a sub-class which pertained to the use of SDI as a current awareness medium for the operations and management personnel of the IBM organization itself. It was this latter literature which offered the greatest number of specific contributions to the solution of the current awareness problem for management personnel in higher education.

Schultheiss, Culbertson and Heiliger described the most complete model of a data processing solution to the burgeoning literature of university libraries. They did not employ dissemination
of information, but rather the retrieval of documents. Their library service, therefore, was less specific and directed primarily to students and faculty, not administrative personnel.

A study by Tauber and Lilley\textsuperscript{2} pointed to the need for and the feasibility of an information service in research related to the newer educational media. Kent\textsuperscript{3} described an information retrieval system applied to educational research materials. His work had considerable application to this project, particularly in regard to specific operating procedures.

Kraft's paper\textsuperscript{4}, describing the application of SDI to libraries, supplied detailed counsel for the initiation and operation of this demonstration project. Hensley\textsuperscript{5} provided a current status report of SDI installations, with recommendations and cautions applicable to this project. A paper by Hensley and Resnick\textsuperscript{6} presented an experimental evaluation of the SDI system operating at the IBM Research Center at Yorktown Heights, N. Y. and suggested evaluative tools for this trial service.

Sage, Anderson and Fitzwater\textsuperscript{7} reported an adaptation of the standard SDI program which permitted automatic profile revision based on user response. Undoubtedly this technique should be considered in any broader SDI application.


PROCEDURE

1. Population

The proposal submitted to the Office of Education suggested that at least 10 administrators be supplied with the information dissemination service to test the usefulness of such a service for higher education personnel. It soon became obvious that this number of participants was not adequate. The ease with which the project investigator became acquainted with the particular information needs of each administrator precluded an objective test of the system. Familiarity with these needs could possible bias both selection of documents and wording of abstracts. The population was therefore expanded to include 80 administrators at Wayne and eight other Michigan colleges and universities. Letters were sent to the presidents of the 4-year public colleges and universities.
in the lower half of the State of Michigan and to the University of Detroit, the largest private university in Michigan. Five administrators from each institution were invited to become users of the SDI service. Arrangements could not be made with Eastern Michigan University in time to include them in the study. Since the SDI service began, two of Wayne's administrators have accepted positions at the University of Missouri and have continued participating in the program.

This larger number of participants made the handling of input material easier and prevented the deliberate inclusion of information to satisfy needs of any one participant. At the same time, the number was small enough to provide individual attention to profiles and permit testing of their efficacy as selectors of abstracts for information dissemination.

There were 80 administrators participating in the total SDI program. Of these, 60 were included in the final evaluation, the other 20 having been excluded on the grounds that they had not been receiving the SDI service for at least a month. It was for this reason that administrators from the University of Michigan were not represented in the final evaluation.

The 60 users were mailed questionnaires; of these, 52 (87 percent) responded in time for their remarks to be included. The others did not respond at all, responded too late, or felt they had not had enough experience with the SDI service to evaluate it. These 52 administrators are hereafter referred to as the respondents.

The respondents consisted of administrators from the following colleges and universities: Central Michigan University, Ferris
State College, Grand Valley State College, Michigan State University, Oakland University, University of Detroit, University of Missouri, Wayne State University, Western Michigan University.

Represented in the respondents were 4 presidents, 6 vice-presidents, 10 divisional directors, 5 deans, 3 comptrollers, 1 secretary of a university governing board, 18 administrative assistants and one each of the following: librarian, grant and contract officer, coordinator of fiscal services, assistant to the planning officer and chief accountant.

The primary areas of professional interest indicated by respondents were: business and finance, student service, capital development, research administration, fund raising, institutional research, continuing education, curriculum development, academic affairs, governing boards, international education, graduate programs, computers in education, instructional technology, libraries and long-range planning.

2. The Time of the Study
The study began July, 1965 and continued through November, 1965.

3. The Establishment of SDI Service
Profiles:
The first step in implementing an SDI service is to interview users and develop interest profiles, (Example, Appendix 1). The program we are using permits profiles of up to 60 words in length, and a user may have as many as 36 profiles. Profiles consist of lists of keywords or terms which define the user's professional interest area.

Keywords are weighted according to their relative importance to the user. The weight may vary from +9 to -9.
Keywords may be either exact terms or root terms. "Administrat" is a root term which will match with "administration," "administrator," or "administrative." "Simulate" is an exact term which matches on "simulate" only. It will not match on "simulation," "simulating," or "simulates." It is also possible to have a profile term containing numbers. Acronyms, abbreviations and authors' names may be used as keywords.

Each profile has a hit level assigned to it. The hit level provides a measure of control over how many document notices a user will get and how much similarity must exist between the abstract and the profile before a notice is sent. Several profile revisions are usually necessary before a profile is meaningfully selective. Revisions are based on user response to notices, user suggestion for addition and deletion of keywords, and periodic profile review by the library's staff.

Abstracts:
Documents abstracted for this SDI system deal exclusively with higher education administration. Included are 30 journals, which are concerned entirely or in part with higher education administration, books, monographs, government documents, reports of state, regional or national educational agencies, and, at this time, one national daily newspaper, the New York Times. Each abstract consists of bibliographic data, a summary of the document, and additional index, descriptor words, or comments if necessary (Example, Appendix 2). This information is stored on magnetic tape in the computer.

The Matching Process:
Each week approximately 50 abstracts are added to the
abstract tape. These abstracts are indexed by the computer and compared with each profile. In those cases where document and profile have sufficient words in common, notices are printed and addressed on continuous-strip cards, in mailing sequence. These cards are called "document notices". The words which caused the match are printed at the top of each notice so that the user always knows why he received a particular notice.

Document Requests:

The left half of a document notice contains the abstract; the right half is a response card. If, after reading the abstract, the user decides he would like to see the entire document, he indicates this in the response card and returns it to the library. Documents of 20 pages or less are photo-copied for all users. Longer documents are circulated only on the Wayne State University campus. Purchasing information is supplied to off-campus users.

The response card can also be used for minor profile revisions. The user simply indicates the additions or deletions he desires in the comments section of the card. They are used as an easy means of communication with the SDI library. There often appears a note in the comments section suggesting that other potentially interested people be sent a copy of the abstract. The response cards are accumulated and used for profile analysis.

4. Evaluation

A four-page multiple choice questionnaire was used to elicit participant evaluation of the SDI project, (See Appendix 3). The questionnaire was pre-tested with four Wayne administrators for clarity and ease of interpretation. Although there appeared to
be no problems at the time, the return of the questionnaire showed that one item (16) was ambiguous and one item (11) did not supply the information needed.

Three SDI statistical programs were also used in the evaluation:

(1) The response card listing which tallies the responses made to each notice that each subscriber received.

The possible responses were:

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<th>Codes</th>
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<th>Codes</th>
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</thead>
<tbody>
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</tr>
<tr>
<td></td>
<td>Abstract is Sufficient</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Have Seen Before</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Of Passing Interest Only</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Of No Interest</td>
<td>5</td>
</tr>
</tbody>
</table>

Responses coded, 1, 2, and 3 were considered "of interest"; responses coded 4 and 5 were considered "of no interest". Cards returned with inconsistent multiple punches were bypassed and not included in the tally.

(2) The summary by Location contains a count by location of the number of subscribers, the number of subscriber profiles, the total number of profiles, the number of notices, the number of subscribers with no notices, the number of subscribers who received more than 10 notices for the current run, the number of abstracts processed and the current and year-to-date matching factors according to the formula MF = \( \frac{100}{P} \times \frac{N}{A} \)

where MF is the matching factor
P is the number of profiles
A is the number of abstracts processed
N is the number of notices printed.

This information was available for the entire SDI program.
(3) The Abstract Frequency report prints for each abstract the number of notices printed and the percentage of matches according to the formula $M = \frac{N}{S} \times 100$

where $M$ is the matching percentage
$N$ is the number of subscriber notices printed, and
$S$ is the number of subscriber profiles in the system.

This report also reflected the entire system.

**ANALYSES OF THE DATA AND FINDINGS**

Questionnaire responses from 52 SDI participants indicated that information supplied by SDI had been useful, current, and would probably not have been obtained without this service. Every respondent reported that SDI helped keep him informed in his professional area. Forty-two percent reported that they often found useful information they would not have found otherwise; 56 percent said they sometimes received useful information through SDI; no respondent reported that he had never received useful information. Of the 3,268 document notices sent to the respondents, 2,138 (65 percent) were found to be of interest and 127 (four percent) were of no interest. At the time of the report, there had been no responses to 1,003 notices, (31 percent). These figures, obtained from a computer program which read reply cards returned by subscribers and interpreted the response either as of interest or of no interest, supported the questionnaire findings that useful information is being obtained through SDI.

The questionnaire responses supported the contention that literature in the field of educational administration has increased beyond the ability of administrators to locate information
he needs. Seventy-five percent of the respondents reported that SDI introduced them to new sources of information; 90 percent requested articles from journals they did not ordinarily see.

The questionnaire responses very clearly indicate that the two-stage character of the SDI program offers several advantages. The notices sent to SDI subscribers contain summaries of the current available literature. These notices were found to be useful in themselves. Seventy-nine percent of the respondents reported that they found the notices useful and informative even without the documents. Furthermore, 82 percent reported that they generally either keep the abstracts or forward them to others.

The SDI notices permitted users to order hard copy if they so desired. The second-stage SDI service—supplying hard copy—added significantly to the value of SDI for 81 percent of the respondents. Hard copy could be obtained by other methods—local library, publisher, etc. There was no strong preference for any of the other methods when the SDI library could not supply the copy.

Users were questioned about their opinions on possible changes in the SDI service or its expansion. The areas of change concerned increase in frequency of sending notices, increase in number of sources, broader coverage of topics and expansion of service to include more administrators. Eighty-one percent of the respondents felt that SDI service would not be improved by more frequent mailings.

Forty-eight percent of the respondents indicated that they wanted other members of their staff to receive SDI service also. Suggestions for broadening scope ranged from participants' suggestions that service be provided to administrators in all
colleges and universities to suggestions for inclusion of particular colleagues and to appropriate state and federal governmental employees as well.

Of the areas which were identified as not being sufficiently well covered, the one most often mentioned was state governmental activities of importance to higher education. School law, budgetary reforms, and curricular innovations were also mentioned as areas that should be covered.

The statistical reports cited here present data for 11 computer runs and include all participants, not just those who responded to the questionnaire (See Appendix 4). The number of subscribers included in these 11 runs ranged from 39 on the first run to 78 on the last. The number steadily climbed as more subscribers were included in the service. The mean number of participants included in each run was 63. Each run entered an average of 50 abstracted documents into the system. A total of 549 abstracts, entered during this period, produced 3,510 notices to subscribers, or an average of five notices per run.

The average subscriber received 10 percent of the total abstracts processed by the SDI library, and was relieved of the task of searching through the other 90 percent which were probably of little interest to him. Of the total abstracts entered in the system, only 39 (less than 4 percent) did not match any profile and so produced no notices. The number of documents not producing notices ranged from 16 to zero per run, with the larger numbers tending to occur earlier in the study when there were fewer participants.

Any subscriber who received more than 10 notices per run was designated as an "over-limit" subscriber. The system wanted to be
notified of these persons since it could be assumed that the profiles were not sufficiently selective. However, two subscribers have three profiles and six subscribers have two profiles so it can be expected that they will receive more than 10 notices on occasion. There was an average per run of eight subscribers who were listed as over-limit subscribers on each run.

On each run, an average of nine persons did not receive any notices. Several factors accounted for this: for some subscribers, the information on a particular run did not necessarily cover their field of interest; others had inadequate profiles and revisions were in order.

**CONCLUSIONS AND IMPLICATIONS**

A very real need exists for an information dissemination service for college and university administrators. An SDI service can facilitate more complete coverage of the relevant literature than administrators can currently achieve individually. The responses to the questionnaire suggest that the question of whether or not SDI provides more rapid access to the information that administrators need, is irrelevant. The choice for the administrator, in regard to the influx of information, seems to be between SDI, chance location of information, or doing without. Although some specific areas, such as federal legislation, are covered adequately by individual journals, areas such as experimental colleges and institutional research are scattered throughout a large body of the literature. The absence of any other facility that provides an equivalent service, the overwhelming recipient acceptance of SDI by the administrators in the pilot study, and their very favorable evaluations of both the
abstract and the hard copy provision features of the system indicate that SDI fulfills a vital function, which must be continued and expanded.

The results of the pilot project suggest the need for a nationwide information dissemination program and further indicates that SDI has the potential for providing such a service.

The standard SDI techniques developed for use with technical literature are likewise applicable for dealing with the literature of college and university administration. For the purpose of this system, slight changes were made in profile and abstract formats. Some new adaptations which have appeared since this pilot project was first submitted to the Office of Education may be useful in an expanded program. A nationwide implementation of SDI should include a test of such adaptations, particularly the automatic profile revision technique developed by Sage, Anderson and Fitzwater of the Institute for Atomic Research and Department of Chemistry, Iowa State University.

The questionnaire responses indicate that the professional interests of university administrators are sufficiently definitive to permit the use of SDI for information dissemination. The problems of ambiguity and lack of language precision are not as great as thought originally. Since 20 lines of descriptive information are available for each document, sufficient synonyms generally appear in both abstract and profile so that a meaningful match can be made.
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<td>1 YOUTH OPPORTUNITY</td>
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</table>

George Mead
1054 Mackenzie Hall
Wayne State University
Detroit, Michigan 48202

Profile Loc. Dept. Ser. No. 00001 1054 000046 1
Hit Level Security ABCDE 04
This report continues the annual measurement of government obligations and expenditures for scientific activities. The report, principally statistical in nature, places major emphasis on basic research, applied research, and development. The data convey information on what amounts the agencies are spending, what programs and fields are receiving support, and what organizations are performing the work. Federal funds are also reported for dissemination of scientific and technical information arising out of research and development. In addition, the foundation has included federal obligations for collection of general-purpose scientific data on social and natural phenomena.
Dear SDI Participant:

Over the past several months you have had the opportunity to participate in our SDI program. In October, the Administrative Reference Library will have completed the pilot phase of this project. Since the portion of this program we are about to complete was experimental in nature, we would be grateful for your assistance in evaluating the effectiveness of SDI as a means of communicating information to university administrators. We would therefore welcome your most candid comments since these may be extremely useful in any future considerations regarding this program. Your responses will be held in confidence.

We would appreciate return of this questionnaire to the Administrative Reference Library, 1129 Mackenzie Hall, Wayne State University, Detroit 2, Michigan, by October 1, 1965. Thank you for your continued cooperation.

Karen Baird,
Administrative Reference Librarian

1. Has the SDI program helped to keep you informed in your professional area?
   
   (1) 0% no  
   (2) 100% yes

2. How frequently have you received useful information from SDI that you would otherwise not have acquired?
   
   (1) 44% often  
   (2) 56% sometimes  
   (3) 0% never

3. Do you keep for your files the SDI abstracts of documents in which you are interested?
   
   (1) 58% always  
   (2) 23% usually  
   (3) 15% occasionally  
   (4) 2% never  
   2% did not answer

4. Are the abstracts themselves useful without seeing the document to which they refer?
   
   (1) 0% never  
   (2) 12% occasionally  
   (3) 79% usually  
   (4) 10% always

5. In general, how relevant to your interests do you consider the abstracts you receive?
   
   (1) 58% very relevant  
   (2) 40% moderately relevant  
   (3) 0% not relevant  
   2% checked all three
6. Is the information being furnished to you by SDI sufficiently current to be useful?
   (1) 0% never
   (2) 2% occasionally
   (3) 75% usually
   (4) 23% always

7. How many persons other than yourself have used the SDI abstracts originally sent to you? 45% = 0, 21% = 1, 17% = 2, 10% = 3 or more, 4% = an interminable number, 2% did not answer.

8. How many persons other than yourself have used the SDI documents or reprints originally sent to you? 35% = 0, 19% = 1, 21% = 2, 14% = 3 to 8, 4% = 9 or more, 4% = an interminable number, 4% did not answer.

9. Has SDI made you aware of new sources of information?
   (1) 73% yes
   (2) 25% no
   2% did not answer

10. Have you requested articles from journals you do not ordinarily see?
    (1) 10% no
    (2) 90% yes

11. Would you like additional members of your staff to receive this SDI service?
    (1) 48% yes
    (2) 35% no
    18% did not answer

12. Does the ability to order original copies add significantly to the value of your SDI subscription?
    (1) 15% no
    (2) 81% yes
    4% did not answer

13. Documents of extended length are costly to provide to all those requesting them. Please indicate which of the following proposals would seem to be the best solution for you and your institution.

    (1) 13% The SDI library will notify the publisher to send a copy directly to you and bill your institution.
    (2) 31% The SDI library will notify your librarian of your need to see the requested document.
    (3) 40% You will arrange to obtain a copy yourself.
    (4) 4% Other suggestions

    2% checked (1) and (2) above
    2% checked (2) and (4) above
    2% checked all four
    6% did not answer
14. What do you generally do with your SDI abstract cards?
   (1) 65% file them for future use
   (2) 42% forward them to others
   (3) 10% throw them away
   (4) 0% other uses

   13% checked (1) and (2) above
   2% checked (1) and (3) above
   2% checked (3) and (4) above
   4% checked (1), (2), and (3) above

15. How often have you referred to abstracts you have saved?
   (1) 6% frequently
   (2) 77% occasionally
   (3) 15% never
   2% did not answer

16. Do you think that this SDI service has resulted, or will result, in savings of time and money for your institution?
   (1) 8% no
   (2) 73% yes
   20% did not answer

17. What is your overall opinion of SDI?
   (1) 50% excellent
   (2) 31% very good
   (3) 19% good
   (4) 4% fair
   (5) 3% poor

   Please explain: ____________________________________________
   _________________________________________________________
   _________________________________________________________
   _________________________________________________________
   _________________________________________________________

18. Would the value of this SDI service be improved if you were to receive abstracts twice a week instead of once a week?
   (1) 81% no
   (2) 17% yes
   2% did not answer

19. What is the maximum number of abstract cards you would want to receive at one time?
   (1) 12% = 5 or less, 6% = 6, 4% = 7, 40% = 9 or more, 21% = no maximum,
   17% did not answer

20. Which areas of interest to you are not sufficiently well covered?
21. Do you have any suggestions for expansion of the SDI system, particularly in regard to whom the service should be extended and methods for contacting potential users?

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

22. Other comments:

__________________________________________________________________________
__________________________________________________________________________
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<th>Notices to Subscribers</th>
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<th>Current Matching Factors&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Notices Not Sent To Anyone&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Persons Who Did Not Receive Any Notices</th>
<th>Over-Limit Subscribers</th>
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</table>

<sup>a</sup> Computed according to the number of profiles in the system, not the number of subscribers.

<sup>b</sup> Computed according to the formula \( MF = \frac{100N}{PA} \)

where \( MF \) is the matching factor,

- \( P \) is the number of subscriber profiles in the system,
- \( A \) is the number of abstracts processed,
- \( N \) is the number of notices printed.

<sup>c</sup> Note that the greater number of notices not sent to any subscriber occurred when there were fewer subscribers.

<sup>d</sup> Any person receiving more than 10 notices per run was considered an over-limit subscriber. Several persons have two or three profiles and expect to receive more than 10 notices.