Lawrence Berkeley National Laboratory

Title
EDUCATION AND TRAINING FOR COMPUTER-BASED REFERENCE SERVICES: A CASE STUDY

Permalink
https://escholarship.org/uc/item/7d21v6ps

Author
Robinson, J.

Publication Date
1979-09-01

Lawrence Berkeley Laboratory
UNIVERSITY OF CALIFORNIA

Employee & Information Services Division

EDUCATION AND TRAINING FOR COMPUTER-BASED REFERENCE
SERVICES: A CASE STUDY

Jo Robinson

September 1979

DISCLAIMER
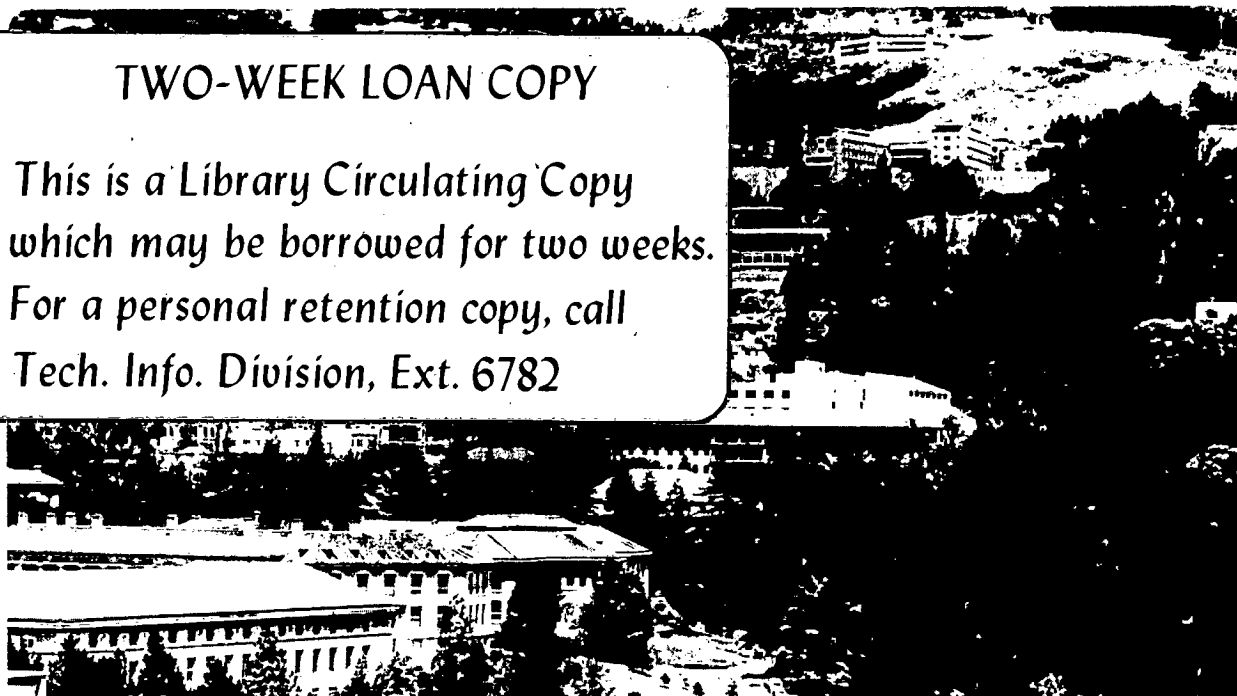
EDUCATION AND TRAINING FOR COMPUTER-
BASED REFERENCE SERVICES

Two Successful Training Approaches at the University
of California: Database Workshops and Seminars

Jo Robinson

EDUCATION AND TRAINING FOR COMPUTER-BASED REFERENCE SERVICES.

Two Successful Training Approaches at the University
of California: Database Workshops and Seminars

Jo Robinson*

ABSTRACT

   This paper discusses a training program for online searching that
was used by the University of California's Computerized Information
Services (CIS). After giving an overview of the training program as a
whole, the paper concentrates on database training. One form of
intensive database training is the database workshop, presented by the
database supplier staff (often in conjunction with search service
staff). A second form is the database seminar, where searchers
investigate topics on diverse databases and systems and then report to
each other in an informal setting. This proved to be a popular and
cost-effective training technique, especially for search strategy.
The two kinds of database training seem to complement each other.

*Lawrence Berkeley Laboratory, Berkeley CA.   94720

I. INTRODUCTION

The University of California's Computerized Information Services (CIS), charged with implementing a training program for online searching on its nine campuses, planned a multi-part approach. This is a description of some of the things that were tried, and an account of what worked.

II. THE SETTING: UNIVERSITY OF CALIFORNIA (UC)

CIS was funded at UCLA by the National Science Foundation from 1969 to 1974 as one of six university-based information centers. From the beginning of CIS's own search service, which operated primarily in current awareness mode, CIS staff provided training and consultation on profile construction for UC and other librarians. This relationship gradually evolved into a natural constituency or user group of academic librarians interested in computer searching.

In 1974-75 CIS convened a working group to discuss issues related to online searching. At this time, various online activities were underway on several of the UC campuses. MEDLINE had been available on many campuses as early as 1971. UC Davis had an experimental arrangement through the National Agricultural Library whereby it used the Lockheed Retrieval Service to access the CAIN database (now called AGRICOLA) and UC Irvine and UC Riverside were running experimental search services. In 1974 the largest UC campuses (UCLA and UC Berkeley) were offering MEDLINE search services but were not using any of the commercial search services. These two campuses started a joint subscription to the New York Times Information Bank (now called simply The Information Bank) in January, 1975.

The working group for online access was composed of data services librarians from each of the nine UC campuses. It discussed such issues as training, operation (forms, scheduling, promotion), evaluation and statistics, communications and terminals. As a result of these meetings, CIS negotiated a group contract with two search services (Lockheed and Systems Development Corporation), and appointed an online user services librarian as well as a training coordinator (the author). Later CIS also negotiated a group contract with Bibliographic Retrieval Services (BRS). In 1978 some of the CIS activities were assumed by the California Library Authority for Systems and Services (CLASS).

III.   THE TRAINING PROGRAM: OVERVIEW

A.   AUDIENCE

The focus of the entire training program during the first 2 years
was on the intermediary: the program was designed for a wide audience
of UC and other academic librarians.   More than 150 people attended
various training sessions over the course of the first year.

CIS chose to publicize all training events, encouraging all
interested public service librarians to attend, in an attempt to
demystify and despecialize the searching function.   It was hoped that
searchers could thus be chosen by their own interest, rather than just
by being assigned.   It was expected that some people would also choose
not to get involved, and this kind of self-selection did occur.

The audiences planned for included:
     1.   Trained online searchers (e.g. MEDLINE searchers)
     2.   CIS Information Processing System trained searchers
     3.   Librarians with little or no previous exposure to
          computer searching

B.   TYPES OF TRAINING

The training program for these audiences, focusing on the
Lockheed, SDC, and BRS search services and databases, had the
following components:

1.   Confidence building sessions.   These sessions were designed to
demonstrate computer searching and give the librarians a chance to
decide whether they were interested.   However, due to the large number
of searchers with prior experience with one or more search systems,
very few confidence-building sessions were held.   Later, a real need
for orientation meetings for non-searching librarians as well as for
general library staff became evident.

2.   Initial and advanced search system training sessions.   These
one-day sessions were given by search service personnel, and later by
the training coordinator.   Initial sessions focused on the technical
aspects of online searching and included some database information.
Advanced sessions usually dealt with several databases within the
context of the particular search system.

3.   Retrieval exercises.   A set of retrieval exercises for
Lockheed's DIALOG system, written by Charles Bourne, were designed for
use in a supervised laboratory setting within a library school.   [1]
The exercises gave a thorough grounding in DIALOG search techniques,
plus some database information.   A second set of exercises on using
SDC ORBIT was also prepared.   [2]   UC librarians participated in the
initial testing and use of these exercises, and this turned out to be
a very important part of the training program.

4. **Database workshops.** These workshops are discussed in the next section.

5. **Database seminars.** The seminars are discussed in section V.

IV. THE DATABASE WORKSHOPS

A. WORKSHOPS

A series of workshops on more than 20 databases was held during a four-year period. BIOSIS, CA Condensates, ERIC, Psychological Abstracts and Science Citation Index were among the first workshops given. workshops were usually held on both the Berkeley and Los Angeles campuses; librarians from the University of California, from the California State University and College system, and from some private academic institutions attended. Individual sessions usually drew from 30 to 50 people at each location. Most of these workshops were free to those attending. A policy of recovering some costs from the participants would probably have affected the number of attendees.

B. TEACHERS

A database workshop teacher needs a thorough knowledge of the database as produced by the supplier, and in these early workshops many suppliers made their staff available as a pilot effort.

Search system information can be supplied by the database suppliers, by a member of the search service staff or by an experienced searcher from the host institution. It is important for search system expertise to be available for the workshop. Early in the program, CIS staff and local experts did the demonstrations and system support work; later, as the audience for the database workshops grew beyond its original UC base, search service staff attended most workshops. Demonstration computer connect time was generously provided by the search services.

Talent from the UC library system was incorporated into some of the workshops, where local experts were used as teachers and demonstrators. Local input in the form of sample questions for discussion was incorporated into a number of workshops.

5

C. WORKBOOK

An important factor in a successful database workshop can be the workbook, available in advance or during the workshop. At many of the CIS database workshops, a workbook was used as a basis for the lectures, providing an important reference tool for the participants.

BIOSIS, Chemical Abstracts, Psychological Abstracts and INSPEC produced elegant, substantial workbooks for the UC workshops, some of which were used again, modified or later published by them. Some of these were not intended as stand-alone works. In fact, the CA Condensates Draft Workbook was only to be made available in conjunction with a workshop given by Chemical Abstracts Service staff. The Center for Exceptional Children, Foundation Grants, Inform, Pollution and Oceanic Abstracts provided master term lists, key database information, or strategy suggestions as handouts. The National Agricultural Library, the Institute for Scientific Information, Engineering Index and others have also produced workbooks or users guides for their databases. A recent version of some representative workbooks is given in the appendix.

D. FORMAT

Although the various database workshops actually followed somewhat different patterns, the following sequence emerged as a prototype.

Sequence of Presentations. The first part of the database workshop consists of a lecture. Information may be presented in these areas:

> --coverage (types of documents or articles
>   included or excluded; selective or inclusive
>   indexing; availability of journal lists)
> --editing (British vs. American spelling; word
>   separation, fragmentation or hyphenation;
>   abbreviation; treatment of symbols).
> --indexing for controlled vocabularies (the control
>   agent: a thesaurus or word list; dates and kinds of
>   changes which have occurred; use and
>   application of weighted terms.)
> --indexing for uncontrolled vocabularies
>   (types of concepts indexed; generic or
>   specific treatment; relationship to
>   controlled vocabulary if database has both)
> --classification or coded indexing (number of codes
>   applied to each citation; cross referencing
>   practices; breadth or specificity of codes;
>   changes in the classification.)

The second part of the prototype database workshop consists of applied search strategy. When searchers are learning about a range of data bases, it is especially important to use an applied approach. Search examples may be developed, modified, and followed through the retrieval process. This allows searchers to become more familiar with the kinds of data on a given database, as they see search interactions

and results.

The four steps discussed in the BIOSIS Search Guide section on search strategy provide a useful framework.

1. Identify Concepts.

This step, in a workbook or other teaching situation, may be used simply to state the concepts, facets, or parameters of a search. Stating them too simply may skirt one of the larger issues in search strategy development: the problem of unearthing the real question. It can be a good teaching method to state the question in natural language as a real requestor might, so that the process of identifying the concepts (perhaps discarding some and adding others) may be discussed.

2. Expand and Translate Concepts.

This step provides the framework for illustrating correct use of a controlled vocabulary or classification scheme, features such as term weighting, hyphenation, word fragmentation and treatment of special symbols. Here the idea or intent of each concept is translated into terms, codes or phrases as they may be found on the database. Here, too, available database aids may be referenced.

3. Formulate logic; or: Test initial profile.

This step simply allows for recapitulation of the first two steps. In fact, the logic cannot be separated from the identification and expansion phase. Figure 1 shows a sample search strategy from the CA Condensates workbook. The conventions used (enclosing OR'd terms in brackets, using AND connectors between sets of OR'd terms, and using a single symbol for truncation) provide a very clear visual summary of the search being discussed.

4. Profile Modification

The revision process may be used to indicate alternative strategies, to deal with problems of false drops, to broaden or narrow the original question. Figure 2 shows a modification step for the same CA Condensates search strategy example. Each step is also discussed in the text of the workbook. Figure 3 shows a Venn diagram of the same sets of terms, which would be too complex if it showed all terms involved.

The third part of the database workshop (which may be interspersed with the search strategy section or may be separate) allows for illustration of the strategies in terms of a specific search system.

[ALKALI
LITHIUM
SODIUM   AND
POTASSIUM
RUBIDIUM
CESIUM]

[HALIDE*
FLUORIDE*
CHLORIDE*   AND [ELECTROLYTE*] AND
BROMIDE*
IODIDE*]

[ELECTROCHEM*
ELECTRODEPO-
SITION
ELECTROLYSIS
ELECTROLYTIC*
VOLTAMMETR*
POLAROG*
CA072*]
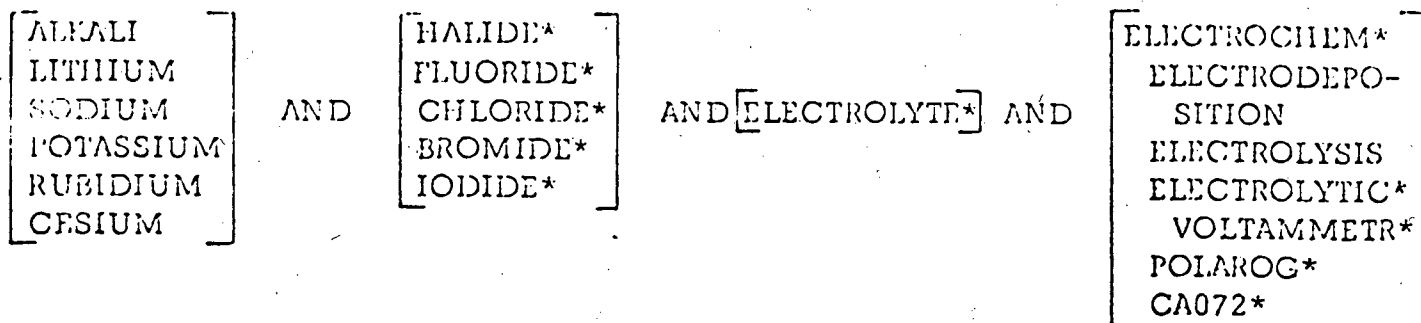
Figure 1. The Initial Profile

[ALKALI
LITHIUM
SODIUM   AND
POTASSIUM
RUBIDIUM
CESIUM]

[HALIDE*
FLUORIDE*
CHLORIDE*   AND
BROMIDE*
IODIDE*]

[ELECTROCHEM*
ELECTRODEPOSITION
ELECTROLYSIS
ELECTROLYTIC*   AND NOT
VOLTAMMETR*
POLAROG*
CA072*]

[MOLTEN
FUSED
MELT*]
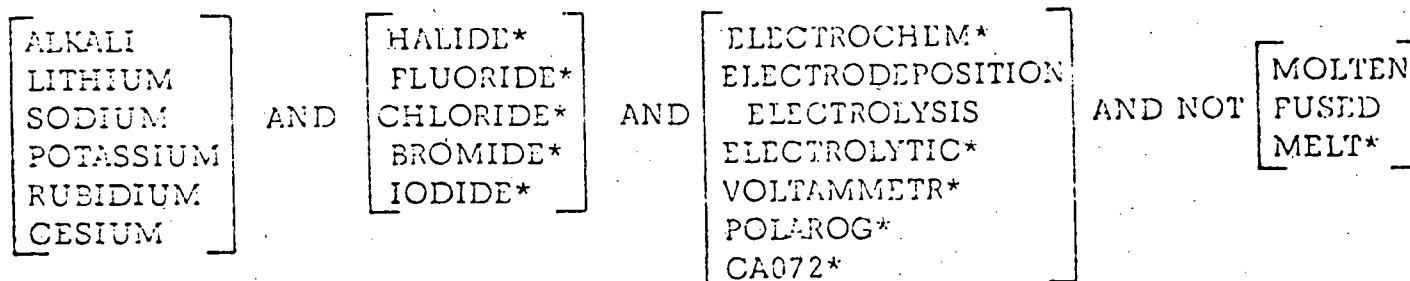
Figure 2. A Revised Profile
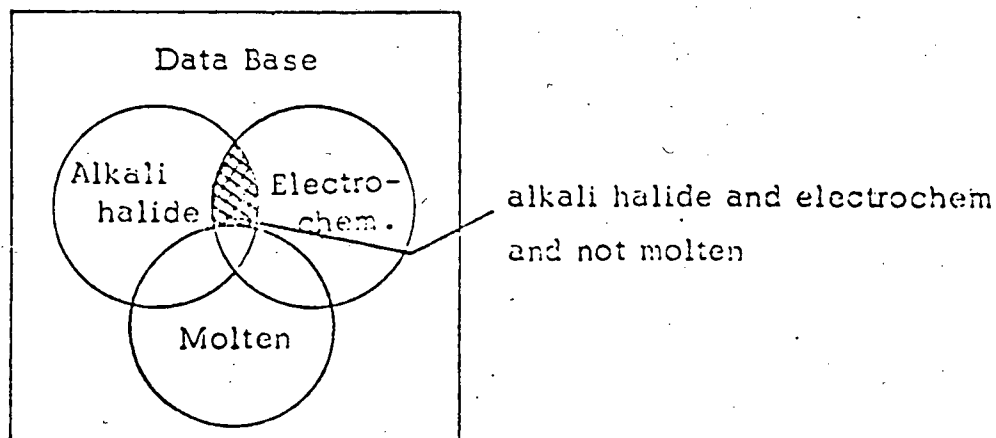

alkali halide and electrochem
and not molten

Figure 3. Venn Diagram of Revised Profile

7a

For most of the CIS workshops a terminal was hooked to a number of TV monitors, illustrating each search system "live". This has advantages in not requiring multiple phones, terminals, passwords and scheduling; and it is cheaper than a lot of hands-on work, because only one password is using connect time. Disadvantages include potential eye strain as well as susceptibility to equipment malfunction.

In any case, anyone involved in organizing demonstrations and workshops on computer searching learns to deal with demonstration syndrome (a version of Murphy's Law, "If anything can go wrong, it will."). The organizer and speakers should be prepared to ad lib if the technological tools fail to function.

After several workshops have been given in a series and if the search system features have been understood and assimilated, it may be sufficient to work just with transparencies or chalk board and blow-by-blow descriptions of search transactions. But if the audience is somewhat diverse, including experienced and novice searchers, online illustration is still preferable, because it gives a feeling of how the computer operates.

The earlier CIS database workshops were designed without hands-on work, and were held at a time when the majority of the audience had not achieved familiarity with the search system shown. It was thought that a demonstration-type discussion of search strategy would be useful to those viewing it, while not requiring connect time for each participant. Because of evaluation responses, however, hands-on laboratory sessions were added to the workshops. We were fortunate in gaining access to a laboratory of the UC Berkeley School of Library and Information Studies and to multiple terminals at UCLA. Sometimes as many as five terminals were used simultaneously. Lockheed, SDC, and BRS were generous with their allocation of demonstration passwords for training purposes, so we were able to create a supervised laboratory setting.

This turned out to be the reverse of the correct situation. It is the early sessions (while a group of searchers is still somewhat new to searching) that need to have hands-on time available, whereas for later sessions the use of video display or printed examples to illustrate system and database features is sufficient.

Evaluation. Evaluation responses to the sessions showed that the librarians were generally very pleased with the knowledge shared by the database suppliers and with the material presented. The physical facilities generally received only a passing grade (e.g., illustrations were "relatively hard to see").

On the negative side, some people wished they had had the workbook in advance of the session. (This was not possible for these particular workshops; they were pioneering efforts, and the workbooks simply were not ready in time for advance distribution.)

It is always difficult to pitch a presentation at the correct
level to a group of people with diverse backgrounds, but it may not be
feasible to segment a group by background. In case of doubt, a
presentation should probably be pitched a little high; beginning
people may miss some things, but advanced people have less chance of
being bored.

Viewed in retrospect, the database workshops were a very important
part of the training program. The workbooks proved to be especially
useful. However, database workshops are only a part of the spectrum
of training that searchers require. In UC's case, most of the
searchers who had the opportunity to go through Charles Bourne's
retrieval exercises, and also to perform searches regularly, became
fully confident in their technical skills. The database information
then became the natural complement to their system skills.

V. THE DATABASE SEMINAR

A. BACKGROUND

But where does it all lead? When the training sessions, the
exercises, and the database workshops are done, when the manuals and
the workbooks are read, then what?

There is a great danger that all of the information will slip
away, if searchers do not have a chance to practice their skills. And
at commercial rates, that practice time may be prohibitively
expensive, especially for institutions that wish to let all interested
librarians receive training.

At UC Berkeley, searchers found themselves in a situation where
they had received considerable formal training (they had been talked
at a lot), but needed more practice in using the databases to solidify
their skills. Without additional practice, much of the training
effort was in danger of evaporating.

Finances were a problem: there was no budget item covering the
computer time needed. While the Northeast Academic Science
Information Center (NASIC) guidelines suggested that eight to ten
hours per searcher were required to achieve proficiency in searching,
this amount of time was simply out of reach for UC Berkeley in early
1976, especially since over twenty librarians were involved. [3] A
more economical approach had to be found, and funding had to be
obtained.

An innovative request was made of the Berkeley campus' Melissa R.
Young fund, which is for library staff development purposes. The
first approach to the committee which administers the fund asked for
computer costs to support staff training for individual, unsupervised
practice. This was rejected because the committee felt that a more
structured approach was needed. Funding was later granted for the
database seminar and for performance of the online laboratory

exercises. The seminar was open to librarians at other institutions
in the area, provided they funded any computer time they used
themselves. A description of the seminar follows.

B. OBJECTIVES

    Given the training that had preceded it, the objectives of the
seminar were:

    -   To enable individual librarians to improve the quality of
        their service by their increased ability to extract, from a
        variety of machine-readable databases, their subject
        specialties.
    -   To enhance and synthesize the various parts of the training
        program already presented, such as system training, practice
        exercises, and database workshops.
    -   To provide a forum for discovery (on an individual basis)
        and sharing (with a group of colleagues of searching)
        knowledge and lore.
    -   To maximize the benefits of using online computer connect
        time for training purposes.

    Table 1 gives a list of topics, databases and search systems used
in 14 seminars. 45 individuals attended at least one session; the
average group was about 15 people.

C. FORMAT

    The seminar format required individual librarians or teams of two
librarians to choose a topic of interest to them, plan a search
strategy, execute the search, and then report to the group on the
results. In this way, we hoped to get as much mileage as possible out
of the computer time used.

    Initially, one database was covered at each session, with one or
two reports on that database. As the seminar progressed, however,
there were more and more comparative searches, usually on two or more
databases, and sometimes on two different search systems.

    Sometimes it was difficult for a searcher team to come up with a
topic to investigate, so topics that had come up in actual search
requests were used. These had the advantage of not being contrived.
Using a live topic also allowed us to indulge in afterthoughts--to
rerun a search after some consideration, and to compare results. When
live searches were performed, the standard search fee was charged to
the patron, but any costs for reruns or other approaches were charged
to seminar funds.

Table 1   SEMINAR TOPICS

Seminar Topic	Search System	Data Base	No. of Participants	Presenters, by Library
1. The Interview for On-Line Searching (A Videotape)	SDC	ERIC	30	UCLA Library School
2a. The Search for Vitamin A	LRS	BIOSIS	35	UCD Reference
2b. Criterion-Referenced Tests at the Elementary School Level	LRS SDC	ERIC	"	UCB CIS
3a. Effect of tobacco smoking on lungs (human)	LRS	BIOSIS	15	UCB Optometry UCB Public Health
3b. Mutagens and Carcinogens Occurring Naturally in Food	LRS	BIOSIS	"	UCB Biology
4a. Self-Actualization of Student Nurses	LRS	ERIC, Psych, SSCI, CDI	20	UCB Reference
4b. B.F. Skinner's Theories and Teaching Machines	LRS	Psych	"	UCB Main
5a. Down's Syndrome (Mongolism) and Language Acquisition of Infants and Preschoolers	LRS NLM	ERIC, ECE MEDLINE	15	UCB Education, UCB Public Health
5b. Federal or State Day Care Programs	LRS SDC	ERIC	"	California State Library
6a. Polish Railroads (English translations)	LRS	NTIS	20	UCB Reference
6b. Long-Term Safety Aspects of Nuclear Power Reactors	LRS SDC	NTIS	"	LLL Research Information Gr...
7a. Harmful Effects of Estrogens on Women & Infants; Relationship to Vitamin or Nutritional Needs	NLM LRS	MEDLINE TOXLINE BIOSIS	10	UCB Public Health
7b. BIOSIS Advanced Workshop Report		BIOSIS	"	UCB Biology

10a

Seminar Topic	Search System	Data Base	No. of Participants	Presenters by Library
8. Poverty and Health	LRS	SSCI	15	UCB Health Sciences Information
8b. Alcoholism and Its Relation to Accidents and Violence	LRS NLM NYT	ERIC, SSCI, Soc. Abs, Infobank, Medline	15	UCB Reference
9. Pion-Pion Scattering	LRS RECON	INSPEC NSA	15	UCB Physics LBL Information Research Group
10a. Small Farms (In search of the Family Farm Act)	SDC	CIS, ASI, NTIS	15	California State Library
10b. Norse Runes (In search of early Viking Influences)	LRS	NTIS, SSCI, CDI	"	SRJC
11. Coatings for Solar Collectors	RECON LRS SDC	ERDA, ENERGY-LINE, ENVIRO-LINE	15	LBL Information Research Group
12. Drought in California: Public Policy Aspects	SDC	SSIE	20	California State Library UCB Natural Resources
13a. Evaluation of Social Action Research	SDC	ASI, CIS, NTIS	15	UCB Documents
13b. AGRICOLA Workshop Report		AGRICOLA	"	UCB Forestry UCB Biology
14. Comparison of Violence in Various Centuries	LRS	Historical Abs, America History & Life Soc. Abs.	15	UCB Reference California State Library

Figure 4: Seminar Search Strategy Plan (for Psychological Abstracts)

TOPIC: B.F. Skinner and Teaching Machines

STATEMENT OF THE SEARCH TOPIC: We need studies on the use of Skinner's behaviorist theories for the development of teaching machines or programed instruction. We prefer studies relating to elementary school age children; however, we would be willing to accept such studies on any age. If there is nothing specifically relating to teaching machines and programed instruction, try for information on the use of Skinner's theories in education in general. We do not want studies using laboratory animals.

FACET DEFINITION:

#1	#2	#3	#4	#5	#6
B.F. Skinner	Behavior	Teaching Machines	School Age Children	Humans	Bibliography

FACET EXPANSION:

#1	#2	#3	#4	#5	#6
SKINNER?	BEHAVIORISM	TEACHING MACHINES PROGRAMED INSTRUCTION CL=16 (Educ'l Psych) CL=17 (Applied Psych)	ELEMENTARY(W)SCHOOL ELEMENTARY(W)SCHOOLS SCHOOL AGE CHILDREN	CHILDREN ADOLESCENTS ADULTS. Also, consider expansion of VERTEBRATES to NOT out.	CHILDREN BIBLIOGRAPHY

STRATEGY PLANNED:

1 AND 2 AND 3 AND 4
(Skinner) (Behaviorism) (Teaching Machines) (School Age Children)

1 AND 6
(Skinner) (Bibliography)

TO BROADEN:

(1 OR 2) AND 3 AND (4 OR 5)
(1 OR 2) AND 3
1 alone with each of the other facets

TO NARROW:

Limit to ENGLISH (use LA=FRGN and NOT out)
Limit to 1973 to date (EXPAND YR= and SELECT E#'s)
Limit to humans as recommended in PsychInfo Manaul (EXPAND VERTEBRATES and NOT out)

10c

Having chosen a topic, the team prepared a search strategy in schematic form such as the example in Figure 4. Use of the schematic increased our flexibility in thinking about strategy, and enabled us to understand each other's work. When possible, the team planned a broader treatment of the topic, should they retrieve very little material, and a narrower treatment, should they retrieve too much. They also were asked to show how reviews or bibliographies would be retrieved on the database.

Then they executed the planned search. Here we found that the team approach worked very well--the "co-pilot" who was observing was usually able to suggest alternate approaches and work right along with the "pilot" at the keyboard.

D. REPORTING

For the seminar report, in addition to the strategy diagram, the actual terminal trace was annotated and incorporated into a handout and transparencies. The trace was often abridged, but errors were always highlighted. Calling attention to errors helped others to avoid the same kinds of errors later and also contributed to a growing feeling of empathy and community in the seminar.

The oral report contrasted the plan with the execution--and these were often quite different! Many of the topics chosen turned out to be rather specific, so that the advance planning of alternatives was for naught. As the seminars progressed, the reporting style became rather flexible. Some searchers introduced their topics not by a strategy diagram, but by a current article about a topic of interest, from which the search was drawn. As the group became more familiar with each search system, some searchers summarized the development of sets of terms and logic instead of showing the exact terminal traces. In reporting, as in the searching, teams worked well; there were some spirited dual presentations that bubbled with excitement. Other cooperative ventures were milder, but still fruitful.

It was interesting to see how well each search question fit the data base used, the type of citations available on each database (title only; title, descriptors and abstract; main and analytic records with abstract; etc.) and the validity of a search strategy developed on one database (e.g., with title only) when executed on another (e.g., with title and abstract). We found that searches planned for title-only databases tended to pick up garbage on title-abstract databases. It was also interesting to see similar strategies used on the same database through different search services; the results were usually close but not identical. The reason for the discrepancy typically lay in the treatment of search terms by the different search services.

11

Failures were of particular interest, and the reporters discussed them quite specifically. Problems included small ones such as set number errors, and larger ones such as insufficiently defined or marginally suitable search questions. The marginal search questions could have been avoided by assigning only pre-tested questions for search strategy work (failures having been eliminated at an earlier stage). In our situation, the use of live questions tended to sustain the group's interest, yet this inductive approach did not always allow for neat conclusions. In a library school environment, problems should probably be assigned rather than student generated, so as to give the instructor more control.

The environment was a friendly, non-threatening one. Presentations were instructive, enthusiastic, even funny. One session is described below. A librarian from another institution said that she had made every mistake in the book. She prefaced her presentation by saying:

> "Well, I had not done much searching before this; hardly enough to get my ankles wet. So when this question came in, about new findings showing Norse influences in America, I just went ahead and did it. I dived in the deep end, and just . . . drowned!"

The patron thought that the government had sponsored some research on this topic so the searcher set up a Search Save, using Lockheed's DIALOG system on the NTIS database. (The Search Save stores search logic, which can be re-executed against the same or another database). Executing the saved search, she retrieved one false drop. Proceeding to Dissertation Abstracts, because she knew of a Master's thesis, she retrieved no citations. Then she went to SSCI (which had actually been the first- priority database) and did retrieve seven citations. The first two citations were book reviews of a book which was lying on her desk! In doing further searching she had formative as well as typing problems, and at one point, hung up in confusion, expecting to dial back again within ten minutes and pick up the search in the middle. Upon dialing back, however, she issued a command which released all the sets she had intended to use! (She eventually did retrieve several citations).

As a tale of woe this was hilarious. We felt that it must be rather special situation, where people could dare to relate their experiences -- and mistakes.

E. COSTS IN COMPUTER AND PERSON TIME

Individual searchers spent anywhere from one to sixteen hours (offline) in preparing their presentations. Costs for computer time were generally well under the hour allocated for each presentation; most searches took around half an hour, though a few required almost an hour's time. For several of the searchers who gave presentations, this was the first "real" search they had done.

F. SUMMARY

What We Accomplished

Not the smallest accomplishment was the camaraderie that developed within the group itself! Competition was not a factor, and there was a feeling of community. One important reason for the positive atmosphere was the absence of grading or personnel evaluation. Another reason was that everyone took turns, so each person was in the same situation at some time.

As expected, the person or team reporting at any one session learned the most. The group saw test searches of many databases, observed different people's approaches to search problems, and had a modest amount of hands-on practice. Seminar participants became very adept at breaking search topics into their component parts, and they developed considerable flexibility in dealing with both expected and unexpected problems.

The inductive approach that we followed did not necessarily lead to dogma about the "right way" to search, but the practice of analyzing searches tended to deepen each individual's understanding of the search strategy process. And since searching is still more of a craft than a science, we feel that this approach reflects the reality of the situation confronting searchers: that for many searches there is not one right answer, but rather a continuum of possible solutions. A number of the seminar reports ended with "in retrospect" views on what the searcher would have done differently, given hindsight.

What We Failed to Accomplish

In the seminars we explored search system and database features, but the amount of hands-on experience associated with the presentations was not sufficient for individuals to gain speed or facility. (Facility was gained by those doing the retrieval exercises mentioned earlier.) Also, the seminar format was not totally satisfactory for all participants. One or two individuals who did not like to speak to a group dropped out.

13

VI.   CONCLUSION

As the database seminars and workshops progressed, we began to see the interrelationship between these two kinds of training. The workshops, featuring database suppliers, look outwards from the databases themselves, providing essential information for searching. The seminars, looking in from the searcher's perspective, allow for interpretation and testing of their understanding. The combination was found to be a useful and workable solution to the problem of online database training. As a group of searchers becomes more experienced, the need for database workshops diminishes. Seminars, however, remain an effective means of continuing education through sharing.

APPENDIX

Representative Database Workbooks and User Guides
from Database Suppliers.

American Psychological Association. PsycINFO Users Reference
   Manual. Washington, D.c.: APA; 1976.

Biological Abstracts. BioSciences Information Service.
   BIOSIS Previews Workbook. Philadelphia, PA: BIOSIS; 1976.

Biological Abstracts. BioSciences Information Service.
   BIOSIS Search Guide. BIOSIS Previews Edition. Philadelphia,
   PA: BIOSIS; 1977.

Chemical Abstracts Service. A CA Condensates Workbook.
   Columbus, OH: Ohio State University, Chemical Abstracts Service;
   1976.

Chemical Abstracts Service. Using CA Condensates and CASIA.
   Presented at the DIALOG User's Workshop, Chicago, IL. 1976.
   July 16-17. Columbus, OH: Ohio State University, Chemical
   Abstracts Service; 1976. (For information contact Chemical
   Abstracts Service: User Education Manager)

Environment Information Center. Enviroline User Manual.
   New York: Environment Information Center; n.d.

Gilreath, Charles L. CAIN Online Users Guide.
   Beltsville, MD: USDA; 1976.

Institution of Electrical Engineers. INSPEC Database
   User's Guide, Second Ed. London; 1977.

Padin, Mary Ellen. The Engineering Index COMPENDEX:
   Online User's Manual for the Lockheed DIALOG Information Retrieval
   Service. New York: Engineering Index; 1977.

Sweet, Richard. User's Guide to Online Searching of
   SCISEARCH and Social SCISEARCH. Philadelphia, PA:
   Institute for Scientific Information; 1977.

Yarborough, Judith. How to Prepare for a Computer
   Search of ERIC: a Non-Technical Approach. Stanford: ERIC
   Clearinghouse on Information Resources; 1975.

REFERENCES

1. Bourne, Charles P. _DIALOG Lab Workbook: Training Exercises for the Lockheed DIALOG Information Retrieval Service._ Berkeley, CA: University of California, Institute of Library Research; 1976.

2. Bourne, Charles P. _ORBIT Lab Workbook: Training Exercises for the System Development Corporation ORBIT System_ Berkeley, CA: University of California, Institute of Library Research; 1977.

3. Benenfeld, Alan R.; Pensyl, Mary E.; Marcus, Richard S.; Reintjes, J. Francis. _NASIC at MIT. Final Report. 1 March 1974 - 28 February 1975._ Cambridge, MA: Massachusetts Institute of Technology; 1975. (ESL-FR-587; ED 107 226)