I want to begin by reading two letters to you which were published in the 1 April 1985 issue of Time magazine under the heading LIBRARY BYTES. The first letter, from Kenneth N. Sharpe of Peachtree City, Georgia, asked a question:

I see a conspiracy in the public library. Advocates of computers convinced us that we should replace benign, inexpensive, non-energy consuming card catalogs with expensive, maintenance-requiring, energy-consuming terminals. This is progress?

James A. Munn in Milwaukee writes with another opinion:

Each time I work on a computer, I am amazed at the potential it has and the abundance of information I am able to retrieve. For the experienced user, the joy of a computer is in finding valuable information by surprise.

These letters and others, were written in response to an article published 25 February 1985 by Philip Elmer-DeWitt entitled “Terminals Among the Stacks” which took a journalist’s view of the use and availability of automated services and computers in public libraries, the New York Public Library in particular. The thrust of the article is clear, and here I quote the writer:

The advent of the computerized library has also brought new problems. Computers have a way of making simple research tasks more difficult—for example, when a casual user needs computer instruction just to find a book. Even trained librarians say there is an art to performing an efficient data-base search; an awkwardly phrased query can quickly lead to information overload, generating hundreds of responses. At the same time, computers can be too efficient, eliminating what is called the serendipity factor....
Time is not a journal which librarians read in their professional capacity as automation managers, but it is read as a reputable current-affairs magazine by many library users. I will leave you these questions to ponder while I go on with the paper—if the popular media are communicating similar misconceptions and confusions to the public and reinforcing myths and fears about computers, how are libraries counteracting these? How are they dealing with both the myths and the realities of providing online computer services to users?

Online catalogs have been in operation in the United States for more than five years, and it would seem to be an appropriate point to look at how these have been implemented, examining the importance to the user of certain intellectual and physical factors, and, on the basis of this, to make recommendations for consideration by library automation managers when developing or implementing online catalogs. My background and experience with automation is mainly with archives, but libraries experience similar budgetary constraints regarding the purchase of hardware and software for their automated systems and similar problems in defining user requirements from those systems. This paper, therefore, will discuss variables which should be considered in order to determine what is the most effective way to manage an online catalog and to produce something which is, at the same time, a “user-driven” system.

I will incorporate as illustrations some responses from a brief informal survey which I conducted in January and February 1985 of those libraries which participated in the study of online public access catalogs funded by the Council on Library Resources in 1982 (see appendix). These responses represent about twenty-five public and academic institutions which are using a variety of online systems. The original surveys were done by OCLC, J.R. Matthews Inc., Library of Congress, Research Libraries Group, and University of California Division of Library Automation (DLA) Group. The aim of my study was to see what had been done with the online catalog in terms of how it serves the user: how the systems were being promoted and received and how they were operating and being used in 1985. I will also take some examples of use patterns as observed on the University of Illinois Library Circulation System (LCS), which is the online catalog with which I am most familiar.

In order to ascertain a measurement of effective use for the management of online catalogs, it is necessary first to come to some consensus on their function and role as defined in user terms, and to use this consensus to make some projections as to the future development of these facilities, without, if possible, getting bogged down in debates about “electronic libraries.” The two most important design concepts of the online catalog are that it is evolutionary and dynamic, both physically and intellectually. It must respond perforce to hardware and to software development and also
to the changes in user needs, demands, and education which arise from a changing social environment. It is not sufficient for librarians today, as it might once have been with the card catalog, to view the installation of an online public access catalog as a fixed physical presence to which records are added, modified, or deleted by catalogers. Library managers must specifically designate a head of automated or online services to oversee the management of the online catalog. This should be someone who is not necessarily a cataloging expert, but someone who has both library experience and qualifications in systems and systems analysis. I want to read to you an example of a job description for the post of Automation/Systems Librarian that was recently advertised in *American Libraries* because I think it expresses all the salient points:

This person will have the responsibility for and work closely with the director on the planning, development, implementation, and management of automated systems in support of the libraries' functions and programs....Due to the general campus commitment to library automation, there is a local group of automation resource persons, including other systems analysts and programmers with expertise in library automation, with whom this person would work. The automation/systems librarian will be a resource person for other library staff and would work closely with them in needs analysis, problem solving, and systems design and maintenance. The person would also be responsible for training staff and some users in the use of the libraries' automated systems and for representing the library on various committees....This person should have an advanced degree in librarianship or computer science or both...as well as demonstrated skill and expertise in systems analysis and design, library automation, and written and oral communication.6

Richard DeGennaro was concerned that "we seem trapped into perpetuating the concepts of the card catalog in the online environment"6 and I believe that this will continue to be true unless automated-systems personnel adopt a systems approach (tempered with some vision). They should work to ascertain and to monitor trends and user preferences in the types of terminals and displays; the number required and their location; and the physical and psychological environment of catalog access points. They should also be aware of changes in the function of a user interface; user demands and expectations; and changes in software and hardware. They should be conducting ongoing research into system capabilities for networking and for downloading search data; the type and format of information supplied; and even possible charges for specific services.

Users' reactions to the introduction of online catalogs were well documented between 1979 and 1982, but evidence is scant for recent years regarding changes in users' attitudes. User behavior patterns are influenced by increasing contact and interaction with computers in other areas of life such as desktop office microcomputers, home computers, and automatic bank tellers. Librarians should be aware of these influences and
should concentrate on developing systems which are more online and less catalog; a user-oriented rather than an AACR2-derived concept.

To promote the use and popularity of the online catalog, libraries must be prepared to compete in the retailing of information with market forces, albeit in a noncommercial environment. This implies concerted external and internal advertising of the library as an information center as well as a repository, in association with the ongoing development of user-friendly systems. Designers of online catalogs should make the reality of everyday life an objective, aligning online public access systems more closely with the way the user retrieves information outside the library through the television, telephone, radio, newspaper, or online. Online catalogs should be just as accessible, cheap, and entertaining, providing the wanted side by side with the not-sought-but-interesting and perhaps even the unwanted and discardable. The users of the online catalog should not have to order their thoughts any more than they would have to in order to read a newspaper for the headlines, general interest, market news, what’s on, and funnies; and they should not have to control their subject search vocabulary any more than they are accustomed to when looking for something in the yellow pages.

The current realities of intellectual access to online catalogs is somewhat removed from these soap-box hypotheses. The first question is, what is the online catalog actually providing in the way of access to bibliographic data? All systems provide author/title access, in some cases only to short catalog records but increasingly to full bibliographic records. All the systems examined provided subject access through subject headings. The Library of Congress, Research Libraries Group, and the University of California DLA Group systems also provide subject access through keyword searching, and this is under investigation by J.R. Matthews Inc. and OCLC member libraries. Catalog failure occurs more often on subject searches than on author, title, or author/title combined searches. There are two reasons for this: the public expects more sophisticated subject access from an online catalog than from the card catalog; and they make more errors in attempting the subject search options, either because they are confused by Boolean logic when combining keywords, or because they are unaware that the subject headings under which they are supposed to search are, in fact, the same Library of Congress subject headings used in the card catalog and not some free-text option available in the online catalog. If the system fails to point out that the search vocabulary is controlled in this way and does not direct the user toward correct terms with “use” references and requests for more specificity, then he or she may be unable to complete a subject search. In this case, a user may resort to an ad hoc form of subject searching under the title search option in the hope that useful titles in the subject area may be pulled up or else a call number located which could be used for a shelflist search or for browsing the shelves.
ONLINE CATALOGS

All of these are options that were previously available from the card catalog, but the online catalog can provide other access points, namely, the facility to search by call number, by date, and by place of publication. These latter features are not yet widely available, although searching by date of publication is either already in operation or being developed by the RLG’s and the DLA Group’s libraries. It is possible that an online catalog will provide the user with expansion of bibliographic information in the form of access to abstracts and even to complete journal articles or individual items within books. These are facilities which move the online catalog closer to those online services available commercially. They are under investigation by some libraries but as yet have not been widely implemented.

The online catalog is providing other services for the user, the most important of these, in user terms, being the linking of bibliographic with status and location information. In this way, a user not only finds a catalog record but is also notified of the item’s location and its availability for circulation. In some systems the user may then use the terminal to charge out or “save” (reserve) that item. Beyond this, in online catalogs that serve several libraries, the user is able to search the holdings of other libraries for an item not available in the local library and in some cases to charge that item out, if located, from another library. Some online catalogs also provide cross-references for name and subject searching and browse functions.

The user interface is an important extension to the online catalog, and a good interface may be the measure of a good system. If it is sufficiently “user-friendly” and “transparent” the user may well believe that he or she is communicating effectively and efficiently with the computer rather than with a mediator, but this does not matter as long as the user is comfortable and reassured about using the automated system.

The user interface should relieve the necessity for using search codes and avoid some confusions by guiding the user through his or her search in a step-by-step way with the liberal use of help screens and offering to explain data displayed and sympathetic error messages. In a sense, it is the user interface that does the computer’s public relations work for it. It should be flexible toward change and updating, should be sophisticated and fast enough for the experienced user to use without becoming frustrated and bored, yet simple enough for the first-time user. It should provide features such as the ability to repeat a previous command and to scroll backward and forward in a long search without exiting from the search: the wrap-around of text, a display with a manageable amount of data at any one time and, most important, an easy and obvious way for users to correct typographical errors.

Help screens or menus which allow the user to choose clearly defined options are available on almost every system. Only about half the libraries
surveyed had a user interface which offered an explanation of the data displayed. Despite this ratio this is an important feature since it is often the case, even when an item has been located and the record displayed, that a user may not understand what he or she sees, in fact may not even be able to locate which part of the record is the call number. This is an example of catalog failure; it is not something which is the user's fault, and the user must not be made to feel that it is. Most online catalogs provide some form of scrolling between screens, sometimes with limitations such as moving forward only, although recovering past data is probably frequently desired from this feature.

The physical considerations of online public access catalogs have been discussed in the literature to a much lesser extent than have the intellectual, yet these aspects, while possibly the more difficult to gauge, may also, in the end, prove to be the most influential factors in the library patron's decision first to use the online catalog and second on how to use it. I intend, therefore, to dwell at more length on these aspects. The public will come to terms, out of necessity, with almost any system, rationalizing that, as they know little of library or automation practices (and certainly less than those who are professionally trained), this is the way that it has to be. They will not, however, use screens with displays which hurt their eyes or terminals which are placed at a height which they find uncomfortable. The following support system factors should be taken into consideration when installing or expanding an online catalog: terminal types, printing options and displays; location and number of terminals; physical and psychological environments; promotion and advertising. These factors are not ranked in order of priority because they are interdependent.

Much has been written about the selection of terminals—either those with keyboards or with CLSI-type touch terminals—and this choice is largely determined by the type of system installed although some libraries have used a combination of both types. Some public libraries have opted for touch screens because they eliminate any need for the patron to type or to locate function keys and require only a knowledge of the alphabet (and some patience). This is not exclusively the domain of the public library, however, and academic libraries such as the University of Toronto Library have also chosen to use the touch terminals. Vanderhoef and Galina, in their article "Ergonomics of VDTs,"7 argue for what they term "a human systems approach," which involves determining the type of CRT selected by the task to be performed. As online catalog terminals are unlike technical services workstations in the type of use that they receive and in that there is little keying of and much displaying of data, either type of terminal will have its benefits.

Whichever terminal type is installed, libraries must be aware that the hardware is likely to develop and obsolesce to a considerable extent within
the first few years of installation, and terminals will have to be modified and replaced. Does the library replace terminals with personal computers equipped with easily modifiable interfaces and with other functions masked to prevent tampering; does it purchase the equivalent upgraded terminal, or does it buy a large number of the cheapest terminals available in the knowledge that this will be an interim measure and that more can be purchased for the same amount and, therefore, more access points can be supplied?

All of these options will result in a mixture of terminal types and displays being available to users at any one time in an established online catalog, and automation managers should be aware that this will have an effect on use patterns of terminals. It is particularly likely to increase the level of confusion that already exists when users familiar with the card catalog have to come to terms with the online catalog. When there is a mixing of terminal types, makes, or models, care should be taken to have features such as the keyboard layout, especially the Return/Enter, Backspace/Rub, Clear, and function keys as standardized as possible. Automation managers should conduct careful observation studies to determine user preferences in terminal types and displays before investing in new or replacement hardware. Observation at the University of Illinois Library has shown that a terminal that users do not like may not be used unless all the preferred terminals are busy, and this does not make for the highest return in terms of use from automation funds spent on the purchase of new terminals. (I also have a personal dislike of terminals which “beep” at the user—it always seems for no apparent reason. This beeping can cause embarrassment and the abandonment of a search if a user feels that public attention has been drawn to him or her.)

Users will make subconscious decisions about which terminal to use based upon the display, often after only a casual glance. A screen which is difficult to read because of bad resolution, glare, or angle, can be as off-putting as a display with too much data or with characters which are too small or unclear to be read with ease. These terminals will be used with reluctance, and those with poor sight—the older users in particular—will resort to using the more familiar card catalog where it is still available. Most systems use either a white or green-on-black display although amber screens are also worth serious consideration. While not yet widely used in the United States, amber screens have become the European standard where they are considered to be superior to other displays in terms of aesthetics and of lessening eye-strain.

The University of Illinois Library online catalog started with white-on-black Hazeltine CRTs, but these have been gradually replaced by IBM Personal Computers with a cassette user interface and a green-on-black display. Reverse images have been used to highlight display features such
as system prompts. Some new noninterface terminals also have green displays and use of all those CRTs with green displays is measurably greater than those with the black and white. This may reveal a color preference by users, or it may be that users are associating the color of the display with the availability of the user-friendly interface which makes the PCs more popular than the terminals—which require the keying of search codes.

The demand for the facility to provide copies of the results of searches raises the issue of supplying printing facilities at terminals. In some cases it may suffice to supply scrap paper and a pencil at each terminal, but this is not sufficient for those who wish to transcribe large bibliographies or abstracts (where abstracts are available online). There are three options for printing search output, and each has different managerial and user implications. These have been discussed in some detail by Bennett Price in his March 1984 article. 8 Briefly, the options are:

1. to use a printing terminal directly to conduct the search;
2. to use a terminal with a slave printer attached; or
3. to send search results to a remote printer in a nonpublic area of the library.

Many users, particularly those of public libraries, are not going to want to wait—or to return—to pick up their printed output from a remote printer. In addition, the output may or may not be what they thought they wanted or were going to get. This approach also requires the user to give up his or her anonymity, and, consequently, privacy because of the need for some sort of identification to retrieve the hard copy. Other users may not want to remain at a terminal while it laboriously prints out their search results (which may be quite slow if, as is common, a slow but quiet thermal printer is used). By doing their printing on their own time, however, users may be more selective. They can check their output to see that it is indeed what they wanted, and they may modify their search strategies accordingly. Some systems enable the user to perform sorts on fields in order to print a bibliography ordered by call number, author, title, or subject descriptor. Printing terminals can be noisy and expensive to maintain, but they are fast becoming a facility that the library user expects to be available in much the same way as a photocopier machine. In fact it may be feasible to consider coin-operated printing facilities on much the same basis as photocopiers, although librarians should be aware that there will be some of the same drawbacks—i.e., noise, intermittent use, maintenance requirements, and space allocation in a public area, as well as resistance to being charged for a library service.

Of the libraries I surveyed, only five have any facility for printing at the terminals in their main reference areas, and two have the option of
remote printing. The Library of Congress and Ohio State University have installed a large number of printing terminals but the other three libraries have only one or two.

The location of terminals and the advertising of these locations will often predetermine both the number of terminals required and the way in which they will be used. Terminals should be located in high visibility areas: many libraries have arranged banks of terminals directly inside the main door to the library, in lobby areas, or in the same specified area on each floor of the library building. Libraries should, however, consider the possibility of having some single, free-standing terminals, and terminals in carrels. Users can be inhibited in their use of a terminal located in a bank or row of other terminals because of the personal nature of their search topics, or because they sense that their personal space is being violated by visible or invisible queuers, encroachers, observers, or baggage overflow from the neighboring terminal. Use of carrels such as those used for microfilm readers, while requiring space and power outlets, may get around the crucial psychological problem of user privacy as well as helping to remove those users who need to conduct long searches from terminals that could otherwise be designated as “express.” Rather than being confusing, a variety of terminal positions may lead to more efficient use of the online catalog because of the increased number of psychological preferences being catered for. In systems which allow it, automation managers must also bear in mind that there are “hidden” terminals which are being used for remote access and that the number of these will continue to grow as more microcomputers become available for online work in offices and at home.

Although few libraries have performed formal queuing studies, those surveyed overwhelmingly responded that they seldom experience queuing. This can mean several things: that the online catalog is not in heavy demand, or that adequate access is being provided to the online catalog, or that managers simply do not know. Those libraries which recorded frequent queuing almost all said that they were planning to increase the number of terminals available in the near future to cater to the perceived need.

Promoting the existence of an online catalog outside the library building is a different matter from advertising the locations of online catalog terminals inside the library building. Libraries should pay careful attention to promotion within the parent institution, locally, and, where applicable, nationally. It is important to reach the general public, not just to communicate through the professional journals. This involves organizing an ongoing campaign of library posters and newsletters, and writing articles for the university and community media, as well as taking issue with the national media when it appears to be ill-informed.
In addition to having a high physical profile, terminal locations can be advertised by signs on other catalogs, above or beside terminals, and in library floor maps and guides. Most of the libraries surveyed have opted for signs near the terminals although some rely entirely on the visibility of the terminals. Where signs are deemed necessary, they should be worded in as "user-friendly" a way as possible.

The number of terminals needed can only be gauged by measuring at random times the amount and type of use that each terminal is receiving, and in this, only users within the library building can actually be taken into account. The location of terminals outside the library building in homes and offices should be encouraged with the library allowing for any extra computer load that might result. Use patterns will vary considerably with the type of library, category, or user, the time of year, as well as between the main and branch or departmental libraries. For those libraries which implemented online catalogs early in their development, original planning largely had to be based on trial and error, but structured observation of use patterns, both before and after the installation of the online catalog, can supply sound data for projections of need within an individual library. This is where libraries only now installing online catalogs can benefit by learning from others' experience.

More effective locating and advertising of terminals should lead directly to greater use. Once users become accustomed to the multiple physical and intellectual access points to the online catalog not afforded by the card catalog, there will in turn be a demand for more terminals. Libraries should be aware, however, that observation may also prove a need to relocate or remove some terminals altogether and should be prepared to act on these results even if this should stir library sensitivities or politics. There is no magic formula for calculating the number of terminals which should be available within the library, although a figure of one terminal per 200 users has been mentioned by Matthews as a suitable ratio to begin with when installing an online catalog.9

The most important consideration, apart from ensuring that the user knows that the online catalog exists—and is able to find it—is that the user knows how to use it. This is more than a statement of the obvious or an extension of the earlier discussion about the user interface. It is a consideration of how much the user knows, needs to know, and needs to learn in order to be able to retrieve desired items from the online catalog, and of how the library should be catering for this in terms of supplying instruction.

Donna Senzig writes in her 1984 article:

People vary greatly in their understanding of the catalog, previous experience with catalogs, level and amount of bibliographic information required, and desire to learn how to use a catalog. The online
The interface or software being used will supply a certain level of aid to users, but there is a need for user instruction over and above this on an optional basis. It is not possible—nor is it desirable—to coerce users into taking instruction, nor is it necessary to ensure that there is a learning process during their use of the online catalog. What is necessary is that there be enough available instruction that a user can use the system without needing to memorize or understand. There are several methods being practiced:

1. *A brief flier readily available in the terminal area.* These should preferably be printed on one sheet of colored paper and should give very simple instruction and graphics explaining basic search strategies and indicate the location of the necessary keys on the keyboard. If search codes are used they should be listed on a card attached to the front of the terminal.

2. *Detailed manuals made of some durable material available, preferably, on some sort of reading stand at least at every second terminal.* These require a longer time to read and use, but experienced or curious patrons often wish to use the subtler options offered by the system.

3. *Formal bibliographic instruction in the form of organized public demonstrations by library staff, or compulsory class exercises in an academic library.*

4. *Informal bibliographic instruction available on an ad hoc basis from reference or information desks.*

5. *Audiovisual aids such as tape-slide presentations.*

6. *Online tutorials.* These also have the advantage of making the system more user-friendly and self-sufficient.

At least at the initial implementation of the online catalog, it may prove necessary to designate staff specifically for bibliographic instruction, but their effectiveness should be monitored. Once users become accustomed to the concept of an online catalog, many will prefer to work the system out for themselves using the available aids rather than staff mediation.

Of the libraries surveyed, most were using, simultaneously, four or five of the options just described with the brief flier and informal instruction being the most commonly used methods (although not necessarily the most popular), and the slide-tape show the least. The facility for an online tutorial is available as an option in at least some of the libraries from all of the groups surveyed, although it is not used by all of those libraries.
Consideration of the psychological and physical terminal—and hence user environment—includes factors necessitated by machines such as air circulation and temperature control, and outlet or dial-up dependency, as well as those steps taken to ensure the comfort of the users. A balance needs to be maintained between these interests. Machine needs should not dictate the level of user comfort. Screens should tilt and the brightness be readily adjustable by the user without having to involve staff. Keyboards should be detached from the CRT to enable them to be rearranged for the convenience of the user. Lights should not be set overhead, behind, or in the line of vision in such a way as to cause glare, reflection, or eyestrain. If necessary, terminals should be fitted with glare shields or covers to counteract this (a minor financial outlay).

The height at which the terminal is set is dependent upon whether or not seating is provided. Seating at a terminal in the form of a solid chair with back and no arms is the most comfortable for the user who prefers or needs to sit. However, it may also encourage excessively long terminal use times, or encourage those who are waiting or resting rather than using the online catalog. Many users will find a terminal placed on a tall table at standing height to be uncomfortable to use. These are also inaccessible to those in wheelchairs or unsteady on their feet. A compromise has been to use tall stools with these terminals to relieve discomfort but to discourage lengthy use. Again, where possible, the automation manager should try to cater to as many user tastes as possible by mixing the heights and seating arrangements available.

Observation of the University of Illinois Library terminals, which have a mixed arrangement, showed that casual users were inclined not to sit in chairs, but that the availability or absence of stools did not perceptibly affect which of the tall terminals they chose to use. Some people liked to sit and if there were no stool at that terminal they would remove one from a nearby terminal if one were free. If people liked to stand and there was a stool at their terminal they would push it aside. The most important physical factors were the availability of a bar under the table to rest feet, whether standing or sitting (which ties in with Matthews's recommendation for a footstool at a seated terminal), and the provision of sufficient space around the terminal for coats, books, and bags. Most libraries surveyed also chose to mix the seating arrangements at their terminals. Almost all opted for a much greater proportion of one to the other, the majority preferring to emphasize standing-height terminals.

No online catalog now in operation is a panacea to all access ills. Because the public cannot obtain a visual image of the extent of the online catalog, and because it is computer-based, the mistaken assumption is often made that it is a comprehensive catalog of all library holdings. Different systems have different types of material online, and different
libraries have reached different stages in programs of retrospective conversion. Specific types of materials and formats have proved problematic to catalog in a machine-readable format. The most important categories of these are manuscripts and archives, government documents, microforms, serials, technical reports, audiovisual materials, maps, and music scores.

All this raises questions about what additional catalogs may need to be maintained and how users should be informed of the possible need to use them. Three of the libraries surveyed—Dallas Public, Iowa City, and the State Library of Ohio—have disposed of all other catalogs altogether. To do this the online catalog must contain as many fully cataloged items as possible, reference staff may have to supply more aid in locating difficult items, and, as there is no alternative catalog available, the online catalog will have to be as accessible and reliable as possible. Other libraries must rely on one or a combination of methods such as online notices; signs near terminals; at other catalogs or in other locations; fliers, reference/information desk help; library handbooks; and campus or community media. Of the organizations looked at, the University of California DLA Group conducts the most comprehensive advertising of their supplementary catalogs since the member campuses are undertaking extensive retrospective conversion projects.

Budget may well be the deciding factor as to whether or not to retain existing or maintain additional catalogs. If libraries decide to dispose of the card catalog but consider computer downtime to be an important negative consideration, they might well consider a COM printout of the catalog every six months. The initial run and the COM readers will be expensive, but this provides a useful and fairly recent backup to the online catalog.

Libraries surveyed were asked a final question "Is there evidence of any increased or decreased use of the catalog or collection since the introduction of the online catalog?" and the answers proved both interesting and startling. No library apart from Iowa City Public Library had hard, reliable statistics available. This was either because the relevant measurement and evaluation was not being conducted, or because statistics which had been gathered were incomparable for some reason. The respondents (all questionnaires were completed by the person responsible for managing the online catalog) relied for the most part on their intuition and on the experiences of their reference staff. All but one respondent noted increases in circulation and intersystem loans, and the general impression was that the online catalog was more heavily used than the card catalog, although few had measured use of the card catalog prior to the installation of the online system.

Perhaps the comments from Stanford University's survey response articulated best the general sentiments of the respondents:
Marked improvement in search flexibility provided by SOCRATES seems to make "foraging" expeditions more attractive. We have no hard data beyond the sense of those who see the system in regular, heavy use.

Iowa City Public Library conducted an identical survey between use of the card catalog in 1973 and of the online catalog in 1984 and recorded three times as many uses in the latter. The 1973 survey showed that 19 percent of the patrons used the card catalog, the 1984 survey showed that 36 percent used the online catalog.

For libraries conducting use analyses of their online catalog, some of the following questions which should be considered are:

—Has the increased number of intellectual access points increased users' expectations from a catalog? If so, in what way?
—How much are users being affected by the type of terminals?
—How much are users being affected by the location of terminals?
—How can more users be persuaded to use the catalog?
—How long is an average user search?
—How are users coping with the concepts of subject searching?
—How is catalog use different in other library locations such as branch and departmental libraries? Or from nonlibrary locations such as offices and homes?
—How do users feel about using supplementary catalogs?

I have discussed points that librarians should be aware of when considering use evaluation of the online catalog and system improvements and some of the options which are currently available. I want to finish by making some brief recommendations about managerial awareness—a central concern of this paper:

1. Perform a use analysis or systems evaluation of the current system as this will help to highlight problem and success areas as well as establishing points of reference and comparison.
2. Institute regular review procedures of circulation statistics, search hit rates as monitored by the online system, and observed use patterns.
3. Constantly review the user interface.
4. Talk to other libraries to find out what their experiences have been and how they have chosen to deal with similar situations.
5. Involve as many external people as possible in the development of the online catalog. It may be time-consuming, but this not only brings in different perspectives, it is also good public relations and is educational for both sides.
6. Publish and promote your own experiences and developments.
7. Beware of misinterpretation of data or action taken on the basis of "intuition."
These measures do cost money and should be weighed in terms of benefit and applicability. They should, however, help in the building of a user and use profile that will be specific to one library and that will, therefore, be of more practical use as a basis for decision-making than any general standards or guidelines that can be drawn up for the development of the online catalog.
## QUESTIONNAIRE ON ONLINE CATALOGS AND LIBRARY USERS

### Name of Library:

(Please fill out all applicable responses)

### TERMINALS

1. How many terminals are available for public use?

2. How are terminal locations advertised?
   - signs on card catalog
   - signs in other library locations
   - signs near terminals
   - directional lines on floor
   - other (please describe)

3. How many terminals are placed at a height for use:
   - while standing
   - while seated

4. How many terminals provide printed output?

5. How often do patrons have to queue at the most heavily used terminals?
   - frequently
   - once or twice a day
   - seldom
   - never

### ONLINE CATALOG

1. Does the online catalog provide:
   - subject access through subject headings
   - subject access through keywords
   - access by date of publication
   - access by place of publication
   - access to individual journal articles
   - linkage of bibliographic and circulation information

2. What library holdings (if any) are not included in the online catalog?
   (e.g. microforms, pre-1970 acquisitions)

3. How are users informed of the possible need to search additional catalogs?
   - notice from online system
   - signs near terminals
   - signs at other catalogs
   - other (please describe)

4. What training is provided in the use of the online catalog?
   - online instructional package
   - brief flyer/handout
   - lengthy flyer/handout (3 pages or more)
   - slide/tape program
   - informal instruction by staff
   - formal (bibliographic) instruction by staff

5. Does the user interface:
   - provide help screens
   - offer explanation of data displayed
   - allow movement backward and forward between screens

6. Is there evidence of increased or decreased use of the catalog or collection since the introduction of the online catalog? If yes, please describe briefly:

In case clarification or additional information should be needed, please include the name and telephone number of the person completing this survey:

Name: ____________________________
Tel. No.: ____________________________

THANK YOU
REFERENCES