Conference Report

Association of Information and Dissemination Centers
1983 Spring Meeting

Introduction

As a result of an informal agreement between ISU and the Association of Information and Dissemination Centers, we shall in a forthcoming issue be publishing the full texts of papers delivered at the semi-annual meeting of the Association, which took place on 20–22 March in Charleston, South Carolina.

As a special service to ISU readers, we publish here a summary of the content of these papers as well as an overview of the reports of the working groups set up by ASIDIC to develop a consensus on the issues raised by the formal papers. The topic of the meeting was “Interfacing with the User” of online systems, with an emphasis on training. The following summary was produced by Don Hawkins.

Keynote Address

In his Keynote Address, Charles Meadow, of Dialog Information Services, traced much of the history of online systems in the context of his career, went on to discuss some of the issues relating to the user interface today, and concluded with some predictions for the future. (Dr. Meadow came to the library and information world from the computing field—which, he admits, colors his thinking.) In 1954, some of the things we take for granted today—file handling, sorting, updating, and searching—were considered unusual applications for computers. There was no querying of files because it was expensive, and users had little knowledge of the work of programmers. By 1961, batch information retrieval systems, in which users’ queries were cumulated and run against the database, had begun to appear. Turnaround time was from a few minutes to a day or more. Batch searching systems generally gave poor results since there was no interaction with the database and no browsing, because of costs. In 1962, a proposal for an online system was scorned, primarily because of the attitudes of potential users.
By the late 1960's, the RECON system had been developed. (There was a parallel to the BASIC programming language developed about the same time: people could use it directly and did not have to depend on professional programmers to get their work done.) The language was simple—users will not start with a sophisticated system unless they can interact with it on an elementary level, and then work up if desired. One must trade off ease of learning the system with the ability to get work done. (This tradeoff is one basis for the recent appearance of simpler versions of today's online searching systems.)

When online systems appeared, librarians became intermediaries for their use. They obtained terminals, helped people to use them, and did searches for others. Library schools began to see that online searching was a new and desirable professional skill, and began to offer courses in searching so that students would be qualified for better jobs.

At present, the need for intermediation is changing; it is not going away. Drexel's IIDA and MIT's CONIT systems are notable attempts to improve the user interface. These are not systems to teach online searching; they help the end-user to conduct a search. Database producers are also entering this area and are taking a more direct role in helping the user. (Disclosure's MicroDisclosure system for the IBM Personal Computer is an example.) So we are entering the age of the end-user—a 'glorious promised land'. We should not worry about this trend, but welcome it.

Dialog's training courses are now being attended by end-users as well as librarians. A recent session included a patent attorney, a chemist, a secretary, and an information broker in the audience. This diversity affects the presentation and makes training difficult.

The following are the responsibilities of some of the participants in the online business today:

- **Library schools** should teach the fundamentals and general principles, not details or mechanics. There is a time lag in teaching; non-bibliographic databases are coming into vogue now but are not taught much in universities.

- **Database producers** must offer training, but they are not the major force because their courses are, naturally, specialized to their own databases. Users cannot go to all the courses offered by all producers. Producers must make information available, understand users, and structure their products and courses around user needs.

- **Intermediaries** are not responsible for mass training, but they can offer on-the-job training. They must upgrade their own performance and become experts at doing the difficult and complex searches, letting the users do the easier ones. (There is an exact parallel here with the programming professionals, who have become the systems analysts, designers, etc., and who are in great demand.)

- **Database processors** (search services) bear the heaviest burden of training today, although in time this burden may shift back to the schools. There are more types of users now and more end-users, so processors must broaden their training courses. Some people still don't know what a citation is; others are programmers who are interested in searching from a systems viewpoint. One answer to the
diversity of audiences and the demand for training is the development of different types of training media: audiovisuals, CAI, home study. However, face-to-face training will remain important for a long time.

- End-users do not have any training responsibilities; they are the ones being served.

Training costs are remarkably low compared with other professional courses, such as those given by the American Management Association and other organizations. Dialog's training charge, typical of the industry, is $135 for a one-and-a-half day course; most of the fee is returned to the user as free practice time. Most users do not consider online searching training costs to be a burden (although their managers might). The training fee is probably only about one third of the total training cost to the attendee's organization; travel costs and salaries account for the rest.

How much training is necessary? One can begin to search with as little as two hours instruction; however, a graduate of a beginning course is not an expert. The ideal amount of initial training is probably about two days and would cost the attendee about $200. Instructors in beginning training courses must not let the user depart thinking he or she knows it all. The training situation is complicated because many users want to do more than simply retrieve; they want to process information.

In the future, training needs will continue, and users will demand more education covering a variety of skills. The end-user does not want raw data; searchers will have to be taught how to format, process, analyze, and interpret search results. Intelligent systems are just beginning to impact the training market; their use will certainly grow. In the long run, the phasing out of query languages in favor of plain English searching will abolish the need for training. But this will not happen soon.

Training opportunities in library and information schools

Ann E. Prentice, of the School of Library and Information Science, University of Tennessee, pointed out that many courses in the information world are unusual because they must be redesigned every semester, in contrast to courses in other fields that may be relevant for at least two years. Two questions that need to be answered are, “Is online searching a reference or information science skill?” and, “What is the role of the library school in teaching online searching?” Inevitably, library schools need more time, more money, and more people to do the best job; they are always playing catch-up.

The University of Tennessee library school covers the following concepts in its courses on online retrieval: history of database design, searching systems, strategy development, differences between print and online databases, underlying concepts of searching, and introduction to question analysis. Demonstrations are done, and the students get some hands-on training. Students must do the same search manually and online in the same database so that they can observe the differences
between the two versions of the database. In subsequent courses, students are ready for specialized training on databases offered by the vendors or database producers.

The role of the school is to present the theoretical bases of information retrieval, to hone skills and concepts, to teach search formulation, and to offer the first steps of hands-on training. After the first degree, the real learning takes place in a practical environment. The school can give an overall view, but details must come from on-the-job knowledge. It is important for the schools to define where their role stops and others take over.

A recent survey showed that 94% of library and information science schools offer courses in online searching. Many offer up to one third of their courses. The strongest programs are where the PhD is offered. In the area of continuing education, the library school can serve as the host for online vendors to hold short courses.

One user’s view of online training

Carol Tschudi, of the Engineering Sciences Library, manages a large on-demand searching service. In her view, training online searchers is difficult because:
- new searchers have diverse skills, backgrounds, and learning rates;
- there are over 1,200 databases available today—which ones should be taught?
- online searching has its own jargon which is unfamiliar to people desiring to be searchers—resistance to the unfamiliar must be overcome;
- stereotypes of the male/female roles in libraries must be overcome.

Most searchers joining the Engineering Sciences Library come from the library world and like information and research. Ms. Tschudi also feels that library schools are lagging; they must begin to enter the online age and accept online searching as a fully legitimate tool. Vendors and database producers are doing the training, but it tends to be mechanical in nature, in contrast to in-depth education. There is no complete online searching training program available to the general public. Many searchers are not teachers, and there are too many one-semester courses. Students need time to practice and to experiment with the system, but, too often, ‘homework’ uses up all the students’ time.

An ideal training course for online searching would cover theory, limitations, databases, file creation principles, and terminology. A system running on a microcomputer would be useful for training because it would not incur any costs. After the student learned the mechanics by practicing and browsing on the microcomputer system, then the real system could be approached.

Developing a self-training manual

Don Fleck, of Halcyon Associates, indicated that documentation can be a good training aid. It is not hard to do, but it is not often done because resources are
allocated elsewhere. Testing the documentation on end-users is very important.

Mr. Fleck was responsible for developing the documentation for the Dow Jones News/Retrieval Service. This documentation consists of:
- a self-teaching manual,
- a free-text search manual written for occasional users,
- the master menu online,
- a free online newsletter,
- a user’s magazine (Dowline).

Dow Jones had no training staff at the time much of the material was being written. Good documentation was therefore as critical to building revenues for the system as was building the database.

Writers are often too close to the product; one should therefore test the documentation on end-users and have a feedback mechanism between the test subjects and the writers. Journalists often excel at writing documentation because they know how to explain difficult concepts simply. The right balance between detail and economy of words is needed, and the audience for the documentation must also be defined. Some questions to be asked are:
- Is the documentation to be printed or online, or both?
- What is the proper mix?
- What is the role of a newsletter?

The three aspects which Dow Jones found to be of particular importance to documentation are:
(1) illustrations,
(2) physical convenience (size, layout, etc.),
(3) content:
(a) ‘getting started’ (equipment, dialing up, etc.),
(b) tutorials,
(c) examples,
(d) reference,
(e) a reference card,
(f) advanced features,
(g) index,
(h) table of contents.

Training programs for end-users

Aldona K. Valicenti, of Standard Oil of Indiana, pointed out that her company has a geographically dispersed site, with eight buildings and 1,500 persons. Many of the end-users wanted to search, and turned to the library for help and training. In a research environment, scientists have terminals for other purposes; online searching is a natural extension of their capabilities. Two training courses were therefore developed to meet these needs. One course was devoted to Chemical Abstracts and was primarily focused towards chemists. The other was for engineers and other researchers; it covered files such as INSPEC, Compendex,
Derwent, etc. Both courses consisted of three one-hour sessions. Sample questions from attendees were encouraged and were used in demonstrations of the online systems.

The introductory courses were open to anyone desiring them. After attending them, those who wished further training were required to obtain a commitment from their supervisors and a charge number for billing. They were then assigned an intermediary in the library as a mentor and were given their own passwords. The mentor worked individually with the trainee to teach basic sign-on procedures, commands, etc. Trainees were also encouraged to take the vendor training courses.

End-users have expressed positive views about doing their own searching. About one hundred individuals have taken the two introductory courses; some thirty-five of these went on to do their own searches. They usually specialize in databases relevant to their own research, leaving other searches to the experts in the library. The intermediaries found that those who took the courses became better users of the library service because of their understanding of the limitations of the online systems. End-users suggested shorter vendor training courses and more online tutorials.

**TRAINER: a simulator for online training**

Elaine and Nicholas Caruso, of the University of Pittsburgh Graduate School of Public and International Affairs, spoke on the subject of TRAINER—a teaching emulator for the Dialog and Orbit systems. It is available at the University of Pittsburgh, Carnegie Mellon University, and on the Edunet network. It contains tutorial modules, emulators, and quizzes, all under student control. Virtually all documentation is online; the manual is only eight pages long, of which four are the index. It teaches skill development and encourages comprehension with frequent quizzes.

Students can enter the module at any of 23 points. The tutorial modules teach basic commands and telecommunications protocols. At the end of the third module, students are encouraged to go into the emulator. Quizzes were added because people are used to bringing the learning process to completion in the form of a test. In grading the quizzes, a correlation was made between the time spent on TRAINER with the grade and the student’s age group. There seemed to be a positive correlation with time and age (older is better!); younger persons spent less time online than older. Typing skills also correlated positively with both time and grade.

Almost all the work of TRAINER is done on Dialog, and frequent references are made to the Dialog documentation. TRAINER is designed for persons who have no computing experience, but an awareness of online databases.
Working groups

After the formal presentations, attendees dispersed into five discussion groups and examined three questions bearing on interfacing with the user. Following the group meetings, attendees reassembled to hear reports from each group. The meeting concluded with a summary by Charles Meadow, who moderated the final session.

Question 1: How can the effects of the multitude of databases and processing hosts be minimized in the training process?

One group felt that the effect cannot be minimized in today's environment. A common command language or standardized data fields are probably impractical and unlikely to be developed. Another group took a similar view, concluding that it probably is not necessary for the end-user to be competent on more than two systems (in this context, "end-user" does not include intermediaries). One working group noted that business users may be more familiar with numeric databases than with bibliographic files; training to tie bibliographic and non-bibliographic systems together is needed.

There was a consensus among attendees that good documentation is essential in helping users to cope with today's many databases and vendors. (It was noted that the problem lies more with a multiplicity of databases than vendors.) The test of the marketplace and the demise of systems and services that do not best serve users' needs may help to resolve the complexity issue.

There was also a strong sentiment in favor of intelligent front-end systems, emulators such as TRAINER, and gateway systems such as CSIN, CONIT, or IIDA which help the user conduct a search. Microcomputer-based simulators will be useful because users can be trained with them at low cost.

Question 2: How can training responsibilities best be divided among producers, processors, intermediaries, library schools, consultants, etc.?

Although there is a continuum of training responsibilities, there was a general consensus that database producers are now the best qualified to train on specific databases since they are so intimately involved with their construction. Vendors can explain their own systems, but may be unfamiliar with the details of all the databases.

There was a strong sentiment in all groups that both producers and vendors should share the responsibility for the preparation of documentation. Producers called on vendors to ensure that they were given the opportunity to review any vendor-written documentation on their databases before it was released.

When a transparent interface is developed, training will be easier. The environment in which training is occurring is rapidly changing, especially as microcomputers continue to proliferate. Producers and vendors must therefore cooperate in training users. Shared facilities were suggested; a centralized training facility for a
region was also mentioned, but the question of financing such a facility remains unresolved.

Library schools can also have a role in training online searchers. They should do more than just to introduce basic theory and concepts. Simulators such as TRAINER are encouraged because they can help cut costs. Internships or work-study programs were mentioned as possible training methods; they have been used successfully in some cases.

A strong need was expressed for a directory of available training programs or materials; such a directory does not exist today. A suggestion was made that the preparation of a training materials directory would be a good project for ASIDIC to undertake.

**Question 3: What are the barriers to effective training and how can they best be overcome?**

The barriers fall into two major areas: resources, and user attitudes. Training costs are seen as a major barrier, especially in organizations where management may not recognize the value of online searching. Frequently, trainees must travel to a central location for training; travel costs are especially sensitive to budget-cutting. Some ways to overcome the cost barrier are through vendor-produced training files, courses on floppy disks, videodisks, self-study manuals, computer-aided instruction, emulators, and gateway systems. A regional training center for use by all vendors was mentioned as a possible partial solution to the obstacles hindering effective training, such as the lack of proper facilities at some sites. Technology is available today to do effective training; wide-screen video projectors and special training rooms were mentioned.

A major barrier in training is identifying the users to be taught. Determining the skill level of the trainee in advance is difficult, and it can be costly to tailor the training session to individual audiences. As mentioned in the keynote presentation, the mix of searchers is changing rapidly today as more end-users avail themselves of training courses.

End-user attitudes may also impede training. Many users still have a fear of computers or are not interested in minor system refinements. They tend to be unsophisticated and will give up if they cannot make efficient or quick use of the system to find what they are looking for. Marketing efforts are therefore needed to overcome these attitudes.

**Final summary**

The problem of the user interface continues to exist and will not go away; however, it appears that people are willing to live with it. Standardization is not a solution because of the varying nature of the databases; it is impossible to make everything look alike! Gateway and front-end systems show promise. The information industry may be one of the last free markets in the world, and training
plays an important role in it. Training programs should therefore continue.

There is no need for a national training center in such a rapidly changing industry; the market should be tested to see who can do the training. No single group can; we shall continue to have a division of responsibilities.

The largest single barrier to effective training is the total cost. The fees for the courses are not high, but when travel and trainee salaries are included, the total cost may be large. The location of the training is therefore a major factor—managers who do not value training will not send people to courses.

End-user searching is here to stay and is a whole new world to deal with. We cannot rely solely on library schools for training because end-users do not go there. Search training must be done in other than library schools and departments (maybe even in high schools!).

Acknowledgement

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