A Study of User and Nonuser Reactions to WMU Online Automated Retrieval System (OARS)

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A STUDY OF USER AND NONUSER REACTIONS
TO WMU ONLINE AUTOMATED RETRIEVAL SYSTEM (OARS)

by

Janet Dommer

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Janet Dommer
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I. INTRODUCTION
The Problem and Its Background

Online automated bibliographic information retrieval is a major resource of the 1970s. Such retrieval provides a system in which there is two-way communication between the user and the computer. To the user, the machine response appears to be immediate. As a result, the patron has access to comprehensive, up-to-date bibliographic information which may be printed at the computer terminal or sent through the mail. Since 1973, when online searches were introduced into academic libraries, there has been increasing use of these services in institutions of higher education.1 The growth trend is illustrated by Marshall's 1975 survey2 of 100 academic libraries having separate chemistry or science libraries. Of the 73 replies, 92.3% indicated they were using online automated retrieval services, and 24.6% indicated that they were planning to use these services.3 An informal poll taken at the May, 1976, meeting of the Association of Research Libraries indicated that approximately 80% of ARL libraries currently offer online searching via one


3Ibid.
or both of the two largest commercial vendors which are available, System Development Corporation (SDC) of Santa Monica, California, and Lockheed Information Systems of Palo Alto, California. These vendors provide low-cost online access to nearly 100 computer-readable bibliographic data bases which cover a wide range of subjects in the fields of Science, Technology/Engineering, Social Sciences, and Business/Economics.

Michigan is experiencing the same kind of growth trends seen in national surveys of other libraries offering online search services. By 1974, online searching of data bases offered through Lockheed and SDC were provided by Michigan's three largest universities. Michigan State University added the service in the early 1970s, and the University of Michigan's Mental Health Research Library and Wayne State University provided access as of summer 1974. In the southwestern part of the state, Western Michigan University is the first academic institution to offer automated search services; their first searches occurred in the summer of 1975.

Now that the implementation period has passed, academic insti-

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tutions are confronted by the need to evaluate their online retrieval services. The newness of the technology and the recency of its introduction into academic libraries add special dimensions to the task. Selective decisions need to be made in determining the aspects of the service to be measured and the evaluation methods to be used. A feasible evaluative method is to survey user reaction to online search services. One research study reports that such surveys are needed.¹ User evaluations of online services are increasingly reported in professional journals. They are becoming a genre in themselves. However, there is a limited number of academically based studies. Many of these studies focus on a single aspect of search service or on a subpopulation of the academic community. A recent example of both types is Kobelski and Trumbore's study of student use of online bibliographic reference services.² A review of other examples of user surveys is found in the next section of this paper, "The Review of the Related Literature and Research".

The Problem at Western Michigan University

Western Michigan University Libraries System (hereafter


referred to as WMU), like many other academic libraries, needs to evaluate its online services. An overview of WMU online automated services reveals a number of concerns. The Educational Resources Center (ERC) and the Waldo Library, both part of the University Libraries, introduced online automated search services the summer of 1975. Contracts were signed with Lockheed Information Systems and System Development Corporation. In the Winter semester, 1978, the data base coverage was increased by the addition of MEDLINE, a bibliographic data base originating from the National Library of Medicine. As of Spring, 1978, the location of a computer terminal in the Business Library, a branch library, made search service convenient for faculty and students in the College of Business.

The inception of computer search service at WMU represents an investment involving such factors as staffing, training sessions, organizational structure, and user education. Initial requirements for staffing and training were resolved when WMU reference and branch librarians participated in training workshops.¹ No additional librarians were hired, so the increased responsibilities are absorbed by the present staff. Leadership for the program is informal, and it is best characterized as a committee approach to program development.² How the staffing pattern and the informal organizational structure affect the service is not readily apparent. The

¹Becki Whitaker, "OARS Billing Procedure," Kalamazoo, Michigan, December, 1977. (Typewritten.)

²Interview with Becki Whitaker, Educational Resources Center, WMU, Kalamazoo, Michigan, March, 1978.
staffing pattern also blurs costs such as that portion of staff
time given to online search services.

The cost becomes greater when user fees, search aids, and
hardware purchases are examined. An OARS (WMU acronym for its On-
line Automated Retrieval System) financial statement for 1976-1977
shows the combined costs for librarians' training sessions and com-
puter searches created an estimated deficit of $2.90 for each com-
puter search. Originally, the charges for an online search included
computer connect time at a rate determined by the data base and the
vendor being used, plus off-line print charges as determined by the
vendor. A sales tax (4%) is added to the total. A major change in
user fees was initiated with addition of a $3.00 charge per a 30
minute unit consultation period. The additional fee is restricted
to non-WMU users of online services.\textsuperscript{1} It is anticipated that the
addition of a consultation fee for non-WMU users, effective since
December, 1977, will help put the online information service on a
cost recovery basis for searches of non-WMU users.

When the service was initiated, a borrowed terminal was used.
At the end of the initial year, two computer terminals were pur-
chased at an approximate cost of $2,500 each.\textsuperscript{2} Two additional ter-
minals were acquired with grants. Training sessions for librarians

\textsuperscript{1}Becki Whitaker, "OARS Billing Procedure," Kalamazoo, Michigan,
December, 1977. (Typewritten.)

\textsuperscript{2}Interview with Becki Whitaker, Educational Resources Center,
were financed by University Libraries. Publicity costs have been minimal and, to date, include flyers to faculty and computer demonstrations for classes. The WMU Division of Instructional Communication provided a $250 grant to the University Libraries for computer demonstrations to departments; the demonstrations are staffed by Waldo Library and the Educational Resources Center personnel.¹

Another aspect of the service at WMU involves patron usage patterns. Some limited observations have been made about the usage patterns. System Development Corporation and Lockheed Information Systems provide data bases which have the potential to meet most WMU users' information needs. However, the "OARS 1976-1977 Annual Report for the Educational Resources Center" indicates that 68% of the ERC searches are done in the ERIC² data base. The report further shows that the College of Education and the Psychology Department are the main users.³ The assistant head of Waldo Library, Reference, indicated that the Psychology and the Sociology departments are the heaviest users of online reference services at Waldo. The daily log

¹Interview with Becki Whitaker, Educational Resources Center, WMU, Kalamazoo, Michigan, March, 1978.

²ERIC is an acronym for the Educational Resources Information Center, established by U.S. Office of Education in 1965. The acronym is also used to refer to the data base originating from the center. The data base, itself, is a magnetic tape of the citations and abstracts to the reports and periodical literature in many education and education-related areas. Eva L. Kiewitt, "A User Study of a Computer Retrieval System," College and Research Libraries 36 (November, 1975):458-459.

sheets revealed that in 1977, January-December, 58 searches were done for the Psychology Department and 55 searches were requested by the Sociology Department; another 56 searches were from a broad cross section of WMU departments. During the same period, a breakdown by data bases yields these results: 25% PSYCH ABSTRACTS, 31% SOCIAL SCISEARCH, 15% ERIC, and 25% other. It should be noted that WMU includes eight colleges, two professional schools, and 19 departments. Colleges include: the College of Education, the College of Fine Arts, the College of Applied Sciences, the College of Arts and Sciences, the College of Business, the College of General Studies, the College of Health and Human Services, and The Graduate College. The School of Librarianship is the only autonomous school and the School of Social Work is located in the College of Health and Human Services. There are no departments in The Graduate

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1 The daily log sheets are personal records maintained by Linda Rolls, Assistant Head, WMU Waldo Library, Reference.

2 PSYCH ABSTRACTS is the abbreviated name for the data base which corresponds in content to the printed Psychological Abstracts. Like Psychological Abstracts, it provides bibliographic information to psychology and behavioral sciences journal literature.

3 SOCIAL SCISEARCH is the abbreviated name for the data base which corresponds in content to the printed Social Sciences Citation Index. The data base serves as a multidisciplinary citation index covering journals representing virtually every discipline in the social sciences.

4 The statistics are derived from the daily log sheets kept by Linda Rolls, Assistant Head, WMU Waldo Library, Reference.
College.¹ One question eventually needs to be addressed: Should there be greater OARS usage by WMU departments, schools, and colleges? The addition of MEDLINE in March, 1978, may extend the usage patterns to include more departments, especially those in the College of Health and Human Services. It is anticipated that the placement of a computer terminal in the College of Business, which is isolated from the main campus, will expand usage of online retrieval services with areas related to that field. However, other needs are unprojected at this time.

Another pattern of usage is suggested by analysis of the status of the user. A numerical count of users from the ERC records 69 users for the first year and 189 users for the second year.² A breakdown of ERC users shows that students comprise 49.7% of the total and faculty 0.8% of the total.³ The remaining users are non-Western Michigan University faculty and students. No distinction was made for repeat users in the count. Information available for January-December, 1977, indicates that 169 searches were done at Waldo Library. By user status, 63% of the total are students and faculty 37% of the total.⁴ During the 1976-1977 period, WMU


³Ibid.

⁴The statistics are derived from the daily log sheets kept by Linda Rolls, Assistant Head, WMU Waldo Library, Reference.
enrollment was approximately 20,000-21,000. Fulltime employees, Fall, 1977, totaled 939 faculty and 1,565 staff. Masters', Specialist, and Doctors' degrees granted for the year, 1976-1977, totaled 1,540. However, it is difficult to draw any firm conclusions from a simple numerical count of users. User statistics, which would permit comparisons, are needed from universities of comparable size, program and similar automated information retrieval components. In addition, data from WMU are still limited.

In summary, the preceding comments on numerous areas of concern indicate the rationale for evaluating the service. Certain salient points are clear: 1) OARS already represents a major investment of library resources and staff and will probably involve more financial support in the future; 2) Usage patterns and explanations for the patterns require further investigation; 3) There is no clear indication whether user needs are being met; 4) Essential information about future needs is lacking; 5) OARS, as a system, has characteristics unique to it; and as a result, 6) Basic data relevant to making decisions about the future direction of the service are lacking.

Although all of the identified concerns are important, central to an evaluation of OARS are the reasons for the use and nonuse of the service. The purpose of the study, therefore, is to discover and analyze the reasons for the use and nonuse of WMU online

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retrieval service in order to derive indicators for the future
direction of the service. The reasons for the use and nonuse of
the service may provide clues to the users' reactions to the ser-
vice. Not investigated are aspects of the OARS system itself, the
institutional cost factors, needs of the academic units, and the
basic role of online searching at WMU.

Review of Related Literature and Research

The literature of library and information science is replete
with reports and studies of automated reference service. User eval-
uation studies of varying scientific quality are being reported in
increasing numbers. In this section, literature concerned with the
measurement and evaluation of online services is examined, first,
for the methodology and measures employed with user evaluation
studies. Then, user evaluation studies on online automated retrieval
services offered by academic and research libraries are reviewed.
Finally, user evaluation of single aspects of automated retrieval
service or those studies dealing with a subset of the library's
clientele are selectively cited.

A number of events preceded the development of online search
services. First, there was the development of embryo computerized
bibliographic data bases and systems in the late 1950s, then the
batch processing\(^1\) of bibliographies for the public during the 1960s, and finally, the National Library of Medicine's batch processed searches, 1964-1974.\(^2\)

The year 1968 is generally accepted as the landmark for the first publically available online system in the world. During that year, the State University of New York's (SUNY) system demonstrated the practicality of and the demand for online bibliographic retrieval in medicine.\(^3\) SUNY's accomplishment was then paralleled by the National Library of Medicine in 1970. AIM-TWX (ABRIDGED INDEX MEDICUS-TELETYPewriter EXCHANGE) became operational and nationally available. Major vendors then emerged; Lockheed and Systems Development Corporation began offering online bibliographic retrieval service to the public and Bibliographic Retrieval joined them as a vendor of online search services in 1977.\(^4\)

Along with the development of online bibliographic retrieval, the need emerged to evaluate the satisfaction of users. The two

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\(^1\)Batch processing is a procedure in which a number of transactions to be processed are accumulated and processed together. Usually the transactions are matched sequentially against affected files. It is, therefore, distinguished from online processing by its delayed accessing of data from the computer and by accessing data sequentially. For a description of an online system refer to page one of the study.


\(^3\)Ibid.

\(^4\)Ibid.

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approaches most frequently reported in the literature are described by Tagliacozzo.

Two different lines of research are commonly followed in order to evaluate the satisfaction of the users of an information retrieval system. One of them consists in measuring the effectiveness of the information system and taking that measure as an indicator of how successful the system was in satisfying the information needs of its users. The other type of research consists of directly asking the users for their opinion of the service provided by the information system.¹

Methodology and Measures

Historically and currently, reports of Tagliacozzo's first method, the measure of automated system effectiveness, as an indicator of user satisfaction, pervade the literature. Basically, such measures of system effectiveness focus on system output. To date, output measurement is dominated by use of the recall and precision measures. The two measures may be explained in terms of their purpose. The purpose of the recall measure is to show the percentage of wanted documents retrieved. In other words, the recall ratio is the relevant documents retrieved by the system over the total number of relevant documents contained in the file. The other measure, precision, is used to determine what percentage of the retrieved documents are actually relevant. "Precision is easier to establish than recall since it can be determined from examining the retrieved

documents. With recall it is necessary to examine the whole file."

The recall and precision measures were two among six criteria proposed by Cleverdon as early as 1964. Cleverdon's other criteria included such measures as coverage, response time, user effort, and form of output. More recently, in their authoritative text, Information Retrieval Online, Lancaster and Fayen discuss and document the application of the performance criteria suggested by Cleverdon. In a later text, The Measurement and Evaluation of Library Services, Lancaster reiterates and expands the use of the same basic criteria discussed in his earlier book. He recommends that the six criteria, identified by Cleverdon, be used to evaluate library service in general.

The other form of evaluating user reaction is championed by William S. Cooper, assistant professor at the School of Library and Information Studies, University of California, Berkeley. His reflections and theories decry the amount of practical effort expanded

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1. Explanation given to a class by Dr. Hardy Carroll, Assistant Professor, School of Librarianship, Western Michigan University.


on system evaluation methods.¹ "Yet in spite of this concerted at­
tention to the problem on the part of highly qualified researchers,
there is still no substantial agreement in the field as to what
good retrieval performance is or how to measure it."² According to
Cooper, an ideal measure, against which an operational measure of
retrieval effectiveness must be judged, must measure somehow the
system's ultimate worth to its users. This ideal measure, as con­
ceptualized by Cooper, consists of the user's subjective evaluation
of the personal utility of the system's output to him.³ The author
distinguishes his concept of "utility" from the term "relevance" by
stressing that the term utility is a catch-all concept involving not
only topic relatedness but also the document's quality, novelty, and
importance.⁴ The personal utility of the system's output would be
quantified by having the patron assign a dollar worth to each docu­
ment. The method to be used with the ideal measure would involve an
elicitation procedure, that is, questioning the users directly.
The patron is asked, in effect, how many dollars his contact with
the document is worth to him, where any positive, zero, or negative

¹William S. Cooper, "On Selecting a Measure of Retrieval Effec­
of the American Society for Information Science 24 (March-April
1973):87-100.
²Ibid., p. 87.
³Ibid.
⁴Ibid., pp. 87-90.

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amount is permissible as an answer. The researcher singled out this piece of literature for discussion for several reasons. First, it marks a recent continuing discussion of a new measure of system effectiveness. Second, the proposed measure of system effectiveness elicits an evaluation directly from the user, and third, it appears to be a counter-balance to the methodologies and measures which focus entirely on system evaluation without involving the user.

Germane to Cooper's proposal are some contemporary studies and proposals which are related to or are variations of Cooper's measure of system effectiveness. An example of this type is a response by Soergel to Cooper's work. The author argues that improvement in the task performance in the user is a more appropriate measure than the personal "utility" measure proposed by Cooper. Soergel stresses that "instead of leaving the user at the point where he or she receives the information from the reference storage and retrieval system, we should see...how it (the information) actually affects the user's performance in his or her task." The application of the method would require the use of the reference interview.

A comparison of Cooper's measures with Soergel's proposal


3 Ibid., p. 256.
reveals several contrasting points. Cooper would determine system utility as the average search utility based on the dollar worth assigned to each citation. Soergel, on the other hand, would use task performance of the user as a measure of system utility. User satisfaction, according to the former, is derived from search utility or, according to the latter, from task performance. Cooper's measure emphasizes the use of the post search interview as a methodological approach, and Soergel uses the reference interview or presearch interview. Both proposed methods relate to the present study in so far as they attempt to determine user satisfaction by asking the user directly for system evaluation.

Whether intentionally or coincidentally, Tagliacozzo's research, using a questionnaire to elicit user satisfaction, appears to incorporate elements of Cooper's and Soergel's concepts. Her questionnaire uses rating scales to determine judgments that indicate a global evaluation and a specific evaluation. The term "helpful" indicates the global judgment and "useful" indicates specific evaluation of the search. It is the latter term which may resemble either Cooper's utility measure or Soergel's task performance concept. If "useful" may be taken to mean utility, even though a dollar value is not assigned to individual citations, then the concept bears some resemblance to Cooper's measure. If on the other

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hand, it means useful in terms of being able to perform satisfactorily the task for which the search is requested, then the term useful resembles Soergel's concept. Whether the resemblance of Tagliacozzo's concept to Cooper's and Soergel's tenets is accepted or rejected, the importance of constructing questionnaire items which elicit specific and global judgments has its own merits. Such measures can reveal contradictions in the respondent's evaluation of system effectiveness.

Tagliacozzo's philosophical outlook bears serious consideration, especially for the present study and the interpretation of its results. Despite the users' idiosyncratic perceptions of the information system, the author maintains that users' "responses provide a valid estimate of the degree of acceptance of the system by the particular community of users of which they are part. From a practical point of view, 'users' acceptance' may be an adequate substitute for 'users' need satisfaction".¹ Related to Tagliacozzo's philosophy is her assertion that the reason for using an online service, as well as the type of information needed, may provide clues to the users' reactions to the outcome of the service.²

Still another technique, not commonly used but being increasingly discussed, is the analysis of user satisfaction based on the


² Ibid., p. 248.
interaction of the user with the search intermediary. As a proponent and developer of this approach, Pauline Atherton relates user satisfaction to four distinct aspects of the search situation. These include the output, the interaction with intermediary, the service policies, and the library as a whole. Atherton maintains that the librarian can learn to perfect the observation and interpersonal skills which affect interaction between the librarian and the user, and ultimately the user's satisfaction with computer-based retrieval. The required technique involves the use of videotaping to help the interaction of the intermediary with the user. The following study uses the first three aspects of the search situation, as identified by Atherton, as the components which a comprehensive user's questionnaire must incorporate. Such a comprehensive questionnaire produces a user evaluation of the multiple aspects of the retrieval service. Atherton's stated assumptions about how satisfaction should be measured apply to the present study and reaffirm similar points discussed in the previous studies by Cooper,^2 Soergel,^3

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and Tagliacozzo. The first assumption suggests that the user's state of satisfaction is experienced within the frame of his own requirements. Assumption number two is that expectations may affect how a user approaches the service: what he requires of it, how he interacts with it, and his assessment of its adequacy. In assumption number three, it is assumed that just as expectations may affect satisfaction, other considerations such as costs (in energy, time, or money) may work to compromise the user's definition of satisfaction.

This analysis of the methodology and measures, advocated in user evaluation studies of information retrieval systems, commented on selectively chosen studies which indicate the common methods and measures used or proposed. Citation of a state-of-the art review by Swanson, who recounts the issues and solutions of assessing systems from the user's point of view, seems an appropriate conclusion to the discussion. In her introduction, she notes that information science literature on evaluation has been dominated by studies of retrieval measures. "Studies of other elements of information systems, for


example the coverage of data bases, document delivery capabilities of systems, and use of information products by customers, are far less numerous."¹ Swanson's analysis of evaluation study is presented in terms of five criteria: the scope of evaluation studies, selection of variables, the use of surrogate judges, frequency of study, and comparability of study results. Conclusions based on the criteria and bearing on the researcher's study include:

1. Scope should be enlarged to include personnel tasks, as well as the performance of products and services; 2. Study variables should include factors that do not necessarily pertain to the worth of information products or services but nevertheless influence their use; 3. Surrogate judges should be avoided; 4. Selection of variables depends on the purpose of the study; 5. Evaluation frequency depends on the organization, its objectives, etc.; and 6. Comparability of evaluation study is presently limited.²

Swanson's pertinent conceptual components include the process of evaluation, the value situation, and summary judgment versus specific judgment. The evaluation process is defined as a judgmental process that is performed in human beings in the initially unobservable realm of the mind. The value situation consists of the judging individual, the object, and the purposive relation between


²Ibid.

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the subject and the object. A summary judgment is less explanatory than judgments on separate items. This concept is particularly important for the construction of questionnaire items.¹

Basically, the methodological components of evaluation enunciated by Swanson are steps in the scientific process of investigation. Emphasis is given to the fundamental elements of evaluation study. These are identified as the criteria by which attainment can be measured and the variables derived from the criteria that describe the operational features of the program evaluated. Criteria can be represented in terms of "1. levels of expanded effort, 2. effects of effort, and/or 3. casual relationships."² The level-of-effort variables are defined as descriptors of input quantities such as money, man hours, and number of acquired items. The effects or results of effort can be expressed as number of users, cost per useful reference retrieved, and ratio of patrons-to-total potential clientele. Swanson maintains that level-of-effort measures, which have been most frequently used criterion variables in evaluation studies, are not sufficient.³

Thus far the review of the cited literature and studies sur-

²Ibid., p. 144.
³Ibid.
veyed a variety of methodological and measurement concepts. While the concepts are not all applicable to the researcher's study in a practical sense, they do serve as a philosophical base in conducting a user evaluation study and constructing a questionnaire for data collection.

**User Evaluation Studies**

The rule is that one investigation cannot be compared with those of another unless the issues studied are the same, the variables are the same, the study conditions are the same and the populations are substantially similar.¹

The factors of comparability, as noted by Swanson, provide the framework in which the second phase of the review of related literature and studies is conducted. Emphasis in this search is on user evaluation of multiple aspects of an online retrieval service in an academic setting. Also sought are surveys of the nonusers of online services.

The number of sophisticated scientific studies focusing on multiple data elements or multiple aspects of the service are limited. Reviewed first in this section are recent studies which the researcher finds limited by the small size. Examples are

user evaluations conducted by Hoover,1 Fosdick,2 and Hitchingham.3

Hoover's findings, based on twenty-six questionnaires returned from seventy given out, are suggestive of users' reactions to online services in the main library at the University of Utah. The survey revealed that the main users were faculty and graduate students; "word-of-mouth" information was the primary agent promoting user awareness of the service; respondents indicated willingness to pay for the service because of the considerable amount of time saved; the majority of subjects rated the precision of the search in the 60-100% range; and rapid retrieval of citations made it cost effective.4

Fosdick's report, although not in an academic setting, is of interest because of his adaptation of Hoover's questionnaire to survey research scientists' evaluation of online services at an army research facility. Since search costs were charged back to the user's division, comparisons with Hoover's study are limited. The results from the study indicated that the primary agent promoting

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user awareness was again "word-of-mouth". In contrast to Hoover's findings, only four of the twenty-six subjects rated the precision of the search in the 60-80\% range; none placed the perceived precision of the search in the 80-100\% scale. The subjects overwhelmingly responded that it was worth sifting through the irrelevant citations to get to the relevant ones. As a general index to user satisfaction, the users were asked if online search services were a useful addition to the library. The response was clearly favorable. One question, not included in Hoover's questionnaire, but related to the investigator's present study, revealed that the three weeks for interlibrary loan items was an acceptable turnaround time.¹

Fosdick's study also contains one of the few nonuser surveys described in the professional literature. The most pertinent question for the Western Michigan University (WMU) study is the one identifying reasons for nonuse of the service. From the responses to the question items, three reasons were most frequently chosen. The respondents indicated that they preferred finding the documents on their own, they preferred the documents themselves, and it was too difficult to get the documents listed on the search printout. Failure to use the service, therefore, was not due to lack of awareness. Rather, it appears that patrons want to avoid the problem of immediate access to items in the printout. As a group, less than half of

the nonusers of online services used traditional library services "a lot"; seven out of thirteen indicated that they used the library "sometimes". While the significance of the study is limited by a small sample population, the nonuser questionnaire is amendable to the researcher's need to survey nonusers as well as users of online reference services.¹

The third study, by Hitchingham, covers some of the same elements as those in the Hoover and the Fosdick studies. Unlike the other two studies, it is a MEDLINE-based service to a university community which does not have a school of medicine. Analysis of 27 evaluations returned from the 36 completed searches indicated willingness to pay for the service. Another salient point showed the average precision value was 53.9%; this would support Fosdick's findings, but puts precision lower than the range indicated by Hoover's study. Respondents in all three reports considered the service to be a useful addition to the library. Twenty-five of Hitchingham's subjects evaluated the searches of considerable or major importance.²

The user evaluation studies reviewed thus far reveal agreement on the primary agent promoting awareness of online reference services and the patron's favorable response to the service. There appears to be some disparity in the patron's evaluation of search precision,


but that is readily explained due to the different search situations.

Three academically-based evaluation studies, greater in scope and sample size than the previous reports cited by the investigator, were selected for comparability to the researcher's problem.

In 1972, the University of Georgia Computer Center conducted a survey of the users in the twenty-seven institutions which compose the University System of Georgia institutions. A total of 1400 questionnaires were mailed out; there was a return rate of 35%. The survey covered three major areas of interest in estimating the use of the service. The first part of the survey was designed to determine the types of university users, how the search results were being used, and how users became aware of the service. The second part of the survey was concerned with library use and how the user obtained copies of articles cited in the search. The third part inquired into the extent of the overlap between the data bases as reflected in the users' search results and the effect this had on the users. In terms of the WMU study, the important variables in the Georgia study include the lack of direct charges to the users and the annual contact with users to determine which of them wish to continue their selective dissemination (SDI) profiles. In contrast to Western Michigan's retrospective searches and non-existent SDI program, the University of Georgia's service is characterized by

Survey results indicate that 56.5% of the users are faculty, 34.2% are graduate students, and 9.3% are faculty or staff members who are also taking additional graduate work. Over 97% of the respondents indicated some substantial contribution to their professional activities, with the major contribution including a savings or more efficient use of time and broadened subject coverage. Users became aware of the service primarily by "word-of-mouth". The users indicated several changes in library use habits such as increased use of library resources and more direct access to the primary literature. Forty-nine percent of the users reported that the overlap with citations previously seen was only 10%.

A critical incident survey was conducted of the users of the Indiana University PROBE computer retrieval program using the ERIC data base. The sample consisted of 200 searches with a 78% return. The study identified user characteristics, needs, and satisfaction. Unlike most systems reported in the literature, PROBE is a batch mode retrieval program of the ERIC data base. In this study 39.7% of users were graduate students with faculty composing 14.2% of the users; the users indicated research as the major purpose for a search; the greatest number of users heard of the service from a colleague; and overall satisfaction of the users was high with 79.5%.

of the searches considered of value.

Online reference search services were provided to users on a fee-for-service basis at Massachusetts Institute of Technology as the first university library model for NASIC (Northeast Academic Science Information Center).¹ Most of the data bases available through SDC, Lockheed, and the National Library of Medicine were offered. A questionnaire was sent to each of the 200 users (November 1973-December, 1974) to determine their reactions to the service and to identify areas for improvement. A 46% response rate was achieved; seven randomly selected non-respondents were reached by phone and their reactions support the questionnaire results. Not part of the questionnaire, but included with the report was a comparative evaluation of the various promotional techniques. Some aspects unique to the operation of the pilot M.I.T. online search services need to be noted. The pilot was a total, concerted effort, well-funded by the New England Board of Higher Education and guided by a team of experts. The NASIC project team included staff from the M.I.T. Libraries, the Electronic Systems Laboratory, and the Information Processing Services. The population included industrial users as well as academic users. The major findings were that:

1. 91% of all respondents found the service satisfactory. Only 8% of the respondents found the service unsatisfactory.

2. 77% of all respondents found the service to be worth the charges.

3. Relevance of search citations was rated moderate to high by 81% of all respondents.

4. Cost affects the class of the user. Industrial users are less concerned than academic users about cost. Undergraduates and others with no recourse to monies other than personal funds do not use the service in any significant numbers.

5. Cost is only one of many confounding factors that may motivate a person to use the service. Others are method of promotion, need, prior familiarity with the data base, availability of funds, complexity of the search, urgency of results, convenience, and influential or peer users.

6. Promotional efforts need to be intense both to increase general awareness of the service and to turn awareness into actual use.

7. Awareness about the service is most often achieved by word-of-mouth.

8. Translation of awareness into use requires additional effort in demonstrating cost effectiveness of the service. Search demonstrations at the terminal are most effective when they can be oriented to the current needs of the audience. Avoid canned demonstrations.\(^1\)

Limited information about the nonuser of online search services is also included in the report. An informal survey of nonusers indicated that the main reasons for nonuse were lack of "awareness of

service or its benefits, lack of access to funds to pay for the
service, and absence of an immediate need for reference searching."¹

In conclusion, comparison of some of the overlapping data
elements from the three studies just cited show that neither faculty
nor students consistently emerge as the primary users in the three
studies, awareness of the service is most often achieved by "word-of-
mouth"; and overall user satisfaction with the online services was
high.

A wide variation of data elements was revealed by the scope
of the various studies. The issues studied in the M.I.T. pilot
approximate the concerns in an evaluation of Western Michigan Univer-
sity Online Automated Retrieval System (OARS). However, the vari-
ables, the study conditions, and the populations are not substan-
tially similar to WMU. All three studies had variations of the com-
parability factors, but no one study was substantially similar in
all the comparability factors.

Finally, this review of the literature concludes with mention
of academically-based user evaluation studies which focus on narrow
aspects of online services or a subset of the user population.

The University of New Mexico's General Library surveyed the
faculty to determine the reasons for the use of the service and the
purposes for which it was used. The evaluation disclosed that
faculty appreciated the time saved by the service and the comprehen-

¹Alan R. Benenfeld et al., NASIC at M.I.T. (Cambridge: Mass-
achusettts Institute of Technology, 1975; Bethesda, Md.: ERIC Repro-
sive, up-to-date searches. Use analysis of 100 searches indicated that curriculum development, teaching, and the writing of research proposals were the main purposes for which the service was used.¹

Two recent studies focus on student use of online bibliographic services. The University of California (San Diego)² study examined undergraduate use of online search services. Responses to post-search questionnaires revealed that the main reason for requesting a search was to aid in the preparation of an assignment, especially a term paper. In general, topics on which searches were run were quite sophisticated. Offering searches free suggested that the percentage of undergraduates within the user population could be as high as 14%. Although the data were not conclusive, it appears that a minority (28%) would be willing to pay the actual computer and print costs of a search.

Another study focusing on the use of online services by students was conducted at the University of Delaware.³ The student program was funded for the 1976-1977 academic year to provide subsidies for graduate and undergraduate students without access to research funding. The researchers concluded that online retrieval


services are an important searching tool for students. The majority of students used the computer search in relation to course work, while a minority used it for independent study or thesis work. Seventy percent would definitely do a computer search again. However, only a third of the respondents indicated that they would be willing or able to pay the full cost of a search.

Although the three studies are limited in scope and comparability factors, the Maina and the Kobelski studies are of value since they address the issues of student user fees and the needs of students for online search services.

The total literature review produced certain data directly related to the WMU study:

1. Cooper's\(^1\) measure of system utility and Soergel's\(^2\) concept of task performance serve as supplements to the traditional precision measure. The concepts are given consideration in the construction of questionnaire items which ask the patron to assign a dollar worth to the search (Cooper's concept) and to evaluate the search in terms of the his/her reasons for using online retrieval (Soergel's concept).

2. Tagliacozzo's\(^3\) dictum that the data collection instrument


should elicit both specific and global judgments is implemented in the WMU user questionnaire.

3. Three of the four aspects of the search situation, as identified by Atherton, are used as the components which a comprehensive user's questionnaire must incorporate.

4. Swanson's account of the issues and solutions for assessing systems from the user's point of view is used as a guide for the implementation of the present study.

5. The user evaluation studies reveal agreement on the primary agent promoting awareness of online retrieval service, patron's favorable response to the service, relevance of search citations rated average to high, and patron willingness to pay for the service.

6. Faculty and graduate students are the main users of online reference service, but neither faculty nor graduate students emerge as the primary users. Undergraduates do not use the service in any significant numbers.

7. Reasons for using the service include a saving of time and the need for a comprehensive search. This information is inconclusive, because of the few numbers of scientific studies on this aspect of online services in academic libraries.

8. Undergraduate students use online services in relation to course work, especially the preparation of a term paper. A minority (28-33%) of graduate students indicate a

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willingness to pay for the searches.

No scientific study documenting the reasons for the nonuse of online search services was located in the overview of the literature.

Objectives of the Study

Implied in the study's purpose are two basic questions: What are the reasons for the use of Western Michigan University (WMU) online bibliographic retrieval services offered by Educational Resources Center and Waldo Library, Reference? What are the reasons for the nonuse of online bibliographic retrieval services offered by WMU Educational Resources Center (ERC) and Waldo Library, Reference? An online system is understood as an interactive one in which there is literally two-way communication between the user and the machine. The response is immediate or so it appears to the user.

The anticipated answers to the questions are delineated in the objectives of the study. The data will take the form of responses to user and nonuser questionnaires. Since reasons for the use and nonuse of online retrieval services are often subsumed under user appraisals, the study necessarily involves a user's evaluation of the service. Furthermore, a user's evaluation can be structured to include the multiple aspects of the service which contribute to a user's reasons for the use or nonuse of the service. As noted by Atherton and colleagues, "When the user determines satisfaction with computer-based retrieval situations, he focuses on four distinct aspects of the service: the output, the interaction with the
intermediary, the service policies, and the library as a whole.\textsuperscript{1}

The three major objectives of the study are:

1. To investigate or determine the characteristics of the users of online reference services, their perceptions of the service, and other facts about the use of the service. Specifically, the study will investigate or determine a) user status, i.e., faculty or students (doctoral, specialist, master, or undergraduate), b) usage patterns for faculty by department, c) usage patterns for students by program of study, d) identification of which library has done the search, e) search topics, f) search cost, g) source of funding for faculty and students, h) the primary agent promoting user awareness of the service, i) the purposes for which the service is used, j) the user's "perceived" reasons for the use of the service, k) the user's "perceived precision" of the retrieval system, l) usefulness of the system in terms of the user's reasons for using the service, m) general worth of the service in terms of the user fee, n) user satisfaction with the waiting period for the librarian to do the search, o) user satisfaction with turnaround time for receipt of the printout, p) user satisfaction with search assistance, q) user's view of the accessibility and adequacy of the University Libraries' materials collection, r) user awareness of interlibrary loan service, s) the need for interlibrary loan requests, t) user interest in periodic update and willingness to pay for the service, and u) a general index of user satisfaction.

2. To determine the characteristics of nonusers, nonuser

awareness of the services, and nonuser perceptions of the usefulness and purpose of automated retrieval. Specifically, a) nonuser status and department of program of study, b) use of traditional library services, c) influence of a particular library on nonuser awareness of the service, d) nonuser awareness of the service, e) primary agent promoting awareness of the service, and f) perceived reasons for not using the service will be surveyed.

3. To derive indicators for the future direction of the service.

It is assumed that the patrons know their reasons for the use or nonuse of online retrieval services. Another assumption is that the reasons for the use of the service are derived from multiple aspects of the service. Finally, a third assumption is that a user appraisal is a phenomenon which can be analyzed.

It should be noted that determination of the reasons for the use and nonuse of the service is confounded by conditions unique to two different environments: the ERC and Waldo Library. The conditions, identified as extraneous variables, include the physical accessibility of the Educational Resources Center retrieval service to the College of Education and the differences in the degree and kind of advertising done by the ERC and Waldo Library. The ERC, for example, has a permanent exhibit drawing attention to the online service. In contrast, Waldo Library has no exhibit. Unlike the ERC, Waldo does have its computer terminal within limited view of the patron, although few patrons recognize its potential to them.
II. THE PROCEDURE

The Survey Design and Methodology

This study is a status survey - as such it is concerned with the gathering of facts rather than the manipulation of variables.\(^1\) Normally, the survey design is a cross-sectional one which involves the collection of data at one point in time from a random sample representing the given population at that time.\(^2\) With regard to this study, the collection of data is limited to users of online retrieval services for the period, July, 1977-April, 1978 at Western Michigan University (WMU). These dates encompass summer, fall, and winter terms at the University. Data for nonusers are limited to the 1977 calendar year for faculty and to the 1978 winter term for student enrollees. Since the information needed to answer the study's two questions will take the form of responses to mailed questionnaires, dates were selected which would result in recent subject mailing lists. The methodology consists of the steps and procedures for conducting a survey as outlined by William Wiersma.\(^3\) Appendix A contains the adapted outline.

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2. Ibid., p. 147.
3. Ibid., p. 150.
Identification of the Target Populations and Determination of Sampling Procedure

The populations of users and nonusers are drawn from Western Michigan University (WMU) students and faculty. No sample was drawn from the user population, which is composed of all individuals associated with WMU who received online service from the Educational Resources Center (ERC) or Waldo Library during a specified period. All subjects, within the defined population, were sent questionnaires for the period July, 1977-April, 1978. The defined population at that point in time totaled 236. The subpopulations were 34 faculty members and 202 students. Since more than one questionnaire was sent to repeat faculty users and repeat student users, the final count for mail questionnaires is 265. (Repeat users are users who had two or more searches, each on a different topic or another aspect of the same topic.)

Stratified systematic sampling is the design selected for use with the nonuser population. By definition, a stratified sample is one drawn from a population which consists of definite strata, each of which is distinctly different, but the units within the stratum are homogeneous as possible.¹ In this study, the strata are faculty and student users. Both strata are represented in the sample, and the sample members are systematically selected from each stratum.

The actual selection of the nonuser student and nonuser faculty samples was done by computer. The researcher requested Duane Sult,

assistant manager for Western Michigan Data Processing Operations, to initiate the computer program for the systematic sampling of students and faculty. In a letter describing the population and identifying the sampling technique, Suit was asked to limit the number of subjects to 300 persons. The number was later adjusted to 309 persons because the subpopulation consisting of faculty was increased from 40 subjects to 49 subjects. It was stipulated that the student subjects be selected from a list of students registered for the year 1978, winter term; the faculty subjects were restricted to faculty for the 1977 calendar year. Names for the student list were released by the Registrar's Office, and the faculty list was provided by Personnel Services, a subdivision of the Personnel Department. Both the student and faculty lists were alphabetically arranged. (See Appendix B for letter copies requesting the release of student and faculty names.)

Application of the sample design resulted in these figures: 260 student names were drawn from a list of 21,066 enrollees, 1978 winter term; 49 faculty names were drawn from a population of 1,032 subjects, 1977 calendar year. The two samples, therefore, total 309 subjects. (This size limitation was imposed by budget constraints.) As required by the difference in size of strata, different \( n \) th numbers were used for each stratum. Every eighty-first name was selected from the student stratum (21,066 enrollees, 1978 winter) and every twenty-first name was selected from the faculty stratum (1,032 faculty, 1977 calendar year). The student sample represents...
1% of the student nonuser population, and faculty sample represents 5% of the nonuser faculty population. As one authority states, "There is little point to stratifying a population unless different percentages of samples are drawn from each." The 5% faculty population is also justified on the presumed higher specialization and need.

After the samples of student and faculty nonusers were taken, the subjects were compared with the user list. The names of two users were on the nonuser list. The two nonuser subjects were replaced by the researcher who selected the next name listed alphabetically in hard copy version of the computer list.

A summary of the rationale for the nonuser sample procedures include these points: 1) The goals of the study necessitated a stratified sample whose size could be adjusted to represent both nonuser students and faculty; 2) Practicality was achieved by a systematic sample; 3) Economy was facilitated by a computer program selected subjects, as well as producing preaddressed labels for the mailing of the questionnaires; and 4) Measurability was achieved by a series of steps that included a defined stratum, and in turn, a sample size that could be adjusted to represent the sample.


Construction of the Questionnaires

The development of questionnaire items is based on the objectives of the study. Each questionnaire item was analyzed in terms of the data it provided to meet the objectives under consideration. In an effort to identify the influence of the extraneous variables, both questionnaires include a section to indicate the library used. A schematic which identifies the study's objectives with the related questionnaire items is provided in Appendix C.

Pretest of the Questionnaire

The instruments used to collect data are two questionnaires. The user questionnaire and the nonuser questionnaire were pretested for clarity and content in a pilot study.

The pretest user population totaled 26. Categories within the population consisted of 11 faculty, 13 graduate students, and 2 undergraduates. The faculty included librarians and teachers. A librarian in the Educational Resources Center and a librarian from Waldo Library distributed questionnaires to the faculty. The researcher explained the purpose to both librarians and asked them to make a similar explanation to faculty.

Student users were approached by the librarian from the Educational Resources Center and the researcher. The researcher made contacts with seven students through two classes in the School of Librarianship. The remainder of the student population was provided by the ERC librarian. Again, the purpose of the pilot study was explained to the participants.
The nonuser pretest population totaled 57 subjects. Forty-two members of the nonusers were graduate students and 10 members were undergraduates. Five persons were included in the faculty group.

Part of the nonuser student population was a class of 28 graduate students from the College of Education. The teacher of the class explained the purpose of the study and collected the questionnaires, since the researcher was not present. The other part of the graduate population was a class selected from the School of Librarianship. The researcher administered the questionnaire. The 10 undergraduates were members of a class who were given instruction by the researcher's assistant.

The nonuser faculty were approached by three different persons. Three of the five faculty were selected and given instructions by a doctoral student in the Special Education program. Of the remainder, one faculty member was contacted by the researcher, and the other faculty member was contacted by the researcher's assistant.

After the questionnaires' pretest, the questionnaire was modified and submitted to the Specialist Project Committee for final approval. The initial user and nonuser questionnaires are included in Appendix C. The first revision and the final revision of the original questionnaires, titled "First Revision" and "Final Copy" respectively, are also included in Appendix C. Notable changes in the original nonuser questionnaire include clarification of the survey's intent and directions for answering the questions. The original user questionnaire
required extensive revision. The directions and statements eliciting background user information were clarified. Questions two, five, and seven through twelve were revised. Several questions were added to the original survey. (Reference to the First Revision of the user questionnaire reveals items eight, nine, and eleven as new questions.) The revision of the nonuser questionnaire was accepted by the Specialist Project Committee. The user first questionnaire revision, titled "First Revision", was approved after clarification of questions eight, eleven, and twelve. These clarifications resulted in a final version, titled "Final Copy", of the user questionnaire.

Procedures for Data Collection

The user and nonuser questionnaires were reproduced by Postal Instant Print (PIP). The user questionnaire is a one page, double-side, blue sheet of legal size paper. The nonuser questionnaire is a one page, single side, yellow sheet of legal size paper.

The mailed packet consisted of a cover letter and a self-addressed envelope, along with the questionnaire. The cover letter message is modeled on standard survey letter format; the message states the purpose and value of the survey. The code used with the individual questionnaires is explained, and the subjects are assured that all responses are confidential. Finally, the termination date for accepting returned questionnaires is stated. Wiersma, in his discussion of survey letter format, states that deadlines of two
weeks or a month should not be implied. This guideline was inad-
vertently violated by the researcher. To counter any possible
effects of the mistake, the initial mail questionnaire was followed
a week later by a post card. It encouraged the immediate return of
the questionnaire and thanked subjects who had already mailed their
questionnaires.

To validate the survey's authority, the cover letter used the
Waldo Library letterhead and was signed by the Educational Resources
Center librarian and the Waldo Reference librarian. The cover
letter and questionnaire also received the verbal endorsement of the
director of WMU libraries. The post card and a copy of the user and
the nonuser letters are included in the report (see Appendix D).

Two follow-ups to the initial mailing of the questionnaires
were planned. The first one consisted of a post card to all user
and nonuser subjects. A second follow-up was considered for the
mailing of another questionnaire to nonrespondents of the nonuser
and user surveys. The follow-up questionnaire to the nonusers was
cancelled due to the decision to substitute a stability check for
the follow-up questionnaire. (The stability check is explained in
the section, "Steps in the Analysis of the Data".) But, one hundred
and thirty-eight questionnaires were mailed to nonrespondent users.
See Appendix D for a copy of the flyer mailed to nonrespondents.

The schedule of mailing for the questionnaires and follow-ups

1William Wiersma, Research Methods in Education: An Introduc-
p. 143.
was guided by Robin's data which were derived from the analysis of ten independent samples responding to mail questionnaires. In light of his research, it seemed that a seven day interval between mailings would promote maximum response. Robin further stresses that most research indicates that the greatest proportion of returns to a communication can be achieved in one week. (See Appendix D for mailing schedule.) June 16 was the final day for accepting responses from the nonuser population. By that date, nonuser questionnaire response dwindled to one per day. The final day for accepting user questionnaires was Thursday, June 29, 1978.

Steps In the Analysis of the Primary Data

Analysis of the primary data consists of several distinct steps. The first is the coding of data which involves the construction of category systems and the technical preparation of the data for the computer tabulation of responses to the questionnaires. Next, statistics used to summarize the data are identified. Finally, procedures are selected to deal with nonresponse.

Basically, each objective of the study, with its related survey questions, creates its own category system. The open-end questions of the user questionnaire, however, require original category systems.

1. Question five, general comments
2. Question six, acceptable and unacceptable user fees

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3. Question seven, acceptable and unacceptable waiting periods for the librarian to do the search

4. Question eight, acceptable and unacceptable waiting periods for the citation printout

5. Question twelve, frequency distribution for interlibrary loan items requested and for items received

6. Questions sixteen and seventeen, general comments

Since some fixed-alternative questions provide for the creation of items by the respondents, appropriate labels are applied to the subject-made items in the user questionnaire. Questions affected are one through three, and question ten. The same treatment of subject-made items applies to questions two, four, and five of the non-user questionnaire. Finally, the subjects' status is used as a category for selected items in the user and nonuser survey.

Special preparation of the data is needed for the computer tabulation of responses to the user and nonuser surveys. The determination of the number of variables is the first step. This is accomplished by consecutively numbering all items in a multiple choice question and numbering any sections of a question which allow a comment. Once a questionnaire is appropriately numbered, it serves as the key for checking the remaining questionnaires. The next step is to code the responses to the questions in a language that the computer can read. The code used is 0, 1, 9, 3, and 2. A zero is a negative response or non-selection of an item; a one is a positive response or selection of the item. The nine indicates that the subject omitted the questionnaire item. The answers to question three of the user questionnaire are indicated by the number three for a
primary reason and the number two for a secondary reason. The third and final step is to record a number for each questionnaire tallied. In this way, the observations are indicated and can be input to the computer. The technical preparation of data is best illustrated by the master key which shows the numbered variables for the user and nonuser questionnaires. For the application of the code to the questionnaire responses, the chart of responses gives an overview of the process. Both the master keys and the response chart are included in Appendix E.

Coding of the data indicated that some user and nonuser data require special treatment. In the nonuser questionnaire, subjects who should omit question four, and fail to do so, have their responses to the question eliminated. Responses to two questions in the user questionnaire also needed critical treatment. Question three, with directions to label answers as primary or secondary reasons, was sometimes incorrectly answered with a check mark. Such cases are assigned the computer code 1 as a yes designation and 0 for items not selected. Otherwise properly marked items are assigned a 3 for the P (primary designation) and 2 for the S (secondary designation). The other problem question for the user questionnaire is number fourteen. Unfortunately, the problem was not identified during the pilot study. Respondents who answered no to question fourteen should logically omit question fifteen. Since no directions are provided for the omission of question fifteen, code 9 is used to indicate that no response should be made to the question. Again, responses to ques-
tions which should be omitted, according to the directions, are eliminated by assigning the code 2 to the item. Both questionnaires contain items which subjects fail to answer. Omission of a questionnaire item is indicated by the code 2 which shows no response to the item.

Rationale for the treatment of the data is derived from the nature of the computer code and the nature of the data which is effectively presented by descriptive statistics.

The scale of measurement is the nominal scale. Frequency distributions are used to describe the responses to the user and non-user surveys and to describe selected items according to the user's and nonuser's status. These data are presented in tabular form. The mode and frequency polygons are also used to describe scores to selected questions. Since the mode identifies the most frequent response to a questionnaire item, it is an indicator of the subjects' greatest favorable or unfavorable response to a multiple choice question. A frequency polygon is used when a visual representation is needed to show the distribution of responses to a multiple choice question.

The tabulation and analysis of data are done by computer. The Make File\textsuperscript{1} is used for the inputing of data and Statpack\textsuperscript{2} is used to

\textsuperscript{1}Make File is a computer program used to enter data by the teletype according to a standard format.

\textsuperscript{2}Statpack is a computer program used to perform statistical operations on data. Examples of its operations include means, medians, modes, frequency distributions and correlations.
perform the statistical operations. Input of data was done by the researcher's assistant, and the Statpack program was used by Brian Mitchell, WMU computer consultant for academic research. Due to the expense for computer usage time and the consultant's fee, the computer analysis of data is restricted to determining frequency and percent for responses to user and nonuser questionnaire items.

Dealing with the problem of nonresponse requires considerable preplanning. However, the unique conditions of the survey impose their own limitations on commonly accepted measures designed to produce response. According to one authority, it is the unique conditions of the survey upon which rate of response depends. Several conditions in this survey can be identified as unique to this project. These conditions include the time of the year, the subjects, and the price increase in postage. Spring and summer are popular vacation seasons for the academic community. Furthermore, the student subjects change their place of residence during the spring and summer terms. Finally, the postal increase was one of the reasons for not sending a second questionnaire to the nonuser subjects.

Several procedures are available for dealing with nonresponse. One way is to establish what percentage of nonresponse can be tolerated. Wiersma suggests that the researcher may use variables and the population under study to determine the tolerable rate of non-

response. 1

Another procedure consists of a stability check on the respondents. Since the rate of response for the nonuser survey was .359 or 36%, the latter procedure was selected to deal with nonresponse to the nonuser survey. The problem of nonresponse can be minimized by recent developments in high-speed data processing. Statistical inference can be used to assess the extent to which, on a limited number of variables, the obtained sample deviates from the desired one. 2 Robert Brashear, WMU College of Education statistician, recommended a stability check on the sample of nonusers by doing a "chi square" analysis. The chi square is a statistical analysis procedure which uses counted (frequency) data. In this study it is used to show possible differences among groups on a nominal (counted) variable. 3 Basically, the process involves randomly dividing the respondents into two groups and comparing them on each of the thirty-three variables in the nonuser questionnaire. If the groups are shown to be similar on each of the variables, then the addition of subjects to the sample would probably not change the description of the original sample population. Steps in randomly selecting subjects for the two


groups include:

1. Four coins were tossed to derive a number for the selection of the column of double digit numbers from the Statistical Tables of Random Numbers. Table I Random Numbers (1) was used. The number was translated from the binary code. Zero was assigned to tails appearing on the coin and one to heads. One tail appeared and three heads. In binary this is "0111" which is the code for the number seven, so column seven became the starting place in the random table.

2. The ninety-two student respondents were divided into two groups of forty-six subjects. (The faculty group of 18 subjects was too small to check for stability.)

3. Forty-six numbers were drawn from the table of random numbers. Number twenty-six which had been drawn twice was replaced by number eighty-nine. Starting at the top of column seven, two digit numbers, not greater than ninety-two, were drawn until forty-six randomly selected numbers were available. A list of the numbers is in Appendix F.

4. The numbers were put into the computer which arranged them in numerical order and assigned them to the 92 observations which had been stored at an earlier date. The remaining forty-six observations, which had not been assigned a random number, were put by the computer into a second group; it may be stated that the latter group was randomly nonselected.

---

The computer program used to do the randomization was Make Bank. The chi square analysis was done with the Statpack program. The computer printout for both operations is available for examination. The input of random numbers was done by Brashear, and the input of observations with their variables was done by the researcher's assistant. The part of the program performing the chi square operation was used by the researcher under the supervision of Brashear. The total operation was completed in approximately three and one-half hours. A typed copy of the explanation, as presented here, was approved by Brashear. None of the variables had a probability indication of less than .05. It is therefore concluded that the two groups of nonusers are similar. Hence, the results of the survey probably would not be significantly altered were the nonrespondents to be included.

The acceptable rate of return for the user survey was set at 60-70% of the total mail questionnaires. Rationale for the percent of acceptable response is based on the conditions unique to the study, the survey of the literature which indicated acceptable rates of response ranging from 35% for the University of Georgia study\(^1\) to 88.9% for Tagliacozzo's study\(^2\) and budget constraints.

The first mailing of the user questionnaire produced a return


of 120 questionnaires. A second mailing resulted in an additional 52 questionnaires. The final rate of return, therefore, is .619 or 65% of mail questionnaires for the user survey.

The Budget

In a survey such as this one, budget restrictions create constraints for the implementation of the study. For example, the population size for the user and nonuser surveys was largely determined by budget restrictions. It is important, therefore, that budget preplanning include such factors as costs for postage, typing services, and print of the questionnaires. The original budget was estimated at one hundred fifty dollars for the user survey. The estimate for the user survey was radically affected by increases in postal rates and the decision to mail two follow-up letters to the user population. Because the researcher seriously underestimated the costs and sampling requirements for the nonuser survey, the original expenses for the project doubled. Appendix G indicates the minimum expense requirements which must be considered for implementation of the two surveys.
III. THE FINDINGS

The Results of the User Survey

The "User Survey" objective was to determine the characteristics of the users of online services, their perceptions of the service, and other facts about the service. The related questionnaire items and the responses are reported in this section of the study. (A summary table presenting an overview of the numerical responses to each questionnaire item on the "User Satisfaction Survey" is in Appendix H.)

Two hundred sixty-five questionnaires were mailed to Western Michigan University (WMU) faculty and students who received online services from the Educational Resources Center or Waldo Library during a specified period. One hundred seventy-two questionnaires were filled out and sent back, for a return of 65%. Nineteen percent of the returned questionnaires were from faculty and 79% of the returned questionnaires were from students. Two percent of the questionnaires had no user status indicated.

Information about the users of WMU retrieval service

Basic information, such as departmental affiliation and program of study, was elicited from the questionnaire respondents. The faculty survey returns indicated that the greatest departmental representation was from the Department of Education and Professional Development, with 27% of the faculty response. Other departmental
representation, by descending order, included the Sociology Department (17%), the Division of Instructional Communications' Office of Instructional Development (10%), and the Health, Physical Education, and Recreation Department (7%). Other affiliations, both general and departmental, as listed by faculty, were Humanities and Social Sciences, Education, General Business, Business, Marketing, Speech Pathology and Audiology, Special Education, Educational Leadership, Occupational Therapy, Mathematics, and Waldo Library. Each of the above had 3% representation.

As defined by the students, twenty-seven different programs of study were indicated. Twenty-one percent of the student questionnaires had Counseling and Personnel as a designated program and another 21% of the questionnaires had Educational Leadership listed. Two other programs frequently indicated on the questionnaires were Psychology (7%) and Blind Rehabilitation (6%). Other programs of study, with approximately 2% representation each, included: Counseling Psychology, Clinical Psychology, Experimental Psychology, School Psychology, Gerontology, Reading, Physical Education, Special Education, Preschool Special Education, Music Therapy, Teaching Music, Music Education, Music, Biology, Accountancy, Library Science, Joint Media Program, A-V Media, Sociology, Social Work, Occupational Therapy, and Blind Rehabilitation: Teaching.

Table I shows students' current program level. The six persons who marked the category "other" for their current program level were four recent graduates, a graduate assistant, and a student who transferred to the University of Michigan.
Table I

Students' Current Program Levels  
(n = 135)

<table>
<thead>
<tr>
<th>Level</th>
<th>Frequency</th>
<th>Percent of n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral</td>
<td>23</td>
<td>17.04</td>
</tr>
<tr>
<td>Specialist</td>
<td>12</td>
<td>8.89</td>
</tr>
<tr>
<td>Masters</td>
<td>88</td>
<td>65.19</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>3</td>
<td>2.22</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>4.41</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
<td>2.22</td>
</tr>
</tbody>
</table>

Identification of the library doing the search and the search topic

During the specified period for the survey, two WMU libraries offered online searches: Waldo Library and the Educational Resources Center. The former was used for approximately 24% of the online searches and the latter for 76% of the searches.

Eighty-four percent of the respondents indicated the search topic. Table II, pages 57-59, shows categories of search topics, with some typical search titles.

Search cost and source of funding for faculty and students

Eighty-six percent of the users of online search services stated the cost for their search. The two cost categories most frequently listed for the group were the $5-10 category and the $11-15 category. The former category comprised 38% of the total number
<table>
<thead>
<tr>
<th>Faculty</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLIND REHABILITATION</strong></td>
<td><strong>BLIND REHABILITATION</strong></td>
</tr>
<tr>
<td>Use of Cros Hearing Aid in Unilaterally Impaired Blind</td>
<td>Motor Development of Blind Infants</td>
</tr>
<tr>
<td><strong>BUSINESS</strong></td>
<td></td>
</tr>
<tr>
<td>Price Escalators</td>
<td>Nutrition and Child Development</td>
</tr>
<tr>
<td>Foreign Investment in United States</td>
<td>Volunteers in Rehabilitation</td>
</tr>
<tr>
<td>Rating of Comm. Paper</td>
<td>Reverse Discrimination in Testing the Blind in the Classroom</td>
</tr>
<tr>
<td><strong>EDUCATION</strong></td>
<td><strong>BUSINESS</strong></td>
</tr>
<tr>
<td>Agricultural Research in Michigan</td>
<td>Materiality of Questionable and Illegal Payments</td>
</tr>
<tr>
<td>Mother-Child Home Program</td>
<td><strong>EDUCATION</strong> (Sampling of titles)</td>
</tr>
<tr>
<td>Teacher Ed. Programs</td>
<td>Effects Academically and Socially on Children of Grade Repeating at the Elementary Level</td>
</tr>
<tr>
<td>Admission to Teacher Education Programs</td>
<td>Informal Networks in Higher Education</td>
</tr>
<tr>
<td>The Division Algorithm</td>
<td>Motor Fitness of Elementary School Children</td>
</tr>
<tr>
<td>Spelling</td>
<td>Underprepared Community College Math Students</td>
</tr>
<tr>
<td>Language Experience Approach to Reading</td>
<td>Closure or Cloze Procedure and Language Experience</td>
</tr>
<tr>
<td>Non-Promotion of Elementary Students</td>
<td>Reading Disability in Secondary Educ. Students</td>
</tr>
<tr>
<td>Learning Disabilities</td>
<td>Hyperglycemia in Elementary Children and Its Effects on Reading</td>
</tr>
<tr>
<td>Mediators</td>
<td>Language Development and Mainstreaming</td>
</tr>
<tr>
<td>Individualization of Instruction</td>
<td>Decision Making Process</td>
</tr>
<tr>
<td>Instructional Development Methods, Processes in U.S. Academic Libraries</td>
<td>Problems of Women in Higher Education</td>
</tr>
<tr>
<td><strong>SOCIOLGY</strong></td>
<td>Student Mobility by Academic Achievement</td>
</tr>
<tr>
<td>Health Needs of the Poor</td>
<td>Community Education Aims</td>
</tr>
<tr>
<td>Rural Mental Health</td>
<td>Autism</td>
</tr>
<tr>
<td>Child Abuse</td>
<td>Little League Injuries</td>
</tr>
<tr>
<td>Peer Pressure</td>
<td>Curriculum for Values Clarification in Secondary Schools</td>
</tr>
<tr>
<td>Women as Instrumentalists in Symphony Orchestras</td>
<td></td>
</tr>
<tr>
<td>Sex Role Perception Inventories</td>
<td></td>
</tr>
</tbody>
</table>
### Table II-continued

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUCATION-continued</strong></td>
<td></td>
</tr>
<tr>
<td>Individualized Music Teaching</td>
<td></td>
</tr>
<tr>
<td>Time Management in Education</td>
<td></td>
</tr>
<tr>
<td>Photography Programs and Self-concept of Children</td>
<td></td>
</tr>
<tr>
<td><strong>GERONTOLOGY</strong></td>
<td></td>
</tr>
<tr>
<td>Need Assessment and Research on Needs of Elderly</td>
<td></td>
</tr>
<tr>
<td><strong>MUSIC</strong></td>
<td></td>
</tr>
<tr>
<td>Blindisms—Music Therapy, Anxiety-Music</td>
<td></td>
</tr>
<tr>
<td>Music and Geriatrics</td>
<td></td>
</tr>
<tr>
<td>Henry Filmore—Blind Director</td>
<td></td>
</tr>
<tr>
<td><strong>OCCUPATIONAL THERAPY</strong></td>
<td></td>
</tr>
<tr>
<td>Computer Instruction for the Deaf</td>
<td></td>
</tr>
<tr>
<td>Environmental Conditions, Mental Institutions</td>
<td></td>
</tr>
<tr>
<td>Former Mental Health Patients</td>
<td></td>
</tr>
<tr>
<td>Occupational Therapy &amp; Related Disability</td>
<td></td>
</tr>
<tr>
<td><strong>PSYCHOLOGY</strong> (Sampling of titles)</td>
<td></td>
</tr>
<tr>
<td>Group Mental Health Services for Women</td>
<td></td>
</tr>
<tr>
<td>Foster Children—Moving and Anxiety Hypnosis</td>
<td></td>
</tr>
<tr>
<td>Seizure-Aggression Relationships</td>
<td></td>
</tr>
<tr>
<td>Psychosis and Healing</td>
<td></td>
</tr>
<tr>
<td>Child Abuse and Neglect</td>
<td></td>
</tr>
<tr>
<td>Strength of Responding, Amount of Reinforcement</td>
<td></td>
</tr>
<tr>
<td>Trained Helplessness/Women and Depression</td>
<td></td>
</tr>
<tr>
<td>Suicide</td>
<td></td>
</tr>
<tr>
<td>Spouse Abuse</td>
<td></td>
</tr>
<tr>
<td>Teacher Self-Image—Development of Self-concept</td>
<td></td>
</tr>
<tr>
<td>Counseling of the Older Person</td>
<td></td>
</tr>
<tr>
<td>Marital Compatibility-Personality Traits</td>
<td></td>
</tr>
</tbody>
</table>
Table II-continued

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>SOCIOLOGY</strong> (Sampling of titles)</td>
</tr>
<tr>
<td></td>
<td>Alcohol Programs in Residence</td>
</tr>
<tr>
<td></td>
<td>Halls</td>
</tr>
<tr>
<td></td>
<td>Monsters</td>
</tr>
<tr>
<td></td>
<td>Family Backgrounds of Emotionally Disturbed Children</td>
</tr>
<tr>
<td></td>
<td>Sex Stereotyping</td>
</tr>
</tbody>
</table>

of costs (n=148) that were listed by faculty and students, and the latter comprised 20% of the total number of costs listed. If the two highest frequency categories are treated as a unit, then the greatest concentration of searches is in the $5-15 price range for the group of users.

Table III, on page 60, provides a frequency breakdown of search costs by user status. Reference to Table III reveals that the greatest concentration of searches for faculty is in the $5-20 price range, if the three highest frequency categories are treated as a unit. For students, the greatest concentration of searches is in the $1-15 price range, if the three highest frequency categories for the student population are treated as a unit.

Some observations about who request expensive searches may be made, if the $30-200 cost range is accepted as a high cost range. Analysis by user status reveals that 24% of the subjects in the faculty group have search costs in the high range as compared with 6% of the subjects in the student group.

Analysis of the source of funding (Table IV, page 61) reveals...
Table III
Search Costs By User Status

<table>
<thead>
<tr>
<th>Search Costs</th>
<th>Faculty (n=21)</th>
<th>Students (n=127)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent of n</td>
</tr>
<tr>
<td>$ 1-4</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>5-10</td>
<td>5</td>
<td>23.80</td>
</tr>
<tr>
<td>11-15</td>
<td>4</td>
<td>19.04</td>
</tr>
<tr>
<td>16-20</td>
<td>4</td>
<td>19.04</td>
</tr>
<tr>
<td>21-30</td>
<td>2</td>
<td>9.52</td>
</tr>
<tr>
<td>30-49</td>
<td>2</td>
<td>9.52</td>
</tr>
<tr>
<td>50-100</td>
<td>-</td>
<td>----</td>
</tr>
<tr>
<td>100+</td>
<td>2</td>
<td>9.52</td>
</tr>
<tr>
<td>200+</td>
<td>1</td>
<td>4.76</td>
</tr>
</tbody>
</table>

that 73% of the users of online search services use personal funds to pay for search costs. By user status, 31% of the faculty and 82% of the students use personal funds to pay for their search costs. Forty-one percent of the faculty have access to university department funds compared with four percent of the students. Of the four faculty members who checked the category "other" for source of funding, two did not describe the funding, one specified a college research center, and another gave the College of Education as the source of funding; the five students who checked the category "other" did not identify the specific source for the funding.
## Table IV

Source of Funding By User Status

<table>
<thead>
<tr>
<th>Source</th>
<th>Faculty (n=32)</th>
<th></th>
<th>Students (n=135)</th>
<th></th>
<th>Total Questionnaires (n=172)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent of n</td>
<td>Frequency</td>
<td>Percent of n</td>
<td>Frequency</td>
<td>Percent of n</td>
</tr>
<tr>
<td>Personal</td>
<td>10</td>
<td>31.25</td>
<td>111</td>
<td>82.22</td>
<td>126*</td>
<td>73.26</td>
</tr>
<tr>
<td>University Department</td>
<td>13</td>
<td>40.63</td>
<td>6</td>
<td>4.44</td>
<td>19</td>
<td>11.05</td>
</tr>
<tr>
<td>Grant</td>
<td>1</td>
<td>3.13</td>
<td>3</td>
<td>2.22</td>
<td>4</td>
<td>2.33</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>12.50</td>
<td>5</td>
<td>3.70</td>
<td>9</td>
<td>5.23</td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
<td>12.50</td>
<td>10</td>
<td>7.40</td>
<td>14</td>
<td>8.13</td>
</tr>
</tbody>
</table>

*The total for personal funds is greater than the sum of faculty and students using personal funds, because it includes 5 persons who did not indicate status.

The primary agent promoting user awareness of the service

The publicity agent most frequently identified was marked in the "other" category. Analysis of the "other" category revealed three major influences. These include the class professor (identified 31 times), the Course 601, "Fundamentals of Educational Research" (identified 9 times), and the professor/librarian (identified 9 times). Also included in the "other" category were some miscellaneous influences such as the public library, professional journals, and exposure to online services at other universities. (See Table V, page 62).

Six publicity influences which were also placed in the "other"
Table V
Publicity (Responses to Item 1 on Survey Questionnaire)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Frequency</th>
<th>Percent of Subjects Choosing Each Item (n=172)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Librarian</td>
<td>57</td>
<td>33.1%</td>
</tr>
<tr>
<td>Word-of-mouth</td>
<td>46</td>
<td>26.7%</td>
</tr>
<tr>
<td>Library flyer</td>
<td>13</td>
<td>7.56%</td>
</tr>
<tr>
<td>Attended an on-line search demonstration</td>
<td>8</td>
<td>4.65%</td>
</tr>
<tr>
<td>Library exhibit</td>
<td>6</td>
<td>3.49%</td>
</tr>
<tr>
<td>Other</td>
<td>63</td>
<td>36.63%</td>
</tr>
<tr>
<td>Total</td>
<td>193*</td>
<td></td>
</tr>
</tbody>
</table>

*Some subjects chose more than one item.

category could logically be divided among the "word-of-mouth" category and the "library exhibit" category — five in the former and one in the latter.

If the information found under "other" is adjusted, then the primary agent promoting user awareness can be identified. Adding the nine checks for the professor/librarian to the "librarian" category makes the librarian the primary promotional agent. Two other important publicity factors include "word-of-mouth" and the classroom setting in the "other" category.
The purposes for which the search is used

Faculty use online search services primarily as an aid in a research project of professional interest, and students use the service primarily to prepare a class assignment.

Purposes identified in the "other" category include the preparation of a research proposal by both faculty and students. One other purpose, given by a student, was the use of the service to support program development.

Table VI specifies search purposes, and Figure 1 on page 65 illustrates the differences between faculty and student search purposes. As shown by the frequency polygon, faculty do not use online services for class assignments and term papers, but the reverse is true for students.

Reasons for using online services

The primary search reason most frequently chosen by the users was the need to save time, with the need for a comprehensive search the next most frequently ranked "primary" reason. Table VII on page 66 gives the details for the group's ranking of primary reasons.

Answers to the questionnaire reveal that there is a difference in primary reasons for using online services when the status of the patron is used as a factor for data analysis. Table VIII on page 67 and Table IX on page 68 are used to arrange the data for this purpose.
Table VI

Search Purposes By User Status (Responses to item 2 on survey questionnaire)

<table>
<thead>
<tr>
<th>Purposes</th>
<th>Faculty (n=32)</th>
<th></th>
<th>Students (n=135)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent of n</td>
<td>Frequency</td>
<td>Percent of n</td>
</tr>
<tr>
<td>Prepare a class assignment</td>
<td>2</td>
<td>6.25</td>
<td>58</td>
<td>42.96</td>
</tr>
<tr>
<td>Aid in an independent study</td>
<td>2</td>
<td>6.25</td>
<td>6</td>
<td>4.44</td>
</tr>
<tr>
<td>Prepare term paper</td>
<td>3</td>
<td>9.38</td>
<td>43</td>
<td>31.85</td>
</tr>
<tr>
<td>Prepare a thesis, specialist project, or dissertation</td>
<td>3</td>
<td>9.38</td>
<td>46</td>
<td>34.07</td>
</tr>
<tr>
<td>Aid in teaching</td>
<td>8</td>
<td>25.00</td>
<td>6</td>
<td>4.44</td>
</tr>
<tr>
<td>Aid in a research project of professional interest</td>
<td>24</td>
<td>75.00</td>
<td>24</td>
<td>17.78</td>
</tr>
<tr>
<td>Aid in an investigation of personal interest</td>
<td>3</td>
<td>9.38</td>
<td>1</td>
<td>0.74</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>9.38</td>
<td>4</td>
<td>2.96</td>
</tr>
<tr>
<td></td>
<td><strong>48</strong> Total</td>
<td></td>
<td><strong>188</strong> Total</td>
<td></td>
</tr>
</tbody>
</table>

*Some subjects marked more than one item.
Figure 1.—A frequency polygon for Table VI

A. Class assignment
B. Independent study
C. Term paper
D. Specialist project, thesis, dissertation
E. Teaching
F. Professional interest
G. Personal interest
H. Other

Search Purposes

----- faculty
----- students
Table VII

Primary Reasons for Online Searches (Responses to questionnaire item 3)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Users (n=172)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td>Saved time</td>
<td>64</td>
</tr>
<tr>
<td>Needed comprehensive search</td>
<td>60</td>
</tr>
<tr>
<td>Needed most recent sources</td>
<td>24</td>
</tr>
<tr>
<td>Saved effort</td>
<td>15</td>
</tr>
<tr>
<td>Other*</td>
<td>5</td>
</tr>
</tbody>
</table>

*Specific reasons are given with Table IX.

Table VIII shows the need to save time and the need for a comprehensive search are equally important reasons for faculty use of online services. The need to save effort is least important.

Table IX on page 68 indicates that students' primary reason for using online services is the need to save time. Unlike the faculty, students place less value on a comprehensive search. Students who marked "other" as the primary reason explained that they wanted to make sure the most recent sources were not "overlooked" and that they wanted to validate the comprehensiveness of their initial search. The one student who marked other as a secondary reason indicated that his/her own search had been unproductive.
Table VIII
Reasons for Using Online Services Ranked
By Faculty (n=32)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Primary Ranking</th>
<th>Secondary Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent of n</td>
</tr>
<tr>
<td>Saved time</td>
<td>13</td>
<td>40.63</td>
</tr>
<tr>
<td>Needed comprehensive search</td>
<td>13</td>
<td>40.63</td>
</tr>
<tr>
<td>Needed most recent search</td>
<td>7</td>
<td>21.88</td>
</tr>
<tr>
<td>Saved effort</td>
<td>3</td>
<td>9.38</td>
</tr>
<tr>
<td>Other</td>
<td>--</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>36*</td>
<td></td>
</tr>
</tbody>
</table>

*Some faculty marked more than one reason as primary.

Some faculty and students did not rank their reasons for the online search or combined a rank of reasons with a check of reasons, e.g. marked "P" and gave a \( \checkmark \) mark. Faculty who chose not to rank their answers most frequently marked as a search reason the need for a comprehensive search. The need to save time was most frequently marked by students.

Those students who marked the "other" category, but did not rank their reason, indicated that their reasons for using the service were a requirement by the class professor, the need for exact sources pertaining to a complex subject, and lack of information in other sources.
Table IX

Reasons for Using Online Services
Ranked by Students (n=135)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Primary Ranking</th>
<th></th>
<th>Secondary Ranking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent of n</td>
<td>Frequency</td>
<td>Percent of n</td>
</tr>
<tr>
<td>Saved time</td>
<td>51</td>
<td>37.78</td>
<td>28</td>
<td>20.74</td>
</tr>
<tr>
<td>Needed comprehensive search</td>
<td>17</td>
<td>34.81</td>
<td>26</td>
<td>19.26</td>
</tr>
<tr>
<td>Needed most recent search</td>
<td>17</td>
<td>12.95</td>
<td>28</td>
<td>20.74</td>
</tr>
<tr>
<td>Saved effort</td>
<td>12</td>
<td>8.85</td>
<td>33</td>
<td>24.44</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>3.70</td>
<td>1</td>
<td>.74</td>
</tr>
</tbody>
</table>

Percent of relevant citations

Both faculty and students rated the precision of citations most frequently in the 1-20% category. Subjects giving this search precision evaluation were concentrated in four programs of study: Educational Leadership (9), Counseling and Personnel (8), Education and Professional Development (6), and Psychology and related fields (5). The remainder of the subjects were from a broad cross section of Western Michigan University programs.

Examination of the searches which were given 0% precision evaluation revealed that the topics were restricted in scope. Since few subjects indicated their program of study, no patterns of program of study were identified.
A comparison of the faculty and student supplied data in Table X shows that students tend to put citation evaluation on the low end of the scale, but a greater percentage of faculty put their citation evaluation on the high end of the scale.

Table X

Citations Evaluated By Faculty and Students
(Responses to item 4 on survey questionnaire)

<table>
<thead>
<tr>
<th>Citation Scale</th>
<th>Faculty (n=32)</th>
<th>Students (n=135)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent of n</td>
</tr>
<tr>
<td>0%</td>
<td>1</td>
<td>3.13</td>
</tr>
<tr>
<td>1-20%</td>
<td>12</td>
<td>37.50</td>
</tr>
<tr>
<td>20-40%</td>
<td>8</td>
<td>25.00</td>
</tr>
<tr>
<td>40-60%</td>
<td>2</td>
<td>6.25</td>
</tr>
<tr>
<td>60-80%</td>
<td>3</td>
<td>9.38</td>
</tr>
<tr>
<td>80-90%</td>
<td>3</td>
<td>9.38</td>
</tr>
<tr>
<td>100%</td>
<td>2</td>
<td>6.25</td>
</tr>
</tbody>
</table>

Worth (usefulness) of the search in terms of the reasons for using online retrieval (Responses by user status to item 5 of the survey questionnaire)

Users evaluated their search in terms of their reasons for using the service. Eighty-one percent of the faculty and 81% of the students indicated that it was worth "sifting" through the citations to get to the useful references. Thirteen percent of the faculty and
16% of the students responded unfavorably. Six percent of the faculty and four percent of the students did not answer the question.

A total of twenty-four written comments were included with the evaluation of the searches. The only unfavorable comment made by a faculty member was this statement: "Some of the citations were very remote, although I accept the responsibility for the problem, in that I had not defined my topic adequately...." The only other faculty statement was a positive one about the usefulness of the service.

In the student group, fourteen favorable comments were made. These emphasized the advantages of online retrieval, such as the time saved, the comprehensiveness of the search, the effort saved, and the value and number of citations.

Unfavorable comments made by eight students include a variety of reasons for their dissatisfaction. Grouped by categories, these are: 1) Dissatisfaction with the quantity of citations; 2) Lack of availability of journals at Western Michigan University libraries; and 3) Miscellaneous reasons, such as "None of the citations were useful; I had almost everything I needed."

Dollar worth of the search (Responses by user status to item 6 of the survey questionnaire)

Seventy-five percent of the faculty and 73% of the students felt the search was worth its dollar cost. Responding unfavorably were 16% of the faculty and 25% of the students. Nine percent of the faculty group and 2% of the student group did not answer the question.
Of the faculty responding unfavorably to questionnaire item 6, only two made comments. One person said that Western Michigan University should pay the cost, and another said that his/her search which cost $10.00 was worth $2.00.

There were twenty-one comments made by students who disagreed with the charge for their online search. Table XI shows the "reasonable" cost suggested by 17 of the students, the original search cost, along with the students' evaluation of the "worth" (usefulness) of the citations. Four general statements were made by students about what constitutes a reasonable cost. These are: 1) "There should have been no cost, the search didn't help;" 2) "The charge should be as low as possible;" 3) "There should be no cost when you can't use the material;" and 4) "The cost should be half the current rate".

Student supplied data in Table XI shows the most frequently suggested "reasonable" cost is $5.00. The "acceptable" average cost is $15 for useful citations. The "unacceptable" average cost is $11 for citations that are not useful.

A comparison of the percent of unfavorable responses to questionnaire item 5 (worth or usefulness of citations) with questionnaire item 6 (dollar worth of the search) is given in Table XII on page 73.

Waiting period for the librarian to do the search (Responses to item 7 of the survey questionnaire)

Item 7 of the questionnaire asked the survey respondents to state the waiting period for the librarian to do the search. Eighty-five percent specified the period. When asked whether the waiting
Table XI

Reasonable Search Costs, Original Search Costs, and "Worth" (usefulness) of the Citations Stated By 17 Students

<table>
<thead>
<tr>
<th>Reasonable Cost</th>
<th>Original Cost</th>
<th>Item 5 of Questionnaire: Was it worth sifting through the citations? Yes/no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 1.00</td>
<td>$ 6.00</td>
<td>yes</td>
</tr>
<tr>
<td>2.00</td>
<td>6.00</td>
<td>no</td>
</tr>
<tr>
<td>2.00</td>
<td>6.00</td>
<td>no</td>
</tr>
<tr>
<td>3.00</td>
<td>20.00</td>
<td>no</td>
</tr>
<tr>
<td>2-5.00</td>
<td>10.97</td>
<td>yes</td>
</tr>
<tr>
<td>5.00</td>
<td>9.00</td>
<td>no</td>
</tr>
<tr>
<td>5.00</td>
<td>10.00</td>
<td>no</td>
</tr>
<tr>
<td>5.00</td>
<td>10.00</td>
<td>no</td>
</tr>
<tr>
<td>5.00</td>
<td>11.00</td>
<td>yes</td>
</tr>
<tr>
<td>5.00</td>
<td>13.00</td>
<td>no</td>
</tr>
<tr>
<td>5.00</td>
<td>15.00</td>
<td>no</td>
</tr>
<tr>
<td>5.00</td>
<td>15.00+</td>
<td>yes</td>
</tr>
<tr>
<td>5.00</td>
<td>18.00+</td>
<td>yes</td>
</tr>
<tr>
<td>5-10.00</td>
<td>16.18+</td>
<td>yes</td>
</tr>
<tr>
<td>5-10.00*</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>10.00</td>
<td>20.00+</td>
<td>yes</td>
</tr>
<tr>
<td>15.00</td>
<td>30.00</td>
<td>yes</td>
</tr>
</tbody>
</table>

*The student stipulated that the $5-10 cost is reasonable only for a successful search.
Table XII
Unfavorable Comments: the Worth (usefulness) of Citations and the Dollar Worth By User Status

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worth (usefulness)</td>
<td>13%</td>
<td>16%</td>
</tr>
<tr>
<td>Dollar Worth</td>
<td>16%</td>
<td>25%</td>
</tr>
</tbody>
</table>

period was acceptable, 86% of the survey respondents expressed satisfaction with the waiting period, and 10% of the survey respondents expressed dissatisfaction. Of the 10% expressing dissatisfaction only a few made comments.

Table XIII provides detailed information about the waiting periods specified by the survey respondents. The median for the data reveals that the waiting period for the librarian to do the search is 3 days. The unacceptable waiting period is any period over one week.

A number of comments were made about the waiting period for the online search. Among them are: "The waiting period was a few days, but the time was acceptable"; "The waiting period was less than a week and it was acceptable"; and "There should be no waiting period".

Turnaround time for the printout (Responses to item 8 of the survey questionnaire)

Item 8 of the questionnaire asked survey respondents to state the waiting period for the citation printout. Sixty-two percent specified the period. When asked whether the waiting period for the printout was acceptable, 73% of the survey respondents expressed
Table XIII

Online Search
Frequency Distribution for Waiting Period Categories, With Acceptable and Unacceptable Periods Indicated

<table>
<thead>
<tr>
<th>Waiting Period for the Librarian</th>
<th>Frequency</th>
<th>Acceptable (Frequency)</th>
<th>Unacceptable (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 min. (immediate)</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>1 min.</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10 min.</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>15 min.</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>20 min.</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>30 min.</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>20-30 min.</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 hours</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3 hours</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td>16</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>2 days</td>
<td>14</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>3 days</td>
<td>13</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>2-3 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>¾ days</td>
<td>7</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>3-¾ days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>¾-5 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td>29</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>1½ weeks</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1-2 weeks</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2 weeks</td>
<td>9</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>3 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 weeks</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
satisfaction with the waiting period, and 9% expressed dissatisfaction. Of the nine percent expressing dissatisfaction, only a few made comments. These include three persons who wanted the one week waiting period reduced to a three day waiting period; two persons who wanted the two week waiting period reduced to twenty-four hours or 4-5 days; one person who wanted the two and one-half week waiting period reduced to two weeks; one person who wanted the five day waiting period reduced by one-half the time; and one person who wanted the two day waiting period reduced by one-half the time.

Table XIV on page 76 provides detailed information about the waiting periods specified by the survey respondents. Any waiting period over one week is unacceptable turnaround time for the computer printout. Comments made by twenty persons indicate this time restriction is not being exceeded.

Pre-and post-search assistance (Responses to item 9 of the survey questionnaire)

The users of online services were asked to comment on the availability of pre- and post-search assistance. Eighty percent of the survey respondents indicated presearch assistance was immediately available, and 52% of the respondents indicated that post-search assistance was immediately available. If the 28% response for users who did not want post-search assistance is added to the 52% who had immediate post-search assistance, then the total percent for immediate post-search assistance is 80%. Figure 2 on page 77 gives a detailed illustration for the responses to survey questionnaire item 9. The values are rounded off to the nearest integer.
Table XIV

Printout
Frequency Distribution for Waiting Period Categories, With Acceptable and Unacceptable Periods Indicated

<table>
<thead>
<tr>
<th>Waiting Period for the Computer Printout</th>
<th>Frequency</th>
<th>Acceptable</th>
<th>Unacceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1-5 min.</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10 min.</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>20 min.</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>30 min.</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>20-30 min.</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 hours</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3 hours</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>1-2 days</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2 days</td>
<td>9</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>3 days</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2-3 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4 days</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3-4 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4-5 days</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10 days</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>1 week</td>
<td>24</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>1½ weeks</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1-2 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 weeks</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2½ weeks</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3 weeks</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

6 patrons did not remember the exact time, but it was acceptable.
User's evaluation of the accessibility and provision of materials at Western Michigan University Libraries (Responses to item 10 of the survey questionnaire)

Item 10 of the questionnaire asks the users to indicate how easy it was to find the books and magazines listed on their printout. Table XV shows the results and Figure 3 illustrates the responses by user status. The values in Figure 3 are rounded off to the nearest integer.
Table XV

Responses to Item 10 on the Survey Questionnaire
(n=172 for each category)

<table>
<thead>
<tr>
<th>Evaluation of the Accessibility and Provision of Materials</th>
<th>Frequency</th>
<th>Percent of n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most were easily found</td>
<td>65</td>
<td>37.79</td>
</tr>
<tr>
<td>*Many were not available</td>
<td>48</td>
<td>27.90</td>
</tr>
<tr>
<td>Easy, no problems</td>
<td>22</td>
<td>12.79</td>
</tr>
<tr>
<td>*Many were missing</td>
<td>17</td>
<td>9.88</td>
</tr>
<tr>
<td>Did not check</td>
<td>8</td>
<td>4.65</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>11.62</td>
</tr>
</tbody>
</table>

*Some subjects checked both of these reasons.

Faculty comments in the "other" category can be condensed into two basic comments: The offline printout had not arrived at the time of this survey and the faculty member was in the process of using the printout. One comment said that it was a nuisance to use three libraries for source materials.

Student comments center around the availability of resource materials. The comments fall into two categories: "some" were available and "a few" were missing. Other miscellaneous comments include: "The few I needed were available"; "The most crucial one was not available (indicated by two persons)"; "Don't use the campus libraries (indicated by two persons)"; "Read abstracts in ERC, didn't check any further"; "A-V materials were searched not a book"; "None
Figure 3.—Responses by user status to item 10 on the questionnaire
Faculty (n=32)
Students (n=135)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>16%</td>
<td>9%</td>
<td>13%</td>
<td>9%</td>
<td>16%</td>
</tr>
<tr>
<td>F</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>13%</td>
<td>9%</td>
<td>27%</td>
<td></td>
<td></td>
<td>16%</td>
</tr>
</tbody>
</table>

A. Easy   D. Many Missing
B. Most Easily Found   E. Didn’t check
C. Many Not Available   F. Other

available”; "Already had the citations listed by computer”; and "No cross-reference between ERIC and AIM and ARM".

Use of interlibrary loan (Responses to item 11 of the survey questionnaire)

Thirty-six percent of the survey respondents indicated that they used the WMU interlibrary loan service, and 61% of the survey respondents said they had not used the service. Three percent gave no response. When grouped by status, the results show that 41% of the faculty and 36% of students used interlibrary loan. Other responses indicated that 50% of the faculty and 62% of the students did not use interlibrary loan.
Items ordered through interlibrary loan (Responses to item 12 of the survey questionnaire)

Forty-four percent (27) of the 62 users of interlibrary loan ordered items from the computer printout through the service. The number of items requested and received by 15 of the 27, who could recall the data, is shown in Table XVI on page 81.

Subjects who did not order items from the printout through interlibrary loan were asked why they did not. Eighteen of these subjects stated reasons. Reasons given by seven respondents related to the long turnaround time for the interlibrary loan items. The other reasons were: the items are available at Western Michigan University, the missing citation items were not crucial, most items on the citation printout did not apply to the topic, and the patron already had the items on the printout.

Purchase requests (Responses to item 13 of the survey questionnaire)

Thirteen percent of interlibrary loan users recommended a total of ten items for purchase.

User interest in periodic updates and willingness to pay for them (Responses to items 14 and 15 of the questionnaire survey)

Thirty percent of the survey respondents were interested in periodic updates and 38% were not interested; another 21% were uncertain about their interest. Eleven percent of the subjects gave no response. Some of the survey respondents who were not interested, along with those who were interested, showed a willingness to pay for the updates by a 45% positive response to the question on payment.
<table>
<thead>
<tr>
<th>Number of Items Requested</th>
<th>Frequency</th>
<th>Received</th>
<th>Not Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2 or 3</td>
<td>1</td>
<td>1</td>
<td>1 or 2</td>
</tr>
<tr>
<td>more than 2</td>
<td>1</td>
<td>0</td>
<td>2+</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>3 so far</td>
<td>1</td>
<td>None yet</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>4-5</td>
<td>1</td>
<td>2</td>
<td>2-3</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>approx. 15</td>
<td>1</td>
<td>Very few</td>
<td>?</td>
</tr>
<tr>
<td>about 15</td>
<td>1</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>?</td>
<td>2</td>
<td>all</td>
<td>0</td>
</tr>
<tr>
<td>Total 41</td>
<td>34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
General index of user satisfaction (Responses to items 16 and 17 of the survey questionnaire)

Eighty-eight percent of the survey respondents evaluated online search services as useful, and 2% felt the service was not useful. Ten percent did not respond.

Would request other online searches

Eighty-five percent of the survey respondents indicated that they would request another online search; 5% would not request other online searches. Ten percent did not respond. The small percentage increase in subjects who would not request other online searches, as compared with those who felt the service was not useful, is explained by the subjects who said that they graduated prior to receiving the questionnaire survey.

Comments made by users of online retrieval services

Written comments made by subjects to questionnaire items 16 and 17 are listed in Tables XVII and XVIII respectively. Item 16 is based on responses from 29% of the subjects; item 17 is based on 34% of the subjects.

The Results of the Nonuser Survey

The objectives of the nonuser study were to determine the characteristics of nonusers, nonuser awareness of the service, and nonuser perceptions of the usefulness and purpose of automated
Table XVII

Comments About the Usefulness of Online Services

<table>
<thead>
<tr>
<th>Saved Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is very useful when a lot of information is needed in a hurry.</td>
</tr>
<tr>
<td>2. Saves time. (Stated by 12 persons.)</td>
</tr>
<tr>
<td>3. Fast, precise, helpful.</td>
</tr>
<tr>
<td>4. It quickly determines availability of current information.</td>
</tr>
<tr>
<td>5. Saves time, is specific to needs.</td>
</tr>
<tr>
<td>6. Much more efficient and time saving.</td>
</tr>
<tr>
<td>7. Saves time and effort, both of which are in short supply for a grad student.</td>
</tr>
<tr>
<td>8. Saves time, eliminates wasted effort.</td>
</tr>
<tr>
<td>9. Convenient, saved time.</td>
</tr>
<tr>
<td>11. Yes, absolutely.</td>
</tr>
</tbody>
</table>

**Yes, if ---**

| 12. Saves time, however many of the articles did not pertain at all. |
| 13. Yes, if topic areas could be better defined to avoid paying for materials that are not useful. |
| 14. Yes, possibly for a topic that has had more research done on it. |
| 15. Yes, only if looking for the right information. |
| 16. Yes, if descriptors or terms can be more easily cross referenced. |
| 17. Could be useful, if the study was specific enough. |
| 18. Possibly... |
| 19. Could be useful, if initial search question could be formulated specific enough. |

**Comprehensive**

| 20. Can do quick, comprehensive, up-to-date, and relatively cheap search. |
Table XVII-Continued

21. Although not a lot was found through OARS, it was helpful to me by providing a few additional sources.

22. OARS type systems should aid or be used as an initial guide for citations, the more comprehensive the better.

23. Provides a comprehensive search for material current and past.

24. Yes and no. I also used Lockheed from a private terminal and it was faster and more complete.

25. Efficient, complete.


27. Time saving, comprehensive.

28. It helps when you reach a dead end.

29. Easier and more comprehensive.

30. Helps find all information needed.

31. Thorough. Time saver.

32. Aids student in preparing a good report.

Miscellaneous

33. Emphatically saves time, money, effort, comprehensive, well prepared in format.

34. With so few articles on my topic, I never would have found them on my own.

35. Some problems need to be worked out — availability of materials, money, very costly.

36. Absolutely useful.

37. No. It didn't give information sought.

38. No. Too broad to be useful.

retrieval. The related questionnaire items and the responses are reported in this section of the study. (A summary table presenting an overview of the numerical responses to each questionnaire item on the nonuser "Retrieval Survey" is in Appendix I.)
### Table XVIII

Willingness To Use the Service Again

<table>
<thead>
<tr>
<th>Saved Time</th>
<th>Saved Time and Comprehensive</th>
<th>Saved Time and Effort</th>
<th>Comprehensive</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Saved time (stated by 11 persons).</td>
<td>8. Saves time, money, effort, comprehensive.</td>
<td>11. Saves time and effort (stated by 6 persons).</td>
<td>12. To find out what is available on a given topic.</td>
<td>18. Yes, but cost is a limiting factor.</td>
</tr>
<tr>
<td>2. Saved time and it provides a large amount of information.</td>
<td>9. Saves time, comprehensive (stated by 6 persons).</td>
<td>13. To be sure the search is thorough.</td>
<td>13.</td>
<td>19. No, not at that price (faculty member).</td>
</tr>
<tr>
<td>3. Saved time. For some research, it would give me an initial idea of the scope of the topic.</td>
<td>10. Fast and adds to material already located.</td>
<td>14. Helpful in unknown area of research.</td>
<td>14.</td>
<td>20. Yes, but limited by dollars. I wish we were allowed one or two per semester (faculty member).</td>
</tr>
<tr>
<td>4. Fairly quick.</td>
<td></td>
<td>15. When needed, they're comprehensive.</td>
<td>15.</td>
<td></td>
</tr>
<tr>
<td>5. Helpful aid, saves time.</td>
<td></td>
<td>16. Perhaps, if needed a comprehensive study.</td>
<td>16.</td>
<td></td>
</tr>
<tr>
<td>6. Depending on topic and time element.</td>
<td></td>
<td>17. What is not found gives information about &quot;knowledge gaps&quot;. Also shows where there is excess of information.</td>
<td>17.</td>
<td></td>
</tr>
<tr>
<td>7. Saves time, gives added material</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table XVIII-Continued

Need

21. No, at present I am not actively studying. Would use it if returning to studies.
22. Depends on whether it is needed.
23. If research is necessary.
24. No, I graduated!
25. No, graduated.

Yes, if ...

26. Yes, if topic areas were well defined.
27. Possibly, if the area was general or old enough to have been researched.
28. If the topic had a great deal of literature to sift through. Otherwise no.

Miscellaneous

29. Nice to have for a backup.
30. Very useful.
31. Most helpful.
32. Maybe.
33. Very helpful in preparing for a presentation (faculty).
34. Helpful

Negative Comments

35. No. My personal research was more comprehensive.
36. I learn shopping on my own.

Three hundred and nine questionnaires were mailed to randomly selected faculty and students who were associated with Western Michigan University (WMU) during a specified period of time. One hundred and ten questionnaires were filled out and sent back, for
a return of 36%. Sixteen percent of the returned questionnaires were from faculty, and 84% of the returned questionnaires were from students.

**Information about the (WMU) respondents**

Six of the eight (WMU) colleges are represented by the faculty respondents. The colleges include the College of Applied Sciences, the College of Arts and Sciences, the College of Fine Arts, the College of Education, the College of Business, and the College of General Studies.

The student population represents a broad cross section of programs of study offered by WMU. From the programs identified, only two had an appreciable representation over the other programs identified. These include programs in Education and programs in Business.

The students' program level ranges from the undergraduate to the masters level, with 64% of the students classified as undergraduates and 24% from master level programs. The remainder of the students (approximately 12%) classified themselves as 1978 graduates.

**The use of traditional library services** (Responses to item 1 of the survey questionnaire)

As a group, the respondents may be characterized as users of traditional library services. A minority of nine percent stated that they had never used any of the campus libraries' catalogs,
bibliographies, indexes, and other resources. None of the faculty is part of the minority group.

**Library most frequently used (Responses to item 2 of the survey questionnaire)**

The survey respondents were asked to indicate which WMU library they most frequently used. Fifty-two percent of the subjects indicated that Waldo Library is the most frequently used library. By user status, 56% of the faculty and 51% of the students use Waldo Library. One other frequently used library is the Educational Resources Center, with 26% of the subjects using it. Thirty-three percent of the faculty and 24% of the students indicated that the Educational Resources Center was the most frequently used library. Six percent of the students do not use WMU libraries. Their responses indicated that they are commuters and prefer to use their own local libraries.

**Nonuser awareness of WMU online retrieval service (Responses to item 3 of the survey questionnaire)**

Eighty-one percent of the subjects have not heard of the WMU online retrieval service. Sixty-one percent of the faculty and 85% of the students have not heard of the online retrieval service.

**Primary agent promoting awareness of the service (Responses to item 4 of the survey questionnaire)**

Nineteen percent of the subjects had heard about the WMU online automated retrieval service. From this group, the largest
percentage of the subjects (43%) first learned about the service by "word-of-mouth". Figure 4, page 90, shows the frequency for each category promoting user awareness of the retrieval service.

Reasons for not using the online retrieval service (Responses to item 5 of survey questionnaire)

From a list of ten possible reasons for not using the service, three reasons were most frequently identified. Forty-eight percent of the subjects, who heard about the service, stated that they can find all the information they need without an online search. Two other reasons, each identified by 38% of the subjects, are: "Find the documents I need for research on my own" and "Have not been shown clearly what an online search can do." Table XIX on page 91 shows the number of times each reason was chosen. Since some reasons were chosen more than once, the total for all reasons is greater than the number of subjects (n=21).
Figure 4.—Agents promoting awareness of the online retrieval service (n=21); some items were checked more than once.

*Three students learned about the service in a class.

A. Librarian
B. Word-of-mouth
C. Online Demonstration
D. Library Exhibit
E. Library Flyer
F. Other
Table XIX
Reasons for not Using Online Services (n=21)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Frequency</th>
<th>Percent of n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can find all the information I need</td>
<td>10</td>
<td>47.61</td>
</tr>
<tr>
<td>Find the documents I need on my own</td>
<td>8</td>
<td>38.09</td>
</tr>
<tr>
<td>Not clear what an online search can do</td>
<td>8</td>
<td>38.09</td>
</tr>
<tr>
<td>Too expensive</td>
<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td>Don't know what an online search is</td>
<td>3</td>
<td>14.28</td>
</tr>
<tr>
<td>Takes too long</td>
<td>3</td>
<td>14.28</td>
</tr>
<tr>
<td>Need the materials themselves, not lists</td>
<td>2</td>
<td>9.52</td>
</tr>
<tr>
<td>Online services don't have anything useful to my field</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Don't generally need books for my work</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>
IV. THE CONCLUSIONS AND RECOMMENDATIONS

Summary of the Problems and Objectives of the Study

The problems

The purpose of the study was to discover and analyze the reasons for the use and nonuse of Western Michigan University's (WMU) Online Automated Retrieval System (OARS) in order to derive indicators for the future direction of the service. Implied in the study's purpose were two basic questions: (1) What are the reasons for the use of online bibliographic retrieval services offered by WMU Educational Resources Center and the Reference division of Waldo Library? and (2) What are the reasons for the nonuse of online bibliographic retrieval services offered by WMU Educational Resources Center (ERC) and the Reference division of Waldo Library?

The objectives

The information needed to answer the questions is implicit in the objectives of the study. The three major objectives of the study were:

1. To determine the characteristics of the users of online reference services, their perceptions of the service, and other facts about use of the service.

2. To determine the characteristics of nonusers, nonuser awareness of the services, and nonuser perceptions of the usefulness of automated retrieval.
3. To derive indicators for the future direction of the service.

The survey questionnaires

The data needed to meet the objectives were found in responses to user and nonuser questionnaires. Since reasons for the use and nonuse of online retrieval services are often a basic aspect of user appraisals, the study necessarily involved a user's evaluation of the service.

Two hundred sixty-five user questionnaires were mailed to Western Michigan University faculty and students who received services from the Educational Resources Center or Waldo Library during a specified period. One hundred seventy-two questionnaires were filled out and sent back, for a return rate of 65%. Nineteen percent of the returned questionnaires were from faculty, and 79% of the returned questionnaires were from students. Two percent of the questionnaires had no user status indicated.

Three hundred and nine nonuser questionnaires were mailed to randomly selected faculty and students who were associated with Western Michigan University during a specified period of time. One hundred and ten questionnaires were filled out and sent back, for a return rate of 36%. Sixteen percent of the returned questionnaires were from faculty, and 84% of the returned questionnaires were from students.
Summary of Findings: User Survey

Information about the users of online services

The user survey showed that the greatest percentage of faculty users of online retrieval were from two departments: Education and Professional Development and Sociology.

Student users of online services were primarily from four programs of study. In order of use these were: Counseling and Personnel (21%) and Educational Leadership (21%) in the College of Education; Psychology (7%) in the College of Arts and Sciences; and Blind Rehabilitation (6%) in the College of Health and Human Services. Student users were predominantly from master's level programs. This is partially explained by the fact that online services are formally promoted in graduate level classes. Undergraduate users of online services are unquestionably a minority of the student users. When compared with two recent studies, WMU's undergraduate use of online services is exceptionally low; it is only 2%. An academically-based study by Kiewitt showed that undergraduates were 11.3% of the users of the PROBE search system. Another study, specifically focusing on a subsidized program for undergraduate online service, indicated that the percentage of undergraduate users could be as high as 14%.


The majority of the user population had online searches completed at the Educational Resources Center (ERC) and not Waldo Library. It can be hypothesized that this usage pattern may be due, in part, to the physical accessibility of the ERC retrieval service to the College of Education, whose students and faculty are "heavy" users among the survey respondents. The pattern may also be due, in part, to the fact that OARS began primarily as an ERC-based service. However, this latter supposition was not tested by the questionnaire.

Search topics, search cost, and source of funding for faculty and students

The search topics of interest to the users were largely related to Western Michigan University's programs in education and psychology. Within psychology and education, the search topics were diverse and tended to be interdisciplinary. In general, the topics on which searches were run for students were sophisticated, and, in terms of subject, were indistinguishable from the search topics of faculty.

An analysis of data supplied by the users provides conclusions about search costs. The greatest concentration of search costs was in the $5-15 price range. Faculty users tended to have more expensive searches when compared with student users. Sixty-seven percent of the faculty had the greatest concentration of search costs in the $1-20 price range, whereas 77% of the students had the greatest concentration of search costs in the $1-15 price range.
If search costs over $30 are considered as a high price category, then a small percentage of the population within the faculty group have expensive searches. The same is true for the student group.

Users had several sources of funding for their searches, such as personal funds, university department, and research grants. The primary source of funding was the user's personal funds. However, only 31% of the users within the faculty population relied on personal funds as compared with 82% of the users within the student population. This difference in faculty and student use of personal funds may be explained by the fact that 41% of the users in the faculty population indicated that they used departmental funds to pay for their search. Students, apparently, have no major source of funding other than their own personal resources.

The primary agent promoting user awareness of the service

Since Western Michigan University has no formal planned publicity for its online retrieval services, promotion of the service is done informally. WMU librarians appear to be the primary agent promoting the service. Another important promotional source identified in the "other" category of the questionnaire was "classroom mention". Either a professor or librarian alerted students to the service in Course 601 which is an introduction to research in education. This in turn, can be related to motivation for searches on educational topics. When compared with other motivational items on the questionnaire list, library exhibits, online demonstrations, and
library flyers were not identified as reaching a large audience.

The purpose for which the search is used

The question of how users made use of the bibliographies resulting from searches is related to the topics on which users requested searches. From the questionnaire checklist of purposes, faculty indicated that they used online searches to "aid in a research project of professional interest". The search purpose most frequently checked by students was use of online reference services to prepare assignments. Two other purposes of student searches, which were frequently mentioned, were to prepare a thesis, specialist project, or dissertation and to prepare a term paper.

Reasons for using online services

The "primary" reason for using online services was the need to save time, with the need for a comprehensive search the next most frequently ranked "primary" reason. Since the difference between the frequencies for the two reasons is small, both appear to be equally important to the users. In addition, users who checked the "other" category as a primary reason were students who wanted to validate the comprehensiveness and currentness of their manual search results.

Use of online services to save time was the most frequently checked primary reason for students. Faculty indicated that the need for a comprehensive search and the need to save time were equally important reasons for their use of online services. This
difference between faculty and students may be explained by the search purposes which influence the two groups. Students use the service for assignments and, although not shown by the questionnaire, these assignments are characterized by time restrictions. Thus, the saving of time becomes an important reason for student use of online services. Faculty want comprehensive searches, because their projects of professional interest will be criticized for completeness.

Relevance of citations

Faculty and students evaluated the relevance of their searches by rating the search in one of seven possible categories. The category most frequently checked by students and faculty was the 1-20% category. Analysis of the data reveals that students from certain programs of study give a lower evaluation of citation relevance. These programs include Educational Leadership, Counseling and Personnel, Psychology, and Education and Professional Development. Other reasons for the low precision rating are suggested by an examination of the search topics and by statements made by the subjects in Tables XVII and XVIII, pages 83-86. Recurring reasons include the failure to define the topic, lack of research on a limited aspect of a topic, and, possibly, the search strategy and data base, although the last reason is not evident from the questionnaire.

A greater percentage of the subjects in the student population put the precision of citations in the 0% scale than did faculty
subjects in the faculty population. Conversely, a greater percentage of subjects in the faculty population put the precision of citations on the high end of the scale than did student subjects. Either Western Michigan University students rate citation relevance lower than do the faculty, or it is possible they may not know how to relate the citations and information to their research needs. It should not be concluded that searches with a 0% rating were unsuccessful searches. A possible explanation for the low rating may be due to the search topics which are limited in scope and available information.

"Worth" (usefulness) of the search

Users were asked to evaluate their search in terms of their reasons for using the service. The response was significantly positive. Only 13% of the faculty (4 persons) and 16% of the students (21 persons) responded unfavorably.

Although only twenty-four comments were included with the evaluation of the searches, some useful indicators are suggested by the comments. The negative comments imply that reasons for the unfavorable evaluation of the worth (usefulness) of the search center around failure to define the topic, expectations about the acceptable number of citations, failure of the search to fill the user's objectives for the search, and absence of the actual materials in the library collection. The positive comments imply that reasons for the favorable response include the time saved, the comprehensiveness of the search, the effort saved, and the value and

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number of citations.

Dollar worth of the search

Most of the faculty and students indicated that their search was worth its dollar cost. However, 16% of the faculty and 25% of the students felt that the cost was unacceptable. Because only two of the five faculty responding unfavorably offered explanations, the reason for faculty dissatisfaction is uncertain. Students' comments, however, provide three suggestions for price adjustment. These are: 1) There should be no cost when the search is not useful, i.e., citations are not relevant; 2) The charge should be half the rate; and 3) The cost should be as low as possible. From the students' first suggestion, it appears that students want some allowance made for searches that are evaluated as useless or poor. The last two suggestions could indicate that students cannot or are unwilling to support an online retrieval service based on full cost recovery.

While no definitive dollar cost can be determined for acceptable and unacceptable user costs, comments made by 17 students reveal some interesting, but contradictory information. A suggested "reasonable" cost is $5. The "unacceptable" average cost is $11 for citations that are not useful, but the "acceptable" average cost is $15 for useful citations. It would seem that the higher cost, the $15 search, would have been the unacceptable cost instead of the $11 cost. One explanation is that a search which is evaluated as useful, in terms of the user's reason for requesting the search,
elicits a willingness on part of the user to pay a higher price. However, this does not mean that the cost is necessarily judged as "reasonable". It may be implied from the group of users who did not comment unfavorably that the $5-$15 price is an "acceptable" cost for searches.

When users are asked to assign a dollar worth to a search, there is a slight increase in the number of unfavorable search evaluations as compared with unfavorable search evaluations based on the usefulness or worth of the search. It appears that users evaluate searches more critically when a dollar value is attached to the search.

Acceptable and unacceptable waiting periods for the librarian to do the search

Eighty-five percent of the survey respondents could recall the waiting period for the librarian to do their search. This group expressed satisfaction with the waiting period, with only 10% of the group being dissatisfied.

Data provided by the respondents indicated that the preferred waiting period for the librarian to do a search is any period within one week; WMU librarians meet that limit. Waiting periods exceeding one week are unacceptable.

Acceptable and unacceptable waiting period for the printout

As compared with eighty-five percent of the survey respondents who could recall the waiting period for the librarian to do
the search, only 62% of the survey respondents could recall the waiting period for the printout. From this group, only nine percent expressed dissatisfaction with the waiting period. The unacceptable waiting period is any length of time over one week. Delays created by mail service may be primarily responsible for the unacceptable waiting period. For many of the respondents the online printout was immediate. It is possible, therefore, that respondents confused the questions on search and printout time as referring to the same thing.

Pre- and post-search assistance

WMU librarians are providing prompt pre- and post-search assistance to users of the online retrieval service. Only a small minority of users indicated that there was some delay in the pre- or post-search assistance. More assistance is sought in the pre-search phase than is sought during the post-search phase. Patrons do not know how to construct a search strategy, but they feel they know how to use the citation list or bibliography.

User evaluation of the accessibility and provision of materials at Western Michigan University Libraries

An important support service related to WMU online retrieval system is the provision of reference materials by the University Libraries. Thirteen percent of online users indicated that there was no problem locating materials listed on their computer printout. There is no appreciable difference in opinion between the faculty
and student groups responding to this question. If the 38% of the users who marked the "easily found" category are added to the group who had no problems finding materials, then it may be concluded that half of the online users are finding the materials listed on the computer printout. Apparently, the remainder (h9%) of the users of online services are having problems finding materials on the computer printout. The source of some of the difficulty revolves around items that are missing from or not available in the library system. The extent of this problem is not readily apparent because students qualified the checklist answers with the addition of two original categories which state that "some" items available and "a few" were missing. However, missing materials or materials not being available were cited as reasons by a greater percent of faculty than students.

Use of interlibrary loan

Interlibrary loan is an important means by which titles listed on the citation printout can be obtained when they are not available in Western Michigan University libraries. Slightly more than one-third (36%) of users of online services also used interlibrary loan services. There was no appreciable difference in the percentage of faculty and student users of interlibrary loan service. However, many online users are finding the required resource materials in WMU libraries, or getting the needed information from other channels, or do not care if they get all the items listed on the printout.
Items ordered through interlibrary loan

Less than half of the users of interlibrary loan (27 out of 62) ordered items listed on the computer printout. When asked why they did not order items, approximately half stated their reasons. The two most frequently mentioned reasons pertained to the lengthy turnaround time for interlibrary loan requests and to the absence of need to use the service to secure items on the printout. Another reason for not using interlibrary loan could be the poor return on items requested. Examination of the number of computer printout items ordered through interlibrary loan revealed that approximately half of the requested items are received.

Purchase requests for computer printout items

Even though patrons have the option of requesting resource materials for purchase, few do so.

User interest in periodic updates and willingness to pay for them

Nearly one-third (30%) of survey respondents showed a definite interest in periodic updates of their search topics. About half of those persons interested in periodic updates would be willing to pay for the service. It appears, therefore, that consideration should be given to further publicizing this aspect of the service.

General index of user satisfaction

User satisfaction was overwhelmingly positive. Only 2% of
the survey respondents felt the service was not useful. There was
no appreciable difference between the opinion of the faculty and the
student evaluation of the service.

Summary of Findings: Nonuser Survey

Western Michigan University Colleges and a broad cross section
of programs of study were represented by the respondents to the non-
user "Retrieval Survey". The student population was predominantly
undergraduate (64%) with 24% of the student subjects from master's
level programs. Another 12% of the student subjects were recent
graduates.

The results of the nonuser "Retrieval Survey" reveal: 1) Non-
users of online services are users of traditional library services.
2) Of the five libraries in the University Libraries system, Waldo
Library is used by the majority of survey respondents. 3) Nonusers
of Western Michigan University's (WMU) online retrieval service are
not aware of the service. A greater percentage of students than
faculty have not heard of WMU retrieval service. 4) Nonusers of
WMU retrieval service first hear about the service by "word-of-
mouth". 5) The survey respondents who heard about WMU online
retrieval service do not use the service because they feel they can
find the information they need without an online search; they feel
they can find the documents needed for research on their own; and
they have not been shown clearly what an online search can do.
Conclusions

What are the reasons for the use of Western Michigan University (WMU) Online Automated Retrieval System (OARS)?

Conclusions drawn from the "User Satisfaction Survey" indicate that the users of WMU online retrieval survey use the service primarily to save time and, especially on the part of the faculty, to fill the need for a comprehensive search of resource materials. These reasons are similar to the ones reported by other academically-based studies which were reviewed in chapter one of this report, pages 26-29.

What are the reasons for the nonuse of WMU Online Automated Retrieval System (OARS)?

Conclusions drawn from the nonuser "Retrieval Survey" indicate that the most important reason for the nonuse of the WMU service is the lack of awareness of the service. The nineteen percent of the sample subjects who did hear about the service do not use it because they believe they can find the information they need without an online search, and they have not been shown clearly what an online search can do.

Primary Indicators for Future Directions (Recommendations)

Two major conclusions have been drawn from the surveys: The present system is accepted by those who have used it; and many students and faculty at WMU do not use OARS. Two questions also emerged: The data on search accuracy or precision raises a question
about special education for library staff. Second, is there a need for funding student searches? These conclusions and questions provide indicators for future actions at Western.

1. The four factors contributing to high user satisfaction which were revealed by the study should be used as a base for continued development of online services at WMU. These four, the positive evaluation of the usefulness of the search, the acceptance of user fees, satisfaction with the waiting period for the librarian to do the search, and the effective pre- and post-search assistance provided by the librarian, are strong elements which should be primary to future development.

2. Promotional efforts need to be intense both to increase general awareness of the service and to broaden the faculty usage pattern beyond two departments: Education and Professional Development and Sociology. Student usage, which is concentrated in four programs of study (Counseling and Personnel, Educational Leadership, Psychology, and Blind Rehabilitation), should be promoted within other WMU programs of study.¹

3. Along with the promotion of online services is the need to enhance the capabilities of the library staff to answer online service inquiries. Consideration should be given to special orientation programs for both librarians and library assistants. The orientation would provide experiences which would introduce the staff to the reference capabilities of the new technology and, when needed, intermediate and advanced training.

¹For a fuller discussion of promotional ideas, see Douglas Ferguson's article, "Marketing Online Services in the University," Online 1 (July 1977), pp. 15-23.
4. Although the study did not necessarily discover all relevant factors, the low precision rating of searches suggests the need for formal training for searchers which would develop the subject specialization of searchers and their presearch interview skills. In addition, a new staffing structure might be considered that would facilitate online searching in general, as well as evaluating its efficacy.

5. The survey shows that fees may have to be examined in the future. The fact that 25% of the students disagreed with search prices suggests the need to examine user fee policy and to consider subsidies for student searches.

**Secondary indicators (Recommendations)**

Although the data are not conclusive, the survey suggests certain indicators which need consideration and further research.

1. There is a sense that search services need to be conveniently located within the users' building or in one central location. Given a choice, users may patronize a service which is conveniently located. However, the portability of terminals in conjunction with trained searchers to fill the demand for convenience was not examined in this study.

2. Just as use of traditional library services by students may be related to the classroom situation, some uses of online services may also be influenced by teaching style. The course, "Fundamentals in Educational Research", for example, appeared to be a major agent promoting the use of online services. If so, more classroom publicity is desirable.
3. Missing items or items not available are a concern to users of online services and suggest the need to evaluate this aspect of the service. The effectiveness of online services may be undermined by the theft of materials, a time lag for the shelving of materials, or the lack of library skills needed by patrons for locating the required items.

4. It appears that the effectiveness of interlibrary loan as a means for obtaining documents cited on computer printouts is compromised by the long turnaround time for items and the poor rate of return for requested items. Because the interlibrary loan service is part of a national system, solutions may require improvements in both the local and national system.

5. Interest on the part of nearly one-third (30%) of the users of online services in selective dissemination of information may warrant the addition of this service to OARS. It needs to be determined whether the implementation of the service requires additional staff or simply the involvement of more staff members.

6. In chapter I of this study, the "Review of Related Literature" suggests certain approaches to basic research on the many factors which lead to user satisfaction. Along with the need for research on the factors effecting user satisfaction is the need to develop new measures and methods for determining user satisfaction which are both more precise and useful than the method used in this study and certain others.

To recapitulate, the results of the surveys show the reasons for the use and nonuse of online services at Western Michigan
University and provide indicators for the future direction of the service. Not investigated were aspects of the OARS system itself, the institutional cost factors, needs of academic units, and the basic role of online searching at WMU. It is hoped that a plan will be developed to study and, when desirable, to implement the study's recommendations, as well as provide for periodic evaluations of the service. Investigation of areas not included in this study, but cited as concerns, might be included with the plan. Such hopes are not only logical steps forward, but essential to the effective use of online searching at WMU in the 1980s.
APPENDIX A

Steps for Conducting a Survey
STEPS FOR CONDUCTING A SURVEY

I. Planning
   Definition of the research problem
   Definition of variables
   Objectives of the study and assumptions
   Development of the survey design

II. Development and Application of Sampling Plan
    Definition of the population
    Sampling procedures

III. Construction of Questionnaire
     Development of items
     Development of anticipated analysis procedures
     Pilot run and revision of items

IV. Data Collection
    Administer questionnaires
    Follow-ups

V. Steps in the Analysis of Data
    Construction of category systems
    Technical preparation of data for computer tabulation

VI. Analysis
    The findings

VII. Conclusions
APPENDIX B

Correspondence
Mr. Duane L. Sult
Assistant Manager Data Processing Operations
Western Michigan University
Kalamazoo, Michigan

Dear Mr. Sult:

Thank you for the suggestions communicated over the telephone with regard to the evaluation survey of the University Libraries' OARS service. Systematic sampling is the procedure I would like used for the selection of sample members. The total population for faculty and students should equal 300 members. I also discussed with you the possibility of securing a double set of preaddressed labels for mailing a questionnaire to students and faculty. I have written to Ms. Zak for a release of faculty names for the calendar year 1977. I also asked Mr. Boyle for a release of student names for the past Winter semester (1978).

Thank you for your assistance. You may contact me or Dr. Carroll, my committee advisor, at this number: 383-1849, School of Librarianship.

Very truly yours,

[Signature]

Jan Dommer
Specialist Student
May 30, 1978

Mr. Duane L. Sult
Assistant Manager Data Processing Operations
Western Michigan University
Kalamazoo, Michigan

Dear Mr. Sult:

Thank you for your assistance with the evaluation survey of the University Libraries' online automated retrieval service. In particular, the systematic sample and preaddressed labels saved time and money. Again your expertise is required. Needed are the mathematical calculations which were used for the systematic sampling of faculty and students. If you will recall, 260 students from the Winter semester, 1978, and 49 faculty for the calendar year 1977 were drawn from the population. Please indicate how these figures were derived for the total requested population of 309. The mathematical figures are an essential part of the required details used in the report for the evaluation of the University Libraries' online automated service.

It would be gratefully appreciated if I could pick up the needed information from your secretary during this week.

Very truly yours,

Jan Dommer
Researcher, Specialist Student
School of Librarianship
383-1849
May 12, 1978

Mr. Dennis E. Boyle, Registrar
Administration Building
Western Michigan University
Kalamazoo, Michigan

Dear Mr. Boyle:

I am doing an evaluation of the University Libraries' OARS service. As part of the evaluation, I am sending a questionnaire to a random sample of students and faculty. I am asking for a release of student names for Winter term. I am also making a request to Personnel Services for the release of faculty names for the calendar year 1977. I have consulted with Mr. Sult who would do a systematic sampling for the 300 preaddressed mailing labels which include faculty and students.

Thank you for your assistance. You may contact me or my advisor, Dr. Carroll, at this phone number: 383-1819, School of Librarianship.

Very truly yours,

Jan Dommer
Specialist Student
School of Librarianship
Ms. Karla Zak, Manager
Personnel Services
Personnel Department
Western Michigan University
Kalamazoo, Michigan

Dear Ms. Zak:

I am doing an evaluation of Western Michigan University Libraries' CARS service. As part of the study I am sending a questionnaire to a random sample of faculty and students which totals 300. Mr. Sult of the Data Processing Operations will prepare the random selection for preaddressed mailing labels, if you will grant a release for names of faculty for the calendar year 1977.

Thank you for your assistance. You may contact me or Dr. Carroll, my advisor, at this number: 383-1849, School of Librarianship.

Very truly yours,

Jan Dommer
Specialist Student
APPENDIX C

The Questionnaires
The Study's Objectives and Related Questionnaire Items

Objective one. To determine the characteristics of the users of online services, their perceptions of the service, and other facts about use of the service.

<table>
<thead>
<tr>
<th>OBJECTIVE ELEMENT</th>
<th>QUESTIONNAIRE ITEM NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) user status, b) usage pattern for faculty by department, c) usage patterns for students by program of study, d) identification of library doing search, e) identification of search topic, f) search cost, g) source of funding for faculty and students, h) the primary agent promoting user awareness of the service, i) the purposes for which the search is used, j) user's reasons for the use of the service, k) the user's perceived precision of the retrieval system, l) usefulness of the system, m) worth of the service in terms of the user fee, n) user satisfaction with waiting period for the librarian to do the search, o) user satisfaction with turnaround time for the printout, p) user satisfaction with search assistance, q) user's opinion of the University Libraries' materials collection</td>
<td>Factual information elicited by the introductory section. Number 1. Number 2. Number 3. Number 4. Number 5. Number 6 Number 7. Number 8. Number 9. Number 10.</td>
</tr>
</tbody>
</table>
### Objective Element Questionnaire Item Number

<table>
<thead>
<tr>
<th>Objective Element</th>
<th>Questionnaire Item Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>r) user awareness of interlibrary loan,</td>
<td>Number 11.</td>
</tr>
<tr>
<td>s) the need for interlibrary loan and user satisfaction with turnaround time for loan requests,</td>
<td>Numbers 12-13.</td>
</tr>
<tr>
<td>t) indicate user interest in periodic updates and willingness to pay for them</td>
<td>Numbers 14-15.</td>
</tr>
<tr>
<td>u) general index of user satisfaction</td>
<td>Numbers 16-17.</td>
</tr>
</tbody>
</table>

Objective two. To determine the characteristics of nonusers, nonuser awareness of the services, and nonuser perceptions of the usefulness and purpose of automated retrieval.

<table>
<thead>
<tr>
<th>Objective Element</th>
<th>Questionnaire Item Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) user status and department or program of study,</td>
<td>Factual information elicited by the introductory section.</td>
</tr>
<tr>
<td>b) use of traditional library service,</td>
<td>Number 1.</td>
</tr>
<tr>
<td>c) library most frequently used by the nonuser of online services</td>
<td>Number 2.</td>
</tr>
<tr>
<td>d) nonuser awareness of the service</td>
<td>Number 3.</td>
</tr>
<tr>
<td>e) primary agent promoting awareness of the service</td>
<td>Number 4.</td>
</tr>
<tr>
<td>f) perceived reasons for not using the service</td>
<td>Number 5.</td>
</tr>
</tbody>
</table>
We are attempting to determine user satisfaction with the Educational Resources Center's automated retrieval service so as to derive indicators for the future direction of the service. Please check the items on this questionnaire and return to: Becki Whitaker, Educational Resources Center, Western Michigan University, Kalamazoo, Michigan, 49008.

NAME (Optional): ___________________________ DATE: __________
STATUS (Please check):

FACULTY  STUDENT
DEPARTMENT_________________  DOCTORAL: PROGRAM___________

______________________________  SPECIALIST: PROGRAM________

______________________________  MASTERS: PROGRAM___________

______________________________  UNDERGRADUATE: PROGRAM____

______________________________  OTHER: (Specify) _____________

DATA BASES USED_________________  SEARCH COST _____________
GENERAL SEARCH TOPIC

(If you had more than one search, please complete a questionnaire for each one done.)

SOURCE OF FUNDING (Please check):

PERSONAL  UNIVERSITY DEPARTMENT  GRANT  OTHER

______________________________  (If you checked more than one source, please explain): ________________________________

______________________________
1. How did you first learn about this service?
   LIBRARIAN  __  WORD-OF-MOUTH  __  ATTENDED AN ONLINE SEARCH DEMONSTRATION  
   __  LIBRARY EXHIBIT  __  LIBRARY FLYER  __  OTHER  __________

2. What was the purpose of your online search?
   __  TO AID IN PREPARING A CLASS ASSIGNMENT
   __  TO AID IN AN INDEPENDENT STUDY CLASS
   __  TO AID IN THE PREPARATION OF A THESIS, SPECIALIST PROJECT, 
      OR DISSERTATION
   __  TO AID IN MY WORK OF AN ON-GOING RESEARCH PROJECT NOT 
      ASSOCIATED WITH A CLASS
   __  TO AID IN MY TEACHING
   __  TO AID IN MY INVESTIGATION OF PERSONAL INTEREST ONLY
   __  OTHER  __________________________________________________________________

3. What were your reasons for using the online retrieval service?
   (If more than one, mark P for primary and S for secondary.)
   SAVED TIME  __  NEEDED COMPREHENSIVE SEARCH  __  NEEDED MOST 
   RECENT SOURCES  __  SAVED EFFORT  __  OTHER REASON  ________________

4. What percent of the citations on the printout were useful to 
   your search topic?
   0  __  1-20%  __  20-40%  __  40-60%  __  60-80%  __  80-90%  __  100%  __

5. In view of your purpose (see question 2), was it worth sifting 
   through all of the citations to get to the useful references?
   YES  __  NO  __  COMMENT: _______________________________________________

6. Was the search worth its dollar cost?  YES  __  NO  __ (If you 
   answered no, what cost would have been a reasonable charge?)
   _______________________________________________________________________

7. Was the waiting period for the librarian to do the search an 
   acceptable length of time?  YES  __  NO  __ (If the answer is no, 
   what waiting period would be acceptable?)
   _______________________________________________________________________

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8. How easy was it to find the books and magazines listed on your printout (bibliography)? EASY, NO PROBLEMS MOST WERE EASILY FOUND MANY WERE NOT AVAILABLE AT WESTERN MANY TITLES WERE MISSING OR STOLEN.

9. Did you order any of the items not available at WMU through interlibrary loan? MANY A FEW NONE.

10. Did you receive the majority of requested interlibrary loan items within an acceptable length of time for your research purposes? YES NO COMMENT:___________________________________________

11. Did you ask the library to purchase any items on your list? MANY A FEW NONE.

12. Would you be interested in being kept up to date on your topic by additional searches? YES NO UNCERTAIN.

13. Would you be willing to pay for the additional searches? YES NO

14. Do you think the online search system (OARS) is a useful service? YES NO WHY OR WHY NOT: ______________________________________________________

15. Would you request other online searches? YES NO WHY OR WHY NOT: ______________________________________________________
We are attempting to discover the reasons for the nonuse of a specialized reference service offered by the Educational Resources Center and the Waldo Library. The future direction of the service will be determined by your answers. Please check the items on this questionnaire and return to: Becki Whitaker, Educational Resources Center or Linda Rolls, Waldo Library, Western Michigan University, Kalamazoo, Michigan, 49008.

NAME (Optional): _________________________ DATE: ______________

STATUS (Please check): 
FACULTY__ STUDENT__
DEPARTMENT_________________ DOCTORAL: PROGRAM_________________
______________________________ SPECIALIST: PROGRAM_________________
______________________________ MASTERS: PROGRAM_________________
______________________________ UNDERGRADUATE: PROGRAM_________________
______________________________ OTHER: (Specify)_________________

1. Do you use any of the campus libraries' catalogs, bibliographies, indexes, and other resources? YES NO__

2. Which library do you use most frequently?
___WALDO LIBRARY ___MUSIC LIBRARY
___EDUCATIONAL RESOURCES CENTER ___BUSINESS LIBRARY
___PHYSICAL SCIENCES LIBRARY

3. Have you heard of the online automated search system (OARS)?
___YES ___NO (If you answered yes, to to question 4.)

______________________________
IF YOU ANSWERED NO TO QUESTION 3, DON'T WRITE BELOW THIS LINE. PLEASE RETURN THE QUESTIONNAIRE.
4. How did you first learn about this service?

LIBRARIAN__  WORD-OF-MOUTH__  ATTENDED AN ONLINE SEARCH DEMON-

STRATION__  LIBRARY EXHIBIT__  LIBRARY FLYER__  OTHER____

5. Please check all reasons why you have not used this service:

__ A) CAN FIND ALL THE INFORMATION I NEED WITHOUT AN ONLINE

SEARCH

__ B) FIND THE DOCUMENTS I NEED FOR RESEARCH ON MY OWN

__ C) DON'T GENERALLY NEED BOOKS OR PRINTED MATERIALS FOR MY

WORK

__ D) DON'T KNOW WHAT AN ONLINE SEARCH IS

__ E) HAVE NOT BEEN SHOWN CLEARLY WHAT AN ONLINE SEARCH CAN DO

__ F) TOO EXPENSIVE

__ G) TAKES TOO LONG

__ H) ONLINE SERVICES DON'T HAVE ANYTHING USEFUL TO MY FIELD

__ I) NEED THE BOOKS/MAGAZINES THEMSELVES, NOT A LIST OF

TITLES

__ J) OTHER: (Please specify)____________________________

____________________________

____________________________

____________________________

____________________________

____________________________
Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Dommer at 383-1666.

NAME: (Optional) ______________________________________ DATE: _______________________

STATUS: (Please check)

□ Faculty - Please indicate department: _______________________

□ Student - Please indicate program: ___________________________

Check current level of program:

□ Doctoral □ Specialist □ Masters □ Undergraduate

□ Other: ____________________________________

LIBRARY DOING THE SEARCH: □ Waldo Library □ ERC

SEARCH COST: ______________________

(NOTE: If you had searches done on more than one topic, please complete a questionnaire for each one.)

SOURCE OF FUNDING:

□ Personal □ University Department □ Grant □ Other

If you checked more than one source, please explain:

1. How did you first learn about this service?

□ Librarian □ Word of Mouth

□ Library Exhibit □ Attended an online search demonstration

□ Library Flyer □ Other: ___________________________

2. What was the purpose of your online search:

□ To aid in preparing a class assignment.

□ To aid in an independent study class.

□ To aid in the preparation of a term paper.

□ To aid in the preparation of a thesis, specialist project, or dissertation.

□ To aid in my teaching.

□ To aid in a research project of PROFESSIONAL interest.

□ To aid in an investigation of PERSONAL INTEREST only.

3. What were your reasons for using the online retrieval service? If more than one, mark "P" for Primary and "S" for Secondary.

□ Saved Time □ Needed comprehensive search □ Needed most recent sources.

□ Saved effort □ Other: ____________________________________

4. What percent of the citations on the printout (bibliography) were useful to your search topic?

□ 0% □ 1-20% □ 20-40% □ 40-60% □ 60-80% □ 80-99% □
5. In view of your purpose (see question 2), was it worth sifting through all of the citations to get to the useful references?
   
   [ ] Yes  [ ] No  COMMENT:

6. Was the search worth its dollar cost?  [ ] Yes  [ ] No
   If you answered No, what cost would have been a reasonable charge?

7. What was the waiting period for the librarian to do the search?
   Was it an acceptable length of time?  [ ] Yes  [ ] No  If No, what waiting period would be acceptable?

8. What was the waiting period of the citation printout (bibliography)?
   Was it an acceptable length of time?  [ ] Yes  [ ] No
   If No, what waiting period would be acceptable?

9. Comment on availability of assistance:
   (a) Pre-search assistance (e.g. aid in formulating the search strategy and the use of the descriptors)
      [ ] Immediately Available  [ ] Some Delay  [ ] None  [ ] Not Desired
   (b) Post-search assistance (e.g. interpretation of the printout, revised search if desired, location of books, magazines)
      [ ] Immediately Available  [ ] Some Delay  [ ] None  [ ] Not Desired

10. How easy was it to find the books and magazines listed on your printout (bibliography) at the KU libraries?
    [ ] Easy, No Problems  [ ] Most were easily found  [ ] Many were not available
    [ ] Many were missing  [ ] Didn't Check

11. Have you heard of KU interlibrary loan service?  [ ] Yes  [ ] No
    If you answered "Yes" to Question 11 go on to Question 12. If you answered "No" to Question 11, omit questions 12 and 13.

12. Did you order any items on your printout through interlibrary loan?  [ ] Yes  [ ] No,
    Not sufficient time to use this service. If you answered "Yes" indicate the number of items requested:

13. Did you receive the majority of interlibrary loan items within an acceptable length of time for your research purposes?
    [ ] Yes  [ ] No  [ ] Not Applicable  Comment:

14. Did you ask the library to purchase any items on your list?
    [ ] Many  [ ] A Few  [ ] None

15. Would you be interested in being kept up to date on your topic by additional searches?
    [ ] Yes  [ ] No  [ ] Uncertain

16. Would you be willing to pay for the additional searches?
    [ ] Yes  [ ] No

17. Do you think the online search system (OARS) is a useful service?
    [ ] Yes  [ ] No  Why or why not?

18. Would you request other online searches?
    [ ] Yes  [ ] No  Why or why not?
Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Dommer at 383-1666.

NAME: ________________________ DATE: ____________

STATUS: (Please check)

☐ Faculty - Please indicate department: ________________

☐ Student - Please indicate program: ________________

☐ Doctoral  ☐ Specialist  ☐ Masters  ☐ Undergraduate

☐ Other: ________________

GENERAL TOPIC: ________________________

NOTE: If you had searches done on more than one topic, please complete a questionnaire for each one.

LIBRARY DOING THE SEARCH: ☐ Waldo Library  ☐ ERC

SEARCH COST: ________________________

SOURCE OF FUNDING: ☐ Personal  ☐ University Department  ☐ Grant  ☐ Other

If you checked more than one source, please explain:

1. How did you first learn about this service?

☐ Librarian  ☐ Word of Mouth

☐ Library Exhibit  ☐ Attended an Online Search Demonstration

☐ Library Flyer  ☐ Other: ________________

2. What was the purpose of your online search:

☐ To aid in preparing a class assignment.

☐ To aid in an independent study class.

☐ To aid in the preparation of a term paper.

☐ To aid in the preparation of a thesis, specialist project, or dissertation.

☐ To aid in my teaching.

☐ To aid in a research project of PROFESSIONAL interest.

☐ To aid in an investigation of PERSONAL INTEREST only.

☐ Other: ________________

3. What were your reasons for using the online retrieval service? If more than one, mark "P" for Primary and "S" for Secondary.

☐ Saved Time  ☐ Needed comprehensive search  ☐ Needed most recent sources.

☐ Saved Effort  ☐ Other: ________________

4. What percent of the citations on the printout (bibliography) were useful to your search topic:

☐ 0%  ☐ 1-20%  ☐ 20-40%  ☐ 40-60%  ☐ 60-80%  ☐ 80-90%  ☐ 90-99%  ☐ 100%
5. In view of your reasons for using online retrieval (see Question 3), was it worth sifting through the citations to get to the useful references?

   □ Yes  □ No

   Comment:

6. Was the search worth its dollar cost?

   □ Yes  □ No

   If you answered NO, what cost would have been a reasonable charge? __________

7. How long did you wait for the librarian to do the search? __________

   Was it an acceptable length of time?

   □ Yes  □ No

   If you answered NO, what waiting period would be acceptable? __________

8. What was the waiting period for the citation printout (bibliography)? __________

   Was it an acceptable length of time?

   □ Yes  □ No  □ Not Applicable

   If you answered NO, what waiting period would be acceptable? __________

9. Comment on the availability of assistance:

   (a) Pre-search assistance (e.g. aid in formulating the search strategy and the use of the descriptors)

      □ Immediately Available  □ Some Delay  □ None  □ None Desired

   (b) Post-search assistance (e.g. interpretation of the printout, revised search if desired, location of books, magazines)

      □ Immediately Available  □ Some Delay  □ None  □ None Desired

10. How easy was it to find the books and magazines listed on your printout (bibliography) at the WMU libraries?

    □ Easy, no problems  □ Most were easily found  □ Many were not available

    □ Many were missing  □ Didn't Check  □ Other: __________

11. Have you used WMU interlibrary loan service?

    □ Yes  □ No

    If you answered "yes" to Question 11, go on to Question 12. If you answered "no" to Question 11 omit questions 12 and 13.

12. Did you order any items on your printout through interlibrary loan?

    □ Yes  □ No  □ Why not:

    If you answered "yes" indicate the number of items requested: __________

    How many of these did you receive within an acceptable length of time? __________

    Comment:

13. Did you ask for any items on your list to be purchased for WMU libraries?

    □ Yes  □ No

    If you answered "yes" indicate the number of items requested: __________

14. Would you be interested in being kept up to date on your topic by additional searches?

    □ Yes  □ No  □ Uncertain

15. Would you be willing to pay for the additional searches?

    □ Yes  □ No

16. Do you think the online search system (OARS) is a useful service?

    □ Yes  □ No  □ Why or why not?

17. Would you request other online searches?

    □ Yes  □ No  □ Why or why not?
We are attempting to discover the reasons for the non-use of a specialized reference service offered by the university libraries in the Educational Resources Center (ERC) and Waldo Library. Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Dormer at 383-1666.

NAME: (optional) ______________________ DATE: ______________

STATUS: (Please Check)

□ Faculty - Please indicate department: _____________________________

□ Student - Please indicate program: _____________________________

Check current program level:

□ Doctoral □ Specialist □ Masters □ Undergraduate

□ Other: __________________________________________

1. Have you ever used any of the campus libraries' catalogs, bibliographies, indexes, and other resources?

□ Yes □ No

2. Which library do you use most frequently?

□ Waldo Library □ Music Library □ Educational Resources Center

□ Business Library □ Physical Science Library □ Other: ________________

3. Have you heard of the online automated search system (CARS)?

□ Yes □ No

If you answered "yes" go to Question 4.

4. How did you first learn about this service?

□ Librarian □ Word-of-mouth □ Attended an online search demonstration

□ Library Exhibit □ Library Flyer □ Other: ____________________________

5. Please check all reasons why you have not used this service:

□ (A) Can find all the information I need without an online search.

□ (B) Find the documents I need for research on my own.

□ (C) Don't generally need books or printed materials for my work.

□ (D) Don't know what an online search is.

□ (E) Have not been shown clearly what an online search can do.

□ (F) Too expensive.

□ (G) Takes too long.

□ (H) Online services don't have anything useful to my field.

□ (I) Need the books/magazines themselves, not a list of titles.

□ (J) Other, please specify: ________________________________________

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APPENDIX D

The Cover Letters and Mailing Schedule
May 30, 1978

Dear University Community Member:

We need your help! We are attempting to determine user satisfaction with the University Libraries' automated retrieval service, QAES. The results of the study will be used to derive indicators for the future direction of the service. The study is also part of a Specialist degree requirement.

Since we wish the results of the study to be as accurate as possible, we cannot overemphasize the importance of receiving your completed questionnaire.

A NOTE ON CONFIDENTIALITY

A vital concern of the researcher is the importance of confidentiality in research. You will notice a code number on your questionnaire. This code number will be used only to facilitate a follow-up technique and to prevent you from receiving bothersome reminder letters. At no time will questionnaires be identified by respondent.

If you have any questions, please call Becki or Jan at 383-1666. We appreciate your time and cooperation and look forward to receiving your completed questionnaire prior to June 30, 1978.

Sincerely,

Jan Dommer
Specialist Student, Researcher

Erlinda Rolls
Librarian, Waldo Library

Becki Whitaker
Librarian, ERC
May 30, 1978

Dear University Community Member:

We need your help! We are attempting to discover the reasons for the nonuse of a specialized reference service offered by the Educational Resources Center and Waldo Library. The results of the study will be used to derive indicators for the future direction of the service. The study is also a part of a Specialist degree requirement.

Since we wish the results of the study to be as accurate as possible, we cannot overemphasize the importance of receiving your completed questionnaire.

A NOTE ON CONFIDENTIALITY

A vital concern of the researcher is the importance of confidentiality in research. You will notice a code number on your questionnaire. This code number will be used only to facilitate a follow-up technique and to prevent you from receiving bothersome reminder letters. At no time will questionnaires be identified by respondent.

If you have any questions, please call Becki or Jan at 383-1666. We appreciate your time and cooperation and look forward to receiving your completed questionnaire prior to June 30, 1978.

Sincerely,

Jan Dommer
Specialist Student, Researcher

Erlinda Rolls
Librarian, Waldo Library

Becki Whitaker
Librarian, ERC
Your response to our questionnaire makes our rowing a lot easier. (A summary of the results will be available at Waldo Library and the ERC for the Winter Term. Western Michigan University)

IF YOU HAVE NOT RETURNED THE QUESTIONNAIRE, PLEASE TAKE 15 MINUTES AND RETURN IT OR CALL FOR ANOTHER AT 383-1666.

Jan Dommer Becki Whitaker
Specialist Student, Researcher Librarian - ERC

First follow-up to mail questionnaire.

WE NEED YOUR HELP!

Enclosed is a copy of the questionnaire mailed to you prior to Memorial Day. A stamped envelope is again enclosed for your convenience.

WMU Libraries plan to use the information to draft indicators for the future direction of the online automated retrieval reference service.

PLEASE HELP US. We need another 200 responses to the questionnaires before any reliable conclusions can be drawn from the study.

You can save the researcher many hours, a $500 loss, and help us give better service by returning the questionnaire immediately.

Second follow-up to user questionnaire.
Schedule for Mail Questionnaires

First Mailing - May 26, Friday; questionnaire mailed to student and faculty users and to student nonusers.

Second Mailing - June 1, Thursday; blue reminder post card to student and faculty users and to student nonusers. First mailing to faculty nonusers. (Faculty non-user questionnaires were delayed by the late arrival of preaddressed mail labels.) Therefore, the faculty nonusers were sent a blue reminder post card at a later date, June 9, Friday.

Third Mailing - June 14, Wednesday; second questionnaire mailed to the nonrespondent users. With the lapse of thirteen days, the user response had dwindled from one to four questionnaires per day.
APPENDIX E

The Master Key and the Coded Data Chart
Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Dommer at 383-1666.

NAME: (Optional) __________________________ DATE: __________

STATUS: (Please check)
1  □ Faculty - Please indicate department: 2
2  □ Student - Please indicate program: 3
   Check current program level:
5  □ Doctoral 6  □ Specialist 7  □ Masters 8  □ Undergraduate
9  □ Other: _____________________________________________________

GENERAL TOPIC: 10  ________________________________________________________________
   NOTE: If you had searches done on more than one topic, please complete a questionnaire for each one.

LIBRARY DOING THE SEARCH: 11  □ Waldo Library 12  □ ERC

SEARCH COST: 13  □

SOURCE OF FUNDING: 14  □ Personal 15  □ University Department 16  □ Grant 17  □ Other
   If you checked more than one source, please explain:
   18
1. How did you first learn about this service?
19  □ Librarian 20  □ Word of Mouth
21  □ Library Exhibit 22  □ Attended an Online Search Demonstration
23  □ Library Flyer 24  □ Other: ___________________________________________________

2. What was the purpose of your online search:
25  □ To aid in preparing a class assignment.
26  □ To aid in an independent study class.
27  □ To aid in the preparation of a term paper.
28  □ To aid in the preparation of a thesis, specialist project, or dissertation.
29  □ To aid in my teaching.
30  □ To aid in a research project of PROFESSIONAL interest.
31  □ To aid in an investigation of PERSONAL INTEREST only.
32  □ Other: ___________________________________________________

3. What were your reasons for using the online retrieval service? If more than one, mark "P" for Primary and "S" for Secondary.
33  □ Saved Time 34  □ Needed comprehensive search 35  □ Needed most recent sources.
36  □ Saved Effort 37  □ Other: ___________________________________________________

4. What percent of the citations on the printout (bibliography) were useful to your search topic:
38  □ 0% 39  □ 1-20% 40  □ 20-40% 41  □ 40-60% 42  □ 60-80% 43  □ 80-90% 44  □ 100%
5. In view of your reasons for using online retrieval (see Question 3), was it worth sifting through the citations to get to the useful references?
   □ Yes  □ No
   Comment:

6. Was the search worth its dollar cost?
   □ Yes  □ No
   If you answered NO, what cost would have been a reasonable charge? __________

7. How long did you wait for the librarian to do the search? __________
   Was it an acceptable length of time?
   □ Yes  □ No
   If you answered NO, what waiting period would be acceptable? __________

8. What was the waiting period for the citation printout (bibliography)? __________
   Was it an acceptable length of time?
   □ Yes  □ No  □ Not Applicable
   If you answered NO, what waiting period would be acceptable? __________

9. Comment on the availability of assistance:
   (a) Pre-search assistance (e.g. aid in formulating the search strategy and the use of the descriptors)
   □ Immediately Available  □ Some Delay  □ None
   □ None Desired
   (b) Post-search assistance (e.g. interpretation of the printout, revised search if desired, location of books, magazines)
   □ Immediately Available  □ Some Delay  □ None
   □ None Desired

10. How easy was it to find the books and magazines listed on your printout (bibliography) at the WMU libraries?
    □ Easy, no problems  □ Most were easily found  □ Many were not available
    □ Many were missing  □ Didn't Check  □ Other: __________

11. Have you used WMU interlibrary loan service?
    □ Yes  □ No

   If you answered "yes" to Question 11, go on to Question 12. If you answered "no" to Question 11 omit questions 12 and 13.

12. Did you order any items on your printout through interlibrary loan?
    □ Yes  □ No  □ Why not:
    □ If you answered "yes" indicate the number of items requested: __________
    □ How many of these did you receive within an acceptable length of time? __________
    □ Comment:

13. Did you ask for any items on your list to be purchased for WMU libraries?
    □ Yes  □ No
    □ If you answered "yes" indicate the number of items requested: __________

14. Would you be interested in being kept up to date on your topic by additional searches?
    □ Yes  □ No  □ Uncertain

15. Would you be willing to pay for the additional searches?
    □ Yes  □ No

16. Do you think the online search system (OARS) is a useful service?
    □ Yes  □ No  □ Why or why not?

17. Would you request other online searches?
    □ Yes  □ No  □ Why or why not?
We are attempting to discover the reasons for the non-use of a specialized reference service offered by the university libraries in the Educational Resources Center (ERC) and Waldo Library. Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Doomer at 383-1666.

NAME: (optional) ______________________ DATE: ______________________

STATUS: (Please Check)
1 [ ] Faculty - Please indicate department: ______________________
3 [ ] Student - Please indicate program: ______________________

Check current program level:
5 [ ] Doctoral [ ] Specialist [ ] Masters [ ] Undergraduate
9 [ ] Other: ______________________

1. Have you ever used any of the campus libraries' catalogs, bibliographies, indexes, and other resources?
[ ] Yes [ ] No

2. Which library do you use most frequently?
[ ] Waldo Library [ ] Music Library [ ] Educational Resources Center [ ] Business Library [ ] Physical Science Library [ ] Other:

3. Have you heard of the online automated search system (OARS)?
[ ] Yes [ ] No

If you answered "yes" go to Question 4.

4. How did you first learn about this service?
[ ] Librarian [ ] Word-of-mouth [ ] Attended an online search demonstration [ ] Library Exhibit [ ] Library Flyer [ ] Other: ______________________

If you answered "no" to Question 3, don't write below this line. Please return the questionnaire.

5. Please check all reasons why you have not used this service:
[ ] (A) Can find all the information I need without an online search.
23 [ ] (B) Find the documents I need for research on my own.
26 [ ] (C) Don't generally need books or printed materials for my work.
27 [ ] (D) Don't know what an online search is.
28 [ ] (E) Have not been shown clearly what an online search can do.
29 [ ] (F) Too expensive.
30 [ ] (G) Takes too long.
31 [ ] (H) Online services don't have anything useful to my field.
32 [ ] (I) Need the books/magazines themselves, not a list of titles.
33 [ ] (J) Other, please specify: ______________________

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Nonusers - "Faculty"

<table>
<thead>
<tr>
<th>OBSV.</th>
<th>Variables</th>
<th>User Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Chart of Responses</td>
</tr>
<tr>
<td>1</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>26</td>
</tr>
<tr>
<td>7</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>27</td>
</tr>
<tr>
<td>9</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>28</td>
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<td>1 1 1 0 0 0 0 0 0 0</td>
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<tr>
<td>12</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>35</td>
</tr>
<tr>
<td>13</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>41</td>
</tr>
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<td>14</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>46</td>
</tr>
<tr>
<td>15</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>14</td>
</tr>
<tr>
<td>16</td>
<td>1 1 1 0 0 0 0 0 0 0</td>
<td>20</td>
</tr>
</tbody>
</table>
APPENDIX F

List of Random Numbers
CONNECTED TO LINE BL751(1) LINE # 64
PLEASE LOGIN OR ATTACH

*TY RAN2
?LOGIN PLEASE

*LOGIN 4240-4243
JOB 17 V:H:U. KL103 603A5 TTY54

PASSWORD:

QUOTA = $ 200.00  APPROX. BAL. = $ 112.01
(LAUNadera OTHER JOBS SAME PPI: 21)
1135  19-JUN-78    XON
AS OF JUNE 13, ALL USERS FILES NOT ACCESSED SINCE APRIL 13 WERE
TRANSFERED TO MAGNETIC TAPE AND DELETED FROM THE DISK SYSTEM.

ON JAN 24 A NEW SCS TEXT EDITOR WAS INSTALLED ON THE SYSTEM.
PLEASE MATCH MESSAGE OF DAY FOR FURTHER INFORMATION.

FOR A LISTING OF THE COMPUTER CENTER HOURS TYPE:
*TYPE SYS:HOURS OR CALL 333-4006

The random numbers which were used and put in numerical order.

*TY RAN2

4.000000
5.000000
6.000000
7.000000
9.000000
14.000000
16.000000
17.000000
20.000000
24.000000
26.000000
27.000000
29.000000
32.000000
33.000000
35.000000
37.000000
38.000000
39.000000
41.000000
42.000000
43.000000
44.000000
47.000000
49.000000
50.000000
51.000000
52.000000
54.000000
55.000000
56.000000
58.000000
59.000000
62.000000
64.000000
68.000000
73.000000
74.000000
77.000000
90.000000
91.000000
92.000000
93.000000
97.000000
89.000000
82.000000

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APPENDIX G

The Budget
## Budget: User and Nonuser Survey

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing (questionnaires, cover letters, and post cards)</td>
<td>$50.05</td>
</tr>
<tr>
<td>Envelopes, stationery, rubber stamp</td>
<td>32.44</td>
</tr>
<tr>
<td>Typing services</td>
<td>52.40</td>
</tr>
<tr>
<td>Postage</td>
<td>242.60</td>
</tr>
<tr>
<td>Preaddressed labels</td>
<td>6.00</td>
</tr>
<tr>
<td>Half-hour consultation fee</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$397.49</strong></td>
</tr>
</tbody>
</table>

- **Graduate Student**: $-75.00
- **Research Grant**: $322.49

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APPENDIX H

Numerical Summary to the
"User Satisfaction Survey"
Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Dommer at 383-1666.

NAME: (Optional) N=172 DATE: _____________

STATUS: (Please check) Five persons did not indicate status.
- Faculty - Please indicate department: ____________________________
- Student - Please indicate program: ____________________________

Check current program level:
- Doctoral
- Specialist
- Masters
- Undergraduate
- Other: ___________________________________________________

GENERAL TOPIC: ____________________________

NOTE: If you had searches done on more than one topic, please complete a questionnaire for each one.

LIBRARY DOING THE SEARCH: ____________________________

SEARCH COST: ____________________________

SOURCE OF FUNDING: Personal
- University Department
- Grant
- Other

1. How did you first learn about this service?
- Librarian
- Word of Mouth
- Library Exhibit
- Attended an Online Search Demonstration
- Library Flyer
- Other: ____________________________

2. What was the purpose of your online search?
- To aid in preparing a class assignment.
- To aid in an independent study class.
- To aid in the preparation of a term paper.
- To aid in the preparation of a thesis, specialist project, or dissertation.
- To aid in my teaching.
- To aid in a research project of PROFESSIONAL interest.
- To aid in an investigation of PERSONAL INTEREST only.
- Other: ____________________________

3. What were your reasons for using the online retrieval service? If more than one, mark "P" for Primary and "S" for Secondary.
- Saved Time
- Needed comprehensive search
- Needed most recent sources.
- Saved Effort
- Other: ____________________________

4. What percent of the citations on the printout (bibliography) were useful to your search topic?
- 0%
- 10-20%
- 20-40%
- 40-60%
- 60-80%
- 80-100%
5. In view of your reasons for using online retrieval (see Question 3), was it worth sifting through the citations to get to the useful references?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>139</td>
<td>26</td>
<td>24</td>
</tr>
</tbody>
</table>

6. Was the search worth its dollar cost?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>10</td>
</tr>
</tbody>
</table>

If you answered NO, what cost would have been a reasonable charge? 23

7. How long did you wait for the librarian to do the search? Was it an acceptable length of time?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>17</td>
<td>15</td>
</tr>
</tbody>
</table>

If you answered NO, what waiting period would be acceptable? 7

8. What was the waiting period for the citation printout (bibliography)? Was it an acceptable length of time?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>15</td>
<td>17</td>
</tr>
</tbody>
</table>

If you answered NO, what waiting period would be acceptable? 107

9. Comment on the availability of assistance:
   (a) Pre-search assistance (e.g. aid in formulating the search strategy and the use of the descriptors)

<table>
<thead>
<tr>
<th>Immediately Available</th>
<th>Some Delay</th>
<th>None</th>
<th>None Desired</th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td>22</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

(b) Post-search assistance (e.g. interpretation of the printout, revised search if desired, location of books, magazines)

<table>
<thead>
<tr>
<th>Immediately Available</th>
<th>Some Delay</th>
<th>None</th>
<th>None Desired</th>
</tr>
</thead>
<tbody>
<tr>
<td>89</td>
<td>22</td>
<td>7</td>
<td>18</td>
</tr>
</tbody>
</table>

10. How easy was it to find the books and magazines listed on your printout (bibliography) at the WMU libraries?

<table>
<thead>
<tr>
<th>Easy, no problems</th>
<th>Most were easily found</th>
<th>Many were not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>65</td>
<td>48</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Many were missing</th>
<th>Didn't Check</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>8</td>
<td>20</td>
</tr>
</tbody>
</table>

11. Have you used WMU interlibrary loan service?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>10</td>
</tr>
</tbody>
</table>

If you answered “yes” to Question 11, go on to Question 12. If you answered “no” to Question 11, omit questions 12 and 13. No=62

12. Did you order any items on your printout through interlibrary loan?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Why not:</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>33</td>
<td>18</td>
<td>See Table XVI</td>
</tr>
</tbody>
</table>

If you answered “yes” indicate the number of items requested: 18

How many of these did you receive within an acceptable length of time? See Table XVI

Comment:

13. Did you ask for any items on your list to be purchased for WMU libraries?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>51</td>
</tr>
</tbody>
</table>

If you answered “yes” indicate the number of items requested: 10 items were requested

14. Would you be interested in being kept up to date on your topic by additional searches?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>65</td>
<td>36</td>
</tr>
</tbody>
</table>

15. Would you be willing to pay for the additional searches?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>62</td>
</tr>
</tbody>
</table>

16. Do you think the online search system (OARS) is a useful service?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Why or why not:</th>
</tr>
</thead>
<tbody>
<tr>
<td>158</td>
<td>4</td>
<td>See Table XVII</td>
</tr>
</tbody>
</table>

17. Would you request other online searches?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Why or why not:</th>
</tr>
</thead>
<tbody>
<tr>
<td>116</td>
<td>9</td>
<td>See Table XVII</td>
</tr>
</tbody>
</table>

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APPENDIX I

Numerical Summary to the nonuser "Retrieval Survey"
We are attempting to discover the reasons for the non-use of a specialized reference service offered by the university libraries in the Educational Resources Center (ERC) and Waldo Library. Please check the items on this questionnaire and supply the appropriate information. Remember, if you have any questions, call Becki Whitaker or Jan Dommer at 383-1666.

NAME: (optional) N=110

DATE: _____________________

STATUS: (Please Check)

18 Faculty - Please indicate department: __

72 Student - Please indicate program: __

Check current program level:

0 Doctoral 0 Specialist 22 Masters 59 Undergraduate

Other: ____________

1. Have you ever used any of the campus libraries' catalogs, bibliographies, indexes, and other resources?

100 Yes 10 No

2. Which library do you use most frequently?

27 Waldo Library 2 Music Library 28 Educational Resources Center

22 Business Library 3 Physical Science Library 5 Other:

3. Have you heard of the online automated search system (OARS)?

21 Yes 89 No

If you answered "yes" go to Question 4.

If you answered "no" to Question 3, don't write below this line. Please return the questionnaire.

4. How did you first learn about this service? (n=21)

4 Librarian 9 Word-of-mouth 1 Attended an online search demonstration

3 Library Exhibit 3 Library Flyer 3 Other: ________________________

5. Please check all reasons why you have not used this service:

10 (A) Can find all the information I need without an online search.

8 (B) Find the documents I need for research on my own.

0 (C) Don't generally need books or printed materials for my work.

3 (D) Don't know what an online search is.

8 (E) Have not been shown clearly what an online search can do.

6 (F) Too expensive.

3 (G) Takes too long.

0 (H) Online services don't have anything useful to my field.

2 (I) Need the books/magazines themselves, not a list of titles.

1 (J) Other, please specify: ____________________________

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BIBLIOGRAPHY


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