

USER INSTRUCTION AND THE UNDERGRADUATE ASFA SEARCHER

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ABSTRACT

The results of a program in library instruction for an upper level fisheries course are given. The class was divided into two groups. Both groups were given an assignment on the *ASFA* CD-ROM. One group was given the CD-ROM. The other group was not trained. Class members could come into the Biological Sciences Library anytime it was open and do their search. Then the two groups were compared to see if there was any significant differences in search strategy and/or success.

From 1983-1988 I was the Head of the Biological Sciences Library at The Ohio State University. During this time I was very fortunate to be part of a significant team effort between the School of Agriculture and the OSU Libraries to provide systematic and thorough bibliographic instruction to all undergraduate majors in agriculture. As part of this program I was involved in library instruction for an upper level fisheries course.

During this period the CD-ROM era hit and *Aquatic Science and Fisheries Abstracts (ASFA)* and *Agricola* became available to these students. I was new to watching and teaching patrons do their own searching and it was quite a learning experience for me. One of the things that really intrigued me was the differing perceptions a librarian and a patron had on a successful search and what appeared to me to be an apparent lack of a relationship between the results of a search and the

satisfaction of the patron. I was also very impressed with the speed and ease some learned to search. I was developing instruction in automated searching and offering open workshops for anyone who was interested.

In my last years at Ohio State these two aspects of my professional life merged when the instructor of the fisheries course volunteered the students in his class as subjects in an experiment. We divided the class into two groups. Both groups were given an assignment on the *ASFA* CD-ROM. One group was given the CD-ROM workshop which I had developed. The other group was not trained. Class members could come into the Biological Sciences Library anytime it was open and do their search. Then the two groups were compared to see if there was any significant differences in search strategy and/or success.

The assignment was to use the *ASFA* CD-ROM to find information on wetlands of the Great Lakes. It was believed to be a somewhat straightforward topic and one that did take a certain level of sophistication to do well. One would have to truncate, use a lot of synonyms for both concepts, and be able to use "ands" and "ors".

As usual there were a whole lot of unanticipated problems. Library staff and student workers were given instructions on what level of assistance to provide the students in their searching for this assignment. However, I seriously question the consistency of this and I also am not sure what could have been done. The only way to do this right would be to have the same person sit with each student as they search, and attempt to answer or not answer the same questions. While I have seen psychologists pull this off, I am not sure it is in the nature of any public services or bibliographic instruction librarian to watch a bibliographic struggle and not intervene. I do know the staff time required for this would have been prohibitive. While each student was instructed in turning in their search strategy, their search results, and other information there was a great deal of variance in what we received and in what form. The idea of a successful search dropped wildly as the results came in. I expected to judge them on the number of synonyms they used, not if they used synonyms at all. The final decision on judging a sample search as successful was whether the student printed the equivalent results he or she would have retrieved with the search "great and lakes and wetlands", there's no truncation, no "ors", and no synonyms. This search, however, retrieved more than 30 documents, perhaps meeting the needs of getting started on an undergraduate paper at a large university. In any case, CD-ROM searching is one of the things that has taught me that the concept of success is a relative one.

This all added up to some data which was questionable in the terms of a valid statistical analysis informing librarians of our significance or lack thereof. However, I do now have thirty search strategies in various forms from upper level students who were well schooled in bibliographic instruction. I would like to share some of the results of this experiment with you. Figures 1 and 2 show you the nature of the instruction. Students were taught the basic steps of doing a search and also general

functions to look for in all search systems. The specific protocol for *ASFA* for these functions was also taught.

Before the students were trained we asked them to fill out a questionnaire. Figures 3 and 4 are the results of the questionnaire. UVC 100 was a class required of all OSU freshman. It was a class on how to attend OSU and included a significant library instruction component. NR 201 represents a lower level natural resources class taken by all majors in natural resources, also containing a significant bibliographic instruction component. LCS was the online catalog at Ohio State. These classes were not required. After the students had finished their assignment we asked them to fill out another survey. Figure 11 gives the results of this survey.

BASIC STEPS OF DOING A SEARCH

1. IDENTIFY THE SEARCH TOPIC.

Write out your search in natural language.

2. IDENTIFY THE PURPOSE OF THE SEARCH.

Do you need total retrieval?

3. IDENTIFY/SEPARATE ALL CONCEPTS.

4. DECIDE ON DATABASES.

5. PREPARE CONCEPTS FOR SEARCHING.

Synonyms Truncation
Subject Headings
Narrower/Broader

6. CONNECT THE CONCEPTS.

7. EVALUATE AND MODIFY THE SEARCH.

Number of documents
Relevance of documents
Precision/Recall
Too many documents
Too few documents

Figure 1: Basic steps of doing a search.

GENERAL FUNCTIONS

1. How to connect concepts with "and", "or", or "not".
2. How to truncate -- use root words.
3. How to "nest" logic -- using parenthesis.
4. How to search a phrase.
5. How to mandate proximity.
6. How to expand.
7. How to print, display, and download.
8. How to use controlled vocabulary.
9. How to save a search.
10. How to use search statement numbers.
11. How to choose which fields will be printed, displayed or downloaded.
12. How to see previous search statements.

Figure 2. General functions.

RESULTS OF QUESTIONNAIRE Trained vs. Untrained						
Question	Trained		Untrained		Total	
	Yes	No	Yes	No	Yes	No
UVC 100	12	1	11	3	23	4
NR 201	13	0	11	3	24	3
LCS Workshop	6	7	9	5	15	12
Requested mediated search	1	12	3	11	4	23
Experience with CD-ROM	2	11	5	9	7	20
Previous CD-ROM Workshop	0	13	0	14	0	27
Own Personal Computer	1	12	3	11	4	23

Trained = 13
Untrained = 14

Figure 3. Results of questionnaire: Trained vs. Untrained

RESULTS OF QUESTIONNAIRE Successful vs. Unsuccessful						
Question	Trained		Untrained		Total	
	Yes	No	Yes	No	Yes	No
UVC 100	12	1	11	3	23	4
NR 201	12	1	12	2	24	3
LCS Workshop	6	7	9	5	15	12
Requested mediated search	2	11	2	12	4	23
Experience with CD-ROM	5	8	2	12	7	20
Previous CD-ROM Workshop	0	13	0	14	0	27
Own Personal Computer	4	9	0	14	4	23

Successful = 13
 Unsuccessful = 14

Figure 4 Results of questionnaire: Successful vs. Unsuccessful

THE ASSIGNED SEARCH

Find information about wetlands in the Great Lakes.

A search was considered successful if it retrieved the documents found in the search:

Great and Lakes and Wetlands

Figure 5. The assigned search.

SAMPLE SEARCHES

SUCCESSFUL

wetlands and great
wetlands(ti) and great(au,af,so...)
wetlands(ti) and great(ti)
wetlands(au, ti, so) and great(au, ti,so)
wetlands
marsh and erie

wetlands and lakes
swamps and great
swamps and erie

NOT SUCCESSFUL

wetlands
great lakes wetlands
great lakes
wetlands habitat
lakes
wetlands(au)
ecosystems and wetlands

Figure 6. Sample searches.

16 were Trained
14 were Untrained
16 were Successful
14 were not Successful
9 were Trained and Successful
7 were Trained and not Successful
7 were Untrained and Successful
9 were Untrained and not Successful

Figure 7. Characteristics of searchers

RESULTS OF SEARCHES			
Trained vs. Untrained			
	Trained	Not Trained	Total
Successful Searches	9	7	16
Unsuccessful Searches	7	7	14
Synonyms for Great Lakes	12	7	19
Synonyms for Wetlands	7	7	14
Truncation	12	2	14
Used only one type of synonym	5	8	13
Field Limits	9	9	18

Trained = 16

Untrained = 14

Figure 8. Results of searches: Trained vs. Untrained

RESULTS OF SEARCHES Successful vs. Unsuccessful			
	Trained	Not Trained	Total
Trained	9	7	16
Not Trained	7	7	14
Synonyms for Great Lakes	8	11	19
Synonyms for Wetlands	8	6	14
Truncation	8	6	14
Used only one type of synonym	4	9	13
Field Limits	6	12	18

Successful Searches = 16
 Not Successful Searches = 14

Figure 9. Results of searches: Successful vs. Unsuccessful

AVERAGE NUMBER OF SEARCH STATEMENTS USED	
Untrained	9.07
Trained	14.80
Successful	10.56
Unsuccessful	16.36

Figure 10. Average number of search statements used.

RESULTS OF SURVEY

1 = extremely satisfied; 2 = very satisfied; 3 = satisfied; 4 = dissatisfied;
5 = extremely dissatisfied.

1. How do you feel about the results of your search?

Trained = 2.74 Successful = 2.57
Untrained = 2.91
Unsuccessful = 3.07

2. How do you feel about your ability to search CD-ROMs?

Trained = 3.00 Successful = 2.78
Untrained = 2.91
Unsuccessful = 3.00

3. Do you think you will use CD-ROM searching in your future assignments?

Trained	Yes = 15
	No = 1
Untrained	Yes = 10
No = 2	
Successful	Yes = 12
	No = 1
Unsuccessful	Yes = 11
	No = 2

4. How easy did you find the CD-ROM to use?

1 = extremely easy; 2 = easy; 3 = not easy, not hard; 4 = hard; 5 = extremely hard.

Trained = 2.13
Successful = 2.21
Untrained = 2.66
Unsuccessful = 2.50

5. If you had training before you did your search, do you think it helped?

Trained	13 = Helpful
	2 = Extremely helpful
	1 = Not helpful

Figure 11. Results of survey

CONCLUSIONS

I really do not have any conclusions that I can back up with hard facts. After looking at this and seeing little or minimal difference between the trained and untrained, I still believe in training. Teaching search strategy and training searchers is one of the things I enjoy most, and this may have a lot to do with it. These results also reflect what has always seemed contradictory to me, the love patrons have for CD-ROMs coupled with the frustration they should be suffering. While we librarians frequently look at this as the bliss of the ignorant it may actually be telling us the even greater intensity of frustration people are having with the printed sources. You can never really see what someone is thinking or follow their process as they use print sources. The trial and error of searching is never more apparent then when on a CRT monitor.

I believe librarians and patrons are judging success with totally different perspectives and experience. Librarians tend to judge CD-ROMs against on-line searching while I suspect patrons judge them against the printed sources. Librarians also have a tendency to judge success on the "grace", or inherent correctness, of the search strategy - not on the results.

However, CD-ROMs seem to provide librarians an opportunity to teach a more receptive audience than existed before. Hopefully, this opportunity can be used to learn from each other's perspectives.

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