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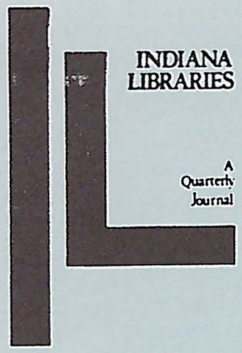

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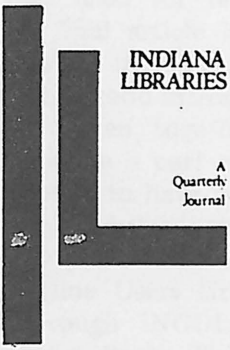

Indiana Libraries
1985
Volume 5
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Online Searching

When this issue comes off the presses I will have been gone from the Hoosier State for almost two years. Working on this issue has been pleasurable for me because it has reminded me of the many things that I learned while I was a librarian in Indiana. I knew about online searching before I came to Indiana in 1978, but it was not something that I ever thought that I would do. It was just an innovation that I read about in *Library Journal* or *American Libraries*, something that was being done in a few specialized libraries in California or on the East Coast. In 1979 some patrons at my library (Wabash College) asked for online searches and we began to offer that service. The demand for the service grew steadily and online searching became a major part of my professional responsibilities. I learned about vendors, equipment, file organization, commands, and many other things. The most important thing that I learned was that new technologies and new services that we read about are not just "out there." New technologies and new developments that are taking place elsewhere may provide us with better ways to serve our patrons. Integrating new technologies and new services into our libraries is a challenge that we can meet, and every new development can be an opportunity which allows us to give our patrons better service.

Three of the articles in this issue show how Indiana libraries responded to the challenge and the opportunities of online searching. The article by Carol Sue Chapman and Harriet Cohen tells how Indianapolis-Marion County Public Library established online searching at its Central Library. Training and administration are discussed, along with the place of online searching in reference services. Susan Thompson and Pat Ensor report on online searching at Indiana State University. Their paper is especially valuable for the infor-

mation that it gives on funding this expensive service. Ann Bristow Beltran's article takes a broad view of online services, showing us the wide range of online resources that are available and how they are used for reference work at Indiana University-Bloomington. A final article by Pat Ensor steps back from the local scene to survey the newest developments in software for online searching: it is a good introduction to the next innovation in online services.

Taken together these articles show how online searching has become a part of reference service in Indiana libraries. We are fortunate to have two statewide organizations supporting online searching, and this is an appropriate place to mention the roles that Indiana Cooperative Library Services Authority (INCOLSA) and the Indiana Online Users Group (IOLUG) play in promoting online searching. Through INCOLSA and its dedicated Information Retrieval Specialist Becki Whitaker, librarians become searchers, and at IOLUG meetings searchers come together to discuss both philosophical and practical questions. Both organizations have my thanks. I'd also like to thank Mary Beth Minick of Indiana University-Purdue University at Indianapolis and Rebecca Shipley of Ball Corporation who worked with me in selecting and editing these articles. Working with them reminded me of the professionalism and spirit of cooperation that I found within the Indiana online community.

Eileen McGrath, Guest Editor

University of North Carolina
at Chapel Hill

The Indianapolis Experience

Carol Sue Chapman
and
Harriet Cohen
Indianapolis-Marion County Public Library

Online reference service in public libraries has shown significant growth in the 1980's. As recently as 1979, Kusack reported that "while online reference services have been available for more than ten years in special libraries and larger academic libraries . . . the movement toward online services appears to have been less than a headlong rush in public libraries."[1] Only 42 percent of the largest U.S. public libraries in his 1978 survey were offering online information services.[2] In a 1981 American Library Association (A.L.A.) survey of publicly-supported libraries known to offer online services, only 53 public libraries responded as compared to 610 academic libraries.[3] But a 1981 survey of 11 of the *largest* public libraries by the Free Library of Philadelphia found all but two offering online searching, with the remaining two planning to do so in 1982.[4] By 1983, a survey of central public libraries located in 25 U.S. cities with populations of 300,000 to 500,000 found 70 percent of those libraries offering online information services.[5]

Online searching in Indiana libraries has also grown in the 1980's. By September, 1984, there were 131 libraries in the state offering online services, compared with fewer than 30 four years earlier.[6] Of these 131 libraries, 18 are public libraries.[7]

While public libraries have been slower to adopt online services, many that have gone online have used database searching to assist with traditional reference service, rather than considering it just a literature search service. Of the 17 public libraries offering online services in the 1983 survey, 47 percent said searches were normally free,[8] an indication that such searching is considered part of regular reference service. In the 1981 A.L.A. study, 58 percent of the public libraries included a free period of online time as opposed to 44 percent of college libraries and 30 percent of the university libraries.[9]

The surveys do not distinguish between reference use of databases and literature searches, but a sampling of recent descriptive reports indicates that public libraries with a strong commitment to reference service are using databases for both ready-reference and in-depth reference. Houston Public Library, which began online searching in 1975, reports that "the majority of searches are performed free of charge to the patron in the course of answering difficult reference questions,"[10] adding that "the library has historically had very little demand for exhaustive literature searches."[11] A 1983 report on free online searching in the Westchester (N.Y.) Library System indicated that "approximately 20% of the searches were done to answer reference-type questions that could not be answered through traditional reference sources or because of material constraints . . . ."[12] Westport (Conn.) Public Library, which also offers free online searching, found that "98 percent of all DIALOG searches were completed within the 15 minute free allocation of online time."[13] Furthermore, 81 percent of the searches were of the ready-reference variety, being conducted in three databases (Dun's Market Identifiers, National Newspaper Index, and Newsearch) and requiring an average of 3.19 minutes per search.[14]

The development of online searching at Indianapolis-Marion County Public Library (I-MCPL) is similar to the development at other large public libraries. Currently at Central Library 90 percent of the online searches are done to answer reference questions. In 1983 an average of 30 searches, of which only two were paid searches, were done per month. The concept of providing database searching to supplement traditional reference service was incorporated into the first staff guidelines written in late 1980. The guidelines distinguished between free searches (to answer reference questions) and paid searches (to survey the literature). The guidelines specified that patrons would not be charged when databases were used at the discretion of the librarian to answer a reference question.

By the end of 1980, I-MCPL had signed contracts with three of the four major vendors (DIALOG, New York Times, and SDC) and

had access to INDIRS (Indiana Information Retrieval System based at the School of Business, Indiana University). An initial set of guidelines and forms were devised and a 1200 baud *General Electric* terminal was purchased. The budget established for 1980 and 1981 was $5,000 per year. This amount included training costs, supplies, and repairs for the terminal. From 1982 to 1984, $10,000 was budgeted for database services. The major part of each year's budget went to pay the database vendors. During 1980 and 1981 coordination of database services was the responsibility of the Administrative Assistant, Central Services Department. In 1982 a Newspaper and Periodical Division was formed. The administrator of this new division was also assigned overall coordination of online searching, resulting in greater attention being given to the management of database services.

Central Library of the I-MCPL system contains three separate adult subject divisions. The Arts Division, the Business, Science and Technology Division, and the Social Science Division are all in separate sections of an enlarged and remodeled 1917 building. Database searching was the first attempt at Central Library to provide a reference service which cut across all division boundaries. The physical and psychological barriers created when librarians were located in different areas of the building, while there was only one centrally-located terminal, at times seemed insurmountable. The easiest course to have taken in 1980 would have been to assign database searching to one subject division and to train only those librarians to handle the task. Because of the initial commitment to provide searching in all the divisions, librarians from all subject divisions needed to be trained. Therefore, all librarians were exposed to the principles of searching and were allowed to advance their skills.

From early 1982 until the present day, the first priority of the coordinator of online searching has been to see that staff were trained and given the opportunity to gain experience searching. In 1980 most of the librarians in the Central Library had no experience with database searching. The initial plan for training was for at least one librarian from each division to be trained on DIALOG, The New York Times Information Bank, and SDC. Successful training programs were never developed for SDC and the Information Bank. Librarians found that SDC contained few databases useful to a public library. New York Times training presented a unique set of problems. I-MCPL wanted the Information Bank; the abstracts of the *New York Times* and other popular periodicals were not available on either DIALOG or SDC. The first problem with using the New York Times Information Bank was that the

system kept changing. Infobank I, Infobank II (with BRS protocols), NTYIS, and finally NEXIS training were all scheduled for Central librarians between 1980 and 1984. That was approximately one new system to learn each year. The second problem was that every time a new system came along a new contract was signed, a new password was assigned, and, in the case of NEXIS, a new terminal and telephone were installed. These changes kept the staff constantly confused.

DIALOG training was more successful. From 1980 until the end of 1983, 20 librarians were given introductory DIALOG training. The training was possible because in 1980 Becki Whitaker, the Information Retrieval Specialist for the Indiana Cooperative Library Services Authority (INCOLSA), developed an introductory DIALOG workshop. This one-day workshop introduced librarians to Boolean logic, to the DIALOG system and its commands, and to the development of search strategies. A one-day seminar was not enough training for a librarian to become a skilled searcher, so follow-up meetings with newly trained staff were held. At these meetings the coordinator for online searching went through the policies and procedures for searching at I-MCPL and then reinforced the information learned at the INCOLSA seminar by use of a checklist. The checklist reviewed the DIALOG commands and also reminded librarians of the features that would aid them in their practice sessions. (See Appendix for a copy of this checklist.)

Because of the relative ease of providing initial DIALOG training, all adult librarians were scheduled to attend. The less enthusiastic staff were sent to be trained along with the more enthusiastic ones. Some librarians were trained and then did little or no searching. Others took an interest in searching, worked on their own, and became efficient and effective searchers. Subject division heads encouraged their staff to become proficient searchers. One administrator insisted that each librarian practice 15 minutes per month for one year, another divided the librarians into teams and had each team work on a search project together. INCOLSA also sponsored advanced training sessions. Over the last four years, I-MCPL librarians have attended sessions on Magazine Index, National Newspaper Index, Compendex, ERIC, Management Contents, the Predicasts databases, and PsycInfo. The availability of beginning and advanced training, a commitment of funds to support this new service, and the willingness of division administrators to support this effort all encouraged Central librarians to develop their searching skills.

During the same period in which I-MCPL staff were being trained and encouraged to do online searching, more databases with high reference value became available. Numeric databases, such as Disclosure II and Disclosure/Spectrum Ownership, offer answers to ref-

erence questions without referral to other documents; directory databases such as Dun's Market Identifiers, the Electronic Yellow Pages, Trademarkscan, the Encyclopedia of Associations, Ulrich's International Periodical Directory, and Marquis Who's Who offer immediate and current answers to other reference questions. In Indiana, INDIRS provides statistical information about the state in tabular form tailored to meet the user's specific requirements. The content and design of certain bibliographic databases have also made them reference databases. The abstracts on the New York Times Information Bank and the full-text capability of NEXIS and UPI News and ASAP on DIALOG often eliminate the need to refer to hard copy of the sources cited. Other databases, such as Magazine Index, National Newspaper Index, Newsearch and the new Wilsonline databases, index such readily available sources that they too can be used for quick reference in a public library setting.

A survey of online searching at I-MCPL between July 1, 1984 and October 15, 1984 showed overwhelming emphasis on reference use of databases. During that period there were only four paid literature searches, while 86 reference questions were answered through online searching. Seventy-five of the reference searches were conducted on DIALOG by 13 searchers in three subject divisions. Eleven searches were done on NEXIS by four searchers in the three divisions.

A breakdown of reference questions searched on DIALOG revealed the heaviest use of online searching by the Business, Science and Technology Division. This division had 34 questions dealing with companies, products or trademarks, eight other types of business-related questions, and four medical or scientific questions. The Social Sciences Division answered 13 questions, including five on education, two of a biographical nature, and the rest on a variety of topics such as religion, grants, and associations. The Arts Division used DIALOG to answer five arts or literature questions and four sports questions. There were also seven bibliographic verification questions coming from the three divisions.

DIALOG searches were conducted in 39 different files; but of these, eight files predominated. Six of these files could be categorized as either directory or reference databases. Dun's Market Identifiers (20 searches), Trademarkscan, (8) and the Electronic Yellow Pages (6) were the most heavily used business files. National Newspaper Index and Magazine Index each were used for ten searches, while DIALINDEX was used nine times for preliminary searching.

Reference questions answered through DIALOG searches include the following:

> How companies have celebrated their fiftieth anniversaries.
> A list of public school districts with Montessori programs.
> The history of the shopping cart.
> A list of the ten states with the highest elementary school test scores.
> Information on Pollen's syndrome.
> Changes in IRA rules.
> An association for persons involved in color analysis.

NEXIS was used alomost entirely by the Arts and Social Sciences Divisions. Both divisions did five searches on NEXIS, while the Business, Science and Technology Division did only one. This is to be expected since many of the nonbibliographic databases on DIALOG are geared to business questions, while the full-text capability of searching newspapers, magazines, and wire services on NEXIS is better suited to the kinds of questions asked of the Arts and Social Sciences Divisions. The following is a sampling of some of those questions:

> Information on an upcoming exhibition of English furniture in Washington, D.C.
> A revised schedule of the Jackson Victory Tour.
> The percentage of President Reagan's income donated to charity.
> Information on a cribbage contest organized by a Nebraska man.
> The date of the International Year of Youth.
> Information on the psychological term "airtight compartment.[11]

In most cases, the decision to search online was determined by the currency of the question, the inadequacy of traditional indexing, or the ability of the database to provide immediately the discrete information required. Although the number of reference questions answered through online searching is still a small percentage of the total number of reference questions answered, our survey showed that at I-MCPL online searching is an accepted part of regular reference work, to be used when it is the most appropriate tool.

So far I-MCPL has done a modest amount to publicize database searching. A pamphlet entitled "Computerized Reference Service" was printed in 1984 and distributed to all branches of I-MCPL. To acquaint branch administrators with this new service, an adult services workshop was held in October 1982. Since that time other branch librarians have attended the "Introduction to Online Search-

ing Workshop" at INCOLSA. A variety of activities have been planned to publicize database searching: press releases to the media, posters for branches, radio spots, and demonstrations are all being considered.

Online searching has proved to be an important reference tool in the public library. I-MCPL has demonstrated its commitment to this new service by allocating budget money and staff time to it. We are confident that our publicity campaign will bring the news of this valuable service to more potential users.

FOOTNOTES

1. James M. Kusack, "Online Reference Service in Public Libraries," RQ 18 (Summer 1979): 331.

2. Ibid.

3. Mary Jo Lynch, *Financing Online Search Services in Publicly Supported Libraries* (Chicago: American Library Association, 1981), p. 20.

4. James B. Woy, "Surveys of Online Information Service in Large Public Libraries," *Drexel Library Quarterly* 19 (Fall 1983): 85.

5. Ibid., p. 80.

6. Indiana Cooperative Library Services Authority Information Retrieval Program, *Indiana Online: A Directory of Online Search Services in Indiana* (Indianapolis: Indiana Cooperative Library Services Authority, 1984), Preface.

7. Ibid., pp. 24-26.

8. Woy, p. 81.

9. Lynch, p. 26.

10. Gene Rollins, "Some Economics of Online Searching: Experience at Houston Public Library," *Public Library Quarterly* 4 (Summer 1983): 14.

11. Ibid., p. 15.

12. George Fox Donati and Martha Moss Kriesel, "Free Online Searching in a Public Library System: An Unscientific Study," *Online* 7 (March 1983): 15.

13. Katherine A. Golomb and Sydelle S. Reisman, "Using DIALOG for Ready Reference," *Library Journal* 109 (April 15, 1984): 786.

14. Ibid., p. 787.

APPENDIX

Checklist for Beginning Database Searcher

DIALOG used for all examples:

Do you know how to:

1) How to set up equipment (1200 Baud Terminal):

   a) How to turn it on.
   b) What is correct speed and half/full duplex.
   c) How to set modem to dial telephone numbers.

2) Mechanics of Terminal:

   a) Carriage return at end of line.
   b) How to correct misspellings.
   c) How to erase a line before hitting a carriage return.
   d) How to get out of search after it starts to print abstracts.

3) How to logon using *Telenet* and *Tymnet*. Where are code sheets?

4) How to get from one database file to another (on DIALOG)?

5) How does time and cost show up on *DIALOG*?

6) How to *Logoff*?

7) What is *Logoff hold*? How is it different from *Logoff*?

8) Do you know how to fill out the log sheets?

9) On *DIALOG*, different symbols, terms have meaning.

a) What is the difference between *S* and *SS*?
b) What does *C* mean?
c) What does *E* mean?
d) How to truncate.
e) What format do you use to print online?
f) What format do you use to print offline?

10) Do you know that *DIALOG*

a) Has one page summary for each database (blue pages).
b) Has Pocket Search Guide.
c) Has chapters which describe in detail the structure of each database.
d) Has 800 telephone numbers to call if you are having problems.
e) Has free ½ hour of time every month on different databases.
f) Has monthly newsletter called *Chronolog*.
g) Has Dialindex (File 411). Can be used to see how often a specific word has appeared in individual databases.
h) DIALOG (Ontap files). Can practice searches for $15 an hour online time.

11) Please check before going online:

a) Blue pages (*DIALOG*)
b) Chapters (*DIALOG*)
c) Any database manuals or thesauri
d) How much does the database cost per hour? Does it have online print charges?

12) Other Hints:

a) Expand company and personal names.
b) Use 800 telephone numbers to call database producer or vendor.
c) Talk your problem over with co-workers.
d) Don't forget printed sources. They can help you understand how database is put together.
e) Use *Dialindex* (411) to focus on appropriate databases.

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Database searching began at Indiana State University in October 1980. Free searches and demonstrations were initially offered using money provided by the Dean of Library Services, Ronald G. Leach. These exercises allowed the Coordinator of Database Searching and the Head of the Science Library to practice searching techniques and to familiarize themselves with various databases. (Both searchers had been trained at INCOLSA and one had just completed a course in database searching in the Department of Library Science at the university.) These searches also proved to be an effective way to discover patron interests and potential demand for the service.

In January 1981, charging for searches began. The program was advertised, primarily to doctoral students and faculty. Government subsidized databases (MEDLINE, NTIS, ERIC, etc.) could be searched for eight dollars apiece; up to 25 citations would be provided. The commercial databases could be similarly searched for eighteen dollars. In either case, if additional citations were requested,

there was a charge of ten cents for simple bibliographic formats and fifteen cents for bibliographic formats which included abstracts. This fee structure applied only to members of the university community; patrons not affiliated with the university were charged the full cost of the search plus a 50 percent surcharge. By June 30, searches had been done for seventeen faculty, fifteen graduate students, eight undergraduates and two nonaffiliated patrons.

In 1981/82, a 300 percent increase in demand for searches required the training of two more reference librarians. The following year the demand for searches continued to increase and three more reference librarians were added to the searching team. In 1983/84, demand continued to rise. A primary reason for the increasing demand for searching was a program of subsidized searching for faculty. This program began in May 1981. The program provided faculty members with a $36 credit toward searching and printing charges on a first-come, first-served basis until the initial $2,500 was spent. This credit allowed a search of up to two commercial databases and the only charge would be for printing. The first 25 citations were not included for free under this program; however, academic departments would pay for reasonable expenses over $36 so there was usually no cost to the faculty member. Those searching the cheaper government databases had even more flexibility.

The money for the subsidy was originally provided by the University Research Committee which provides "seed" money to selected faculty for research projects. Dean Leach sent a proposal to the committee, and subsequently spoke with the committee, addressing the needs of the faculty which databases searching could meet: information for research activities, preliminary information for grant applications, and information to allow individuals to keep current in their fields. At the end of each year Dean Leach submitted a request for renewal of the grant based upon a summary report of the numbers of persons and departments using the previous year's money. (See Figure 1.) The second year $3,000 was granted and the third year this was increased to $4,300. After three years it was decided that the program had proven itself and was no longer experimental in nature, so the funding source was moved to the Office of the Vice President for Academic Affairs.

When the grant was first made available, it was announced in the faculty newsletter and promoted through personal contact with the faculty in new faculty orientations, searching demonstrations for faculty, and referrals during reference work. The grant is now announced each year in the faculty newsletter and in the special "Fall Greetings" publication for faculty. After several years, of course, word-of-mouth brings in many faculty members too.

In addition, new faculty receive a welcoming letter and a packet of materials outlining all library services including database searching. They also receive a follow-up phone call from an appropriate subject specialist who offers them a guided tour of the library during which database searching is again explained.

Figure 1. Numbers of users and departments reached with faculty grants

	1981/82	1982/83	1983/84
Users (out of 650 faculty)	100	109	148
Departments which had at least one faculty member use the grant (out of 50)	29	35	37
Repeat Users	-	34	72
New Users	100	75	76

When the present Coordinator for Database Searching arrived in January 1984, she began a special promotion for the spring semester. The grant was again announced in the faculty newsletter. The coordinator, in an effort to "market" the grant most effectively, analyzed the information available on users of the grant from the year before. She drew up a list of faculty members who had used the grant in the current year but had not used up their $36 allotment, and those who were in departments that covered subjects that were suitable for database searching but that had made very little use of the grant. This last category included faculty in the departments of Accounting, Communications, Communication Disorders, Economics, Educational Foundations and Media Technology, Elementary Education, Health and Safety, Home Economics, Management/Finance, Manufacturing and Construction Technology, Physical Education, Political Science, Psychology, Sociology and Social Work, and Special Education. Letters of reminder about the grant went to each of these faculty members and copies also were sent to all department chairpersons. The original $3,500 was spent by May 14. Dean Leach obtained the first $500, then $300 more for faculty searching that year.

At the end of 1983/84, the Coordinator analyzed the year's information on grant users in preparation for promotion in 1984/85. The resulting list of low-use departments was used in early 1985,

because the faculty grant again was not highly used in the fall of 1984. ($1287.37 was spent.) The list includes Business and Distributive Office Administration, Communication Disorders, Economics, Electronics and Computer Technology, Elementary Education, Health and Safety, Home Economics, Industrial Technology Education, Management/Finance, Mathematics and Computer Science, Physical Education, Political Science, the Science Teaching Center, and the Social Science Education Center. Faculty members seem more inclined to use the service in the spring. They may be busier in the fall semester; they may also, quite logically, wait to have a search until nearer a time when they can make use of the information obtained, that is, until it is closer to summer.

SOME COMMENTS

Faculty comments on the free database search service have been uniformly favorable. Some sample comments include:

"Excellent service, and deeply appreciated."
[Search] "saved time and effort."
"A great service - I'm very thankful it's available."
"This output saved hundreds of man hours."
"I appreciate the service and the funding."
"It . . . improve(s) research and teaching."
"I really appreciate this service. I hope financial support can be increased."
"This is a very useful service and has aided my research immeasurably."
"I appreciate the tremendous amount (of) help the search provided. It is a *real asset to ISU.*"
"Now that I have used it, I would certainly pay to continue using it."

(For additional information on use of the faculty grant see Figures 2 and 3.)

Figure 2. Departments which made the most use of the faculty grant

1981/82		1982/83		1983/84	
Departments	Uses	Departments	Uses	Departments	Uses
Geog/Geology	11	Life Sciences	9	Library	14
Nursing	9	Geog/Geology	8	Nursing	14
Library	8	Counseling	6	Communications	9
Sociology/ Social Work	7	English	6	Life Sciences	9
Life Sciences	6	Library	6	Geog/Geology	7
		Nursing	6	Psychology	7
				Sociology/ Social Work	7

(Library searches were those done by individual librarians for research purposes.)

Figure 3. Purposes for using the faculty grant (Since users could check more than one purpose, these will add up to more than the total number of users.)

	1981/82	1982/83	1983/84
1) Making a decision to apply for a grant	24	19	31
2) Writing an article or book	51	55	73
3) Providing an update in my field	41	39	55
4) Other	25	34	52

The need to involve more graduate students was recognized from the beginning and the success of the faculty program encouraged Dean Leach to set aside money for a trial program of subsidized searches for graduate students. The Dean secured $3,500 from the ISU Foundation to begin a program of subsidized searches in August 1984.

The grant for graduate student searches was advertised in several ways. The grant was announced in library instruction classes, which brought in some patrons, and was the subject of articles in the

School of Graduate Studies newsletters and in the student newspaper. The Head of the Science Library wrote each graduate science student explaining the program. Since graduate students had been major attendees at earlier database searching demonstrations, no additional explanatory materials were distributed. The grant was announced in the university newsletter, and the School of Graduate Studies spread the word to its faculty members. The faculty members in turn told their graduate students. This word-of-mouth promotion was the most effective method of spreading the news of the free searches. Free searches for graduate students were very popular; so much so that most of the $3,500 grant was used during the first two months of the program. In all, 135 graduate students, from 24 departments requested searches. (See Figure 4 for additional information on the graduate student grant.)

Figure 4. The graduate student grant, 1984/85

Departments which made use of the graduate grant.

Department	Number of searches
Physical Education	24
Business	14
Geography/Geology	14
Psychology	12
Life Sciences	10

Purposes for using the graduate grant. (Since users could check more than one purpose these will add up to more than the total number of users.)

Thesis research	23
Dissertation research	25
Class research, paper or project	86
Other	6

The procedures for the use of both grants are roughly the same. The patron makes an interview appointment with a searcher. In addition to our usual request form, the patron fills out a second form stating his or her name, department or major, and purpose of the search. This form is used to keep track of how much of their $36 users have spent. A log is also kept with the amount of the grant which has been spent recorded in the last column.

The faculty grant seems very likely to continue, if not in its current form, then as an addition to the library's budget. The faculty have found it so useful that they would not easily let it go. The amount will probably not increase greatly, but the current amount seems adequate for the size of the faculty.

The graduate grant is less certain since it is a very new program. The first grant has been phenomenally successful and there is no doubt that graduate students will make use of the grant if it is renewed for 1985/86. If there is a grant next year, it will be announced more systematically so that students in some departments where the word did not spread fast enough in 1984 will have a chance. More money is needed for this grant since a simple renewal would provide enough funds for just one semester.

Eventually, funding for undergraduate searching may be sought, but the research done by undergraduates at Indiana State University usually can be done through printed indexes, and faculty who teach undergraduates often want their students to do the research themselves as a learning experience. In addition, the library has recently acquired SEARCH HELPER which allows low-cost, easy access to a general periodical article database that undergraduates are most likely to use. This may meet the needs of most undergraduates.

These grants have been very popular, so popular in fact, that they pay for the majority of the searches done at Indiana State Unversity Library. The grants have enabled the library to offer some "free" searches without leaving the library to open to ever-mounting costs that occur if all searching is provided free. Common sense indicates that many of the grant users might never have had computer searches done if they had had to pay for them. One might say that there is something wrong if they don't want searches enough to pay for them. We consider, however, that we are fortunate in being able to offer the service for free, to some extent, since our ideal is free service. Limited grants to support searching, or some other limited funding mechanism, ensure that some free searching can be offered, but the problems of totally free searching — endlessly mounting costs, "frivolous" searches, growing demand for searches — can be avoided.

Online Reference Tools in Research Libraries

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Online bibliographic databases have been used in large academic libraries for well over a decade now and closer to two decades in a few, privileged locations. For the better part of that time, however, online searching was treated as a separate, specialized activity. Bibliographic utilities were searched in technical services areas; public services staff were offered access at scheduled times, a few days a week. The searching of commercial, vendor-offered online databases was from the beginning seen as a public service activity, but one quite different from "traditional" services. Online searching was often a separate unit, housed apart from existing public service points and staffed by "experts" — or more typically, one sole expert.

Many libraries have moved far beyond these tentative beginnings. There is a general awareness that bibliographic utilities are useful in direct patron reference assistance. Most libraries have integrated the online searching of databases offered through DIALOG and other commercial vendors into units that assist patrons with other reference tools: reference departments, departmental libraries, undergraduate libraries, government documents departments. The literature offers many examples of articles urging and chronicling these changes.[1]

At Indiana University, Bloomington (IUB), we have suffered through some of these false starts, though not all. We have at-

tempted, in the last few years, with the active encouragement of new administrative leadership, to work toward the goal of full access to a great variety of useful sources of online information and to integrate those services into our existing ones. While a central theme of these comments is the undesirability of dividing and separating such services, for purposes of discussion, we might address three kinds of online services in turn:

Commerical Databases

Separately housing and staffing online search services is one way to separate such activities from other reference services. Another and even surer way of achieving the same effect is to charge for services. Librarians discuss at length and with great passion the ethics of such charging policies, especially the effects on different classes of users. Librarians also discuss the administrative implications of search units, especially the effects on staffing patterns. But, librarians agree that in charging for such services we identify them as belonging to that small number of services which are special, separate, somehow not quite a standard part of our service responsibility. As searching responsibilities in large academic libraries broadened, however, and were no longer the exclusive province of one or two librarians who might do nothing but online searching, discomfort with this view grew. One result of this growth was the phenomenon of "reference searching": online searching used to find the answer to a specific reference question. This, it was commonly acknowledged, was a type of searching for which we should not charge. Librarians sought guidelines for this new kind of searching. Pioneering in this process was Gertrude Foreman of the University of Minnesota's Medical Library.[2] At IUB, we developed our own guidelines, following Ms. Foreman's lead, and they have largely served us well. Many librarians can give examples of the bibliographic citation so scrambled that only a computer could unscramble it, the jargon phrase impenetrable through printed indexes and quickly transparent with the aid of the computer, the request for information from the President's office that might have taken half of a librarian's day and instead took fifteen minutes.

Having written guidelines has been helpful, indeed essential, in clarifying our own thinking about the appropriate occasions for such "reference" searches and in justifying our judgments to patrons. This was an area we worried about considerably at the beginning. What if a student came back expecting or demanding a search on an inappropriate topic because an earlier appropriate topic was handled as a "reference query" by a librarian? During the first year, few such instances came up and we may have grown a little complacent. We

are now faced with such expectations (almost never "demands") and the guidelines help us justify our judgments. As we do more and more online searching, we are increasingly aware of the savings in time and annoyance as compared to printed indexing options and we are finding the guidelines increasingly less sturdy. It is becoming more difficult to see clear boundaries between a "reference", i.e., subsidized search, and a "regular" fee-based search. Take as an example a student who is looking for information on a topic that combines two subjects. The librarian's educated guess is that the student will need to spend several hours and that there may be very little, perhaps nothing, in standard indexes on that topic. Should a fee-based search be discussed? Should a "reference" search be done? Fortunately, most occasions are fairly clear, but not all. We are struggling with these issues, attempting to refine our guidelines but always recognizing that the individual librarian's judgment must be the final arbiter.

A common frustration with database searching is that databases do not contain material in all relevant formats and that they are not sufficiently extensive, i.e., retrospective. To deal with this frustration, we have been turning in the last two years to another source of online information.

RLIN and OCLC

Research in many disciplines requires knowledge of only the most recent work. Often these are disciplines whose principal literature is found in journals. Many of these disciplines are served well by commercial online databases. For others, this is not the case. Historians and literary scholars — to name two — need access to book level information. For such access we have found the RLIN (Research Libraries Information Network) database very helpful. RLIN, unlike OCLC, can be searched by subject using Library of Congress subject headings. A search of RLIN can identify items that are new even to faculty members who have spent many years compiling bibliographies. RLIN is a database especially rich in foreign language material and it contains many difficult-to-find items held by only one or two libraries.

RLIN has proved useful in solving many bibliographic problems but we turn to OCLC first when we have bibliographic inquiries. Without a doubt, OCLC is the single most important reference tool we use (many librarians remark that the worst problem with working on a Sunday is that OCLC is down), but it is not all things to all problems. RLIN can be searched not only by subject but also by title phrase, title word, corporate word and corporate phrase. These

approaches often can be used to identify an item which is in fact in OCLC but which could not be retrieved with OCLC's search options. OCLC and RLIN are complementary in reference work and allow us a much greater range of choices in addressing a given research topic.[3] There are other sources of online "library" information in addition to RLIN and OCLC; these offer still other important options.

Library Databases from the Library of Congress, University of Illinois and Northwestern University

Access to each of these databases is now available to us at IUB through arrangements with the libraries involved. Each database offers another search strategy, another segment of the bibliographic record, and another important tool with which to perform our work and serve our public.

IUB is working with the Library of Congress in the National Authority Cooperative Project (NACO). For this reason, we are allowed access to their databases. There are several databases and each has a different application. MUMS (Multiple-Use Marc System) is the database most used by our colleagues in technical services. As its title implies, it includes full, tagged MARC records. Its unique feature is that any MARC field can be searched. For example: a student was trying to sort out the activity of two very small presses with similar names. MUMS allowed a search on the publisher's name. Another important feature which MUMS offers is access to Library of Congress cataloging before such records are tape-loaded into the bibliographic utilities. We also have access to SCORPIO (Subject-Content-Oriented-Retriever-for-Processive-Information-Online), an online catalog designed for users with little or no experience and whose command structure is much simplified.

The Library of Congress databases also include several of interest to our Government Publications staff: the Legislative Information Files which give the status of current legislation and can be searched in many ways, including by the sponsoring legislators' names. Yet another, the Bibliographic Citation File, selectively lists periodical articles, pamphlets and U.S. Government and U.N. publications for the current and preceding two years. Our access to the Library of Congress is a benefit earned by the contribution of our technical service departments. Access to the online catalogs of two major research libraries is due to the cooperative, outward-looking spirit of the administration of those libraries.

IUB has purchased a copy of the software which allows access to the databases of the University of Illinois, Champaign-Urbana. LCS is a short record circulation system which contains location information for nearly all items ever cataloged on the Champaign-Urbana campus. FBR (Full Bibliographic Record) is a database which contains a complete bibliographic record for most books cataloged by the university since 1977. We also are allowed access to Northwestern University Library's online catalog, NOTIS. NOTIS is a very user-friendly system which can be searched in a variety of ways.

Illinois is a member of OCLC and Northwestern is a member of RLIN. IUB has access to both utilities. What then, one might ask, is the importance of this kind of access to the databases from Illinois and Northwestern? One benefit is that of varying search options which allow easy location of an item in one system which would be unretrievable in another system. Also, some online catalogs (the University of Illinois database is an important example) contain information on greater proportion of a library's holdings than are in OCLC. In practical terms, the interest and use we have seen so far comes primarily from students and faculty in disciplines which have great strength at Illinois and Northwestern and similar strength at IUB: Slavic Studies (also strong at Illinois) and African Studies (also strong at Northwestern). Several students planning research visits to Illinois have found it very useful to search LCS or FBS to see if Illinois has the titles they wish to examine. Students and librarians in African Studies find direct access to Northwestern's great collection in that field a real benefit. IUB is now planning its own online catalog and will consider the example that these libraries have set by allowing neighboring universities access to information on their collections.

It may be helpful to touch on several practical considerations at this point. In order to facilitate the integration of these services, we have found it important to consider the following:

1. Staffing: All professional staff at a given service point or departmental library should be involved in searching. If they are not, two problems must be faced: an unequal level of immediate service depending on who is scheduled at the service point, and inequitable burden placed on those who do search. Ideally not only should the professionals be involved in such activities, but all who directly serve the public, including support staff and student assistants. (Many are involved at present, of course in, searching one or two systems, OCLC in our case at IUB.) That ideal of full participation is harder to realize, however, as long as no system standards exist

and as long as the online costs involved are so high. The requirement to perform in a constantly changing environment is specifically a professional expectation and one which by definition should not be imposed on non-professional staff.

2. Equipment: It is also critical that physical access be incorporated into the service point itself. Online services cannot be integrated with others if the equipment that is used for searching is located away from the service point, if it is locked up, or if the equipment is inadequate. At present, we have at the reference desk in the Main Library at IUB an excellent terminal with a VDT and a built-in printer which allows reconfiguration of the terminal settings from the keyboard. The latter is a matter of considerable importance since many of the systems require different terminal configurations. The terminal can stay on all day and we can use any one of a number of systems without leaving the reference desk. (An IBM-PC in another location provides privacy and the features needed for more extensive, fee-based searches.)

3. Record Keeping: Because substantial costs are involved, fairly detailed records are kept on online searches. In order to facilitate reference searching, it is essential that only a bare-bones minimum of records be kept. If a search to verify a citation can be performed in three minutes and the searcher must then spend five minutes recording data concerning the search, procedures should be re-examined. In addition, most of the record keeping, bill analysis and approval, and statistical compilation should be assigned to a support staff member. Work must be divided so that librarians are able to devote their time to the tasks for which they have been uniquely trained.

We should recognize that the opportunity to search so many different systems sometimes seems a mixed blessing to those who do the searching. The ability to approach a question in several different ways means that one must learn several different systems. Each system has its own search structure and commands. Too often one system may use the same command or symbol as another but with a contradictory meaning and effect. Librarians have expressed the fear that learning yet another system may lead to "system overload." The flexibility, concentration, and intellectual curiosity required are considerable. It helps to approach online

systems the way we have always approached reference books. Few librarians open each reference book remembering all the options it presents, the special indexes, features and approaches it includes; we open the book and examine it. Similarly, with online services and online catalogs it is unrealistic to assume (and unfair to expect) that anyone can retain all the features and options of many different systems. We must study documentation, practice, and then accept some errors and false starts. The clock is always ticking in the minds of most searchers when they are online in a way that it is not when they are using a printed tool. That is unavoidable. That awareness, however, can become debilitating if it is too intense.

We are now offering reference access for our patrons to all the sources discussed here without a fee, as part of a "baseline" service concept we are working to develop. IUB has large, important printed reference collections built over many years and these collections represent much work and a financial investment. In a sense, we are now trying to develop a complementary *online* reference collection. We are working toward a truly integrated collection, one which will offer as alternatives the National Union Catalog, OCLC and RLIN. We have an extensive collection of printed book catalogs ("G.K. Hall Catalogs"), including those of specific collections at Illinois and Northwestern. We can now offer in addition access to the online catalogs of those two libraries. We have contracts with six vendors of online databases and we are continually evaluating and adding new services. Most of the databases offered through those vendors are available for searching in print when that approach is satisfactory and appropriate. Other databases are only available online and have no printed counterpart. As librarians, we are fortunate to have the opportunity to make these choices and to meet these challenges. We believe the academic librarian will remain the principal guide to the best source and best approach for any given research problem — whether that source is in print or online.

FOOTNOTES

1. One of the best is: James M. Kusack, "Integration of On-Line Reference Service," *RQ* 19 (Fall 1979): 64-69.

2. Gertrude Foreman, "Reference Database Use," *BRS Brief Paper Series* 1 [1978?].

3. A very useful introduction, comparing the two systems is found in: Julia E. Miller, "OCLC and RLIN as Reference Tools," *Journal of Academic Librarianship* 8 (November 1982): 270-277.

Front End Software for Computer Searching

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More and more front end software packages for computer searching, including some which ease end-user searching, are becoming available. Since the nature and use of these packages will have a great effect on the role of the searcher in the future, searchers need to be aware of what front ends are, what their capabilities are, and how they may affect libraries and end-user searching.

What is a "front end" for searching? Although the literature of librarianship has not yet settled the terminology in this area, let me offer a definition. A front end is a software package which is used with a microcomputer and a modem to ease access to and searching of databases. It can often save money by uploading and downloading information. Although they are often lumped together, front ends should not be confused with gateway systems which are more like dial-up, use-as-needed services.

The front end packages currently available provide access to different vendors and databases and they are aimed at varying audiences. Some access only a few specific databases, some only one vendor, and some several vendors. Audiences include everyone from nonprofessionals with no knowledge of searching, to professionals in subject specialities with no knowledge of searching, to experienced professional searchers.

This paper is a slightly revised version of one presented at the Indiana Online User's Group Spring Meeting on May 17, 1985.

This article will describe in some detail some front ends which have been around at least a year and on which more literature is available. I will concentrate on the packages that I have the most experience with and those which seem to have the greatest potential for end users. There are also many packages available which are targeted for the professional intermediary which are outside the scope of this paper. A list of articles is appended; they describe front ends in more detail than is given here. The article by Carol Tenopir in *Library Journal* and the one by Suzana Lisanti in *Byte* are good overviews of front ends and both provide addresses of vendors and prices.

OL'SAM

One of the earliest available front ends is OL'SAM (Online Database Search Assistance Machine), offered by the Franklin Institute. OL'SAM is aimed at the professional searcher and at the end user who is a professional subject specialist. It accesses several vendors and allows for uploading and downloading of information, as well as aiding in searching, so that the searcher only needs to know one search language for several vendors. At $995, it is rather expensive. The history of OL'SAM is discussed in more detail in the Toliver article, listed below.

SCI-MATE AND SEARCH HELPER

In 1982-83, two front end packages appeared and became prominent. I have had personal experience with these two packages; they are Sci-Mate, created by the Institute for Scientific Information (ISI), and SEARCH HELPER, a product of the Information Access Company (IAC). ISI produces the Science Citation Index, the Social Science Citation Index, the Arts and Humanities Citation Index, and the corresponding databases. IAC produces several databases available only through DIALOG. These include the Magazine Index and the Trade & Industry Index.

Sci-Mate is intended for the professional researcher who has specialized information needs and who does not want to learn the details of several search systems. Sci-Mate uses a menu-driven approach to allow the user to enter a search which the Sci-Mate software then translates into the languages used in DIALOG, BRS, SDC, or NLM, as requested. One can search any database on any of these systems, then download the results as desired. Uploading of search

strategies is also possible. An optional companion software package, called the Personal Data Manager, is available. This makes search results and other information entered by the user into personal databases.

Sci-Mate is a good combination of user friendliness and sophistication. The end user who is a researcher but not a trained searcher benefits from both characteristics of the system. All options are specified clearly on menu screens. Except when a search term must be entered, the user is only called on to enter a single letter or number to indicate his or her choice. The manual for the package is very clearly written and easy to use, and some online instruction is available. The Sci-Mate "language" does allow the searcher to do all the basic search functions and provides most of the capabilities of the "native" languages, including browsing search terms, limiting to fields, and using proximity operators. The capability for using the "native" language is also present if needed. The Universal Online Searcher is even more useful when combined with the Personal Data Manager, since the researcher can then easily keep files of information drawn from searches.

The drawbacks for the end user are that little useful instruction is given in the logic and process of searching. He or she will not learn how to set up a strategy, or how, or why, to use synonyms for the desired terms. A lot of trial and much error will probably result. In addition, documentation for the different vendors and their databases is still needed to do effective searching. For example, one needs to know what the different field names are before one can limit a search to them. The software also involves something of an investment, particularly if one also wants to acquire the Personal Data Manager — $440 for the search software, $540 for the database software, and $880 for both.

Sci-Mate may be the best choice for the researcher who must search several systems, especially if a friendly, knowledgeable librarian with a set of documentation is available. Users with more limited needs, though, may wish to look elsewhere.

SEARCH HELPER is also aimed at the end user. SEARCH HELPER is a software package which provides limited, but easy, searching access to seven databases produced by IAC. The software is sold along with a package of searches for which one pays in advance. The buyer is usually a library, which may then make searching directly available to its patrons. IAC's aim is to make searches inexpensive by using SEARCH HELPER to do uploading and downloading of information, and to make searches easy to perform by providing a simple, menu-driven system with on-screen explanations.

The databases available through SEARCH HELPER include Magazine Index, which is much like the *Reader's Guide* in nature; National Newspaper Index, which indexes *The New York Times, Wall Street Journal, Christian Science Monitor, Washington Post, and Los Angeles Times;* Legal Resources Index, which covers over 730 legal periodicals; Trade and Industry Index, which indexes 300 trade and business journals and is particularly good for company-specific information; Management Contents, which provides access to 700 management and business journals; the Computer Database, which covers all aspects of computers in 600 periodicals; and Newsearch, which indexes the most recent 30 days of all the above databases.

The user of SEARCH HELPER can search for a subject or a person as a subject. A number of subjects can be combined, or "anded" together to make the search more specific. Proximity searching is possible, and terms can be truncated. The knowledgeable searcher can do other types of requests, such as for an author or a particular article type, but this is not indicated on the screen, nor is it particularly easy to do. "Oring" is not possible, that is, one cannot say "college" or "university" and "South Africa." One must do one search for "college" and "South Africa" and one for "university" and "South Africa." It is also not possible to save strategies to run in several databases without rekeying. This is all rather limiting, but it does make the system much easier to understand and use.

Another limitation of the system is that the searcher only retrieves the 20 most recent citations on the requested subject. If more than 20 citations are found, one can easily retrieve 20 more at a time, but each group of 20 citations counts as a search. Twenty citations on a topic are enough for many users.

As mentioned above, the SEARCH HELPER software is made available with a prepaid package of searches. Seven hundred searches can be purchased for $2.50 each, plus $200 for the software, for a total of $1950. Three hundred searches can be bought for $3.50 each, plus the software price, for a total of $1250.

I have extensive experience using SEARCH HELPER. Although I have not been in a library where it was used with end users, I have become familiar with its capabilities, the results one can expect from it, and its usefulness in an academic reference department. Although its capabilities are limited, SEARCH HELPER has proved invaluable in providing computer searching at a low cost. Its ability to combine concepts and its currency have been particularly useful. For ready reference and obtaining brief subject bibliographies, it has proved its usefulness and it has been used extensively even by librarians with little or no searching experience.

Libraries that have used SEARCH HELPER with end users generally report that it is popular and useful. There are some problems reported. Although online "help" is provided, patrons still have difficulty with the concepts of searching and they often need help from librarians. There have also been problems with charging for the searches. If searches are free, patrons use them up quickly. Charging for searches can be troublesome, since three or four searches are often necessary to get satisfactory results. At this point, however, SEARCH HELPER is one of the best ways to provide low cost searches for the general public and for undergraduate students.

IN-SEARCH AND SEARCH MASTER

Two other front ends have appeared in the last year or so, also aimed at different target audiences. In-Search, aimed at a broad end-user audience, was developed by the Menlo Corporation and costs $395. Search Master, which is $300, is a product of SDC,

In-Search has received some attention in computer magazines aimed at the end user. (See the bibliography.) It provides access to DIALOG, giving a user-friendly interface and ample online information on possible databases for searching. It also uses attractive graphics. I have only worked with a demo disk for In-Search, but it was impressive.

The user of In-Search first chooses a database from a list of four broad catagories. He or she then moves to a list of 30 to 40 subjects in the chosen category and picks one. The screen then displays descriptions of appropriate databases from which the user chooses one. In-Search provides DIALOG bluesheets online, if needed; this solves most of the problems of documentation for the end user.

Next the search is entered. The screen displays a table of lines with DIALOG set numbers. The user enters the search terms and logical operators desired. In-Search dials in and executes the search, allows the user to retrieve the results, and logs off. The user can then view the results offline. Most DIALOG search features are available on In-Search; one selects the commands from a list. The use of graphics and windows and the attention to screen detail make In-Search a pleasure to use.

In-Search would be best for the professional with special subject needs in business, science, etc. It allows more sophistication and access to more information than SEARCH HELPER. It is easier to use than Sci-Mate and gives database documentation. It still doesn't solve the problem of teaching the end user the logic

and process of searching, nor does it make this teaching unnecessary through its features.

The author has never used Search Master and has seen little information in the literature on it, but it appears to be aimed at the information specialist in a business environment, who needs to design scripts for recurring searches. The end user then inserts different search terms as needed in the appropriate places, by using a menu-driven access. Search Master will search Orbit, BRS, DIALOG, and NLM. It will upload strategies, allow user interaction with the system, and download information.

IN SUMMARY

This was a brief review of some major front end software packages currently available for searching with a microcomputer. Others are available and new ones will appear soon. One must keep in mind that specifications on the packages discussed here may change, IAC recently revamped the SEARCH HELPER software for at least the second time, and the Menlo Corporation recently came out with a new version of In-Search called Pro-Search, aimed at intermediaries. This means that some of the problems and limitations of today's packages may be remedied tomorrow.

What will front end searching software mean for libraries and end users? At present, this avenue toward easier computer searching is not the most likely one for the individual with a home computer to take, since it involves fairly large sums of money for the purchase of expensive software. At-home users who want to access online databases may be more likely to use the gateway services such as BRS After Dark because these don't involve such a large initial investment.

For the businessman, the physician, the research scientist, or the faculty member who wants to search at work the front end search software package is ideal. These people's employers can usually afford the software. Purchasing it will save money in the future because of the advantage of being able to upload and download and because the searcher will become thoroughly familiar with the software. The professional at work will be able to use his or her own subject knowledge to increase the relevance of the search and will not have to go to a library to fill emergency or small information needs. This seems to be the most likely setting for use of a front end for searching, except in the case of a software package like SEARCH HELPER which is really aimed at the unsophisticated non-specialized user.

What, then, is the role of the librarian? The librarian will still

probably do the searches that are more complicated and search in disciplines the end user is unfamiliar with. The user may not even want to try a very complex search. The front end packages work best with simple searches and may not have the capabilities needed in some instances. The end user may do many searches that would not have been taken to the librarian anyway.

We must be prepared to accept another consequence of the use of front ends and related aids to end-user searching. The expert searcher will now become the search instructor, advisor, and problem solver for those who want to do their own searching. This is particularly needed, since the information industry makes searching sound much easier than it actually is. If we decide we'd rather not take on this role, we should be ready to be totally bypassed in the search for information. I hope we can instead try to change to fit user needs and look on it as a great new challenge.

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