The Effectiveness of a Projected Computerized Presentation in Teaching Online Library Catalog Searching

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A computerized presentation teaching NOTIS commands and search strategy was produced using Show Partner F/X software. Students from a freshman composition class viewed the presentation and completed a NOTIS search exercise. A second group of students from the same class completed the exercise without having viewed the presentation. A comparison of the two groups' exercises and transaction logs show that the group that viewed the presentation proved better at using correct NOTIS commands and formulating effective search strategies. The greatest differences between the two groups were in subject searching (Library of Congress subject heading and keyword) and in locating specific items.

The online public access catalog is quickly becoming a part of life in the modern library. In the past patrons struggled with the intricacies and plain unwieldiness of drawer upon drawer of three-by-five-inch cards. Now they wrestle with the vagaries of computer terminals. While the online library catalog is a true blessing to practicing librarians, we want to guarantee that the library catalog is equally useful to and usable by patrons.

To this end, librarians have engaged in one of our oldest and fondest pastimes: library instruction. In our eagerness to ensure that patrons make the best possible use of computerized catalogs, we try a variety of teaching methods: handouts, lectures, demonstrations, help screens, and computerized instruction. But after all our strenuous efforts, have we really had any impact?

This study, conducted at Texas A&M University's Sterling C. Evans Library, is one attempt to answer this question. Using the software program Show Partner F/X, two reference librarians and one cataloger created a computerized presentation explaining how to use NOTIS, our online library catalog. The presentation was projected onto a large viewing screen and accompanied by an audiotape narration. Three sections of the required freshman-level composition course viewed the presentation. The students in these sections, plus students from three sections of the same course who did not view the presentation, then completed a library exercise on NOTIS use. We collected and examined the students' exercises, as well as the transaction logs from the NOTIS searches the students did while completing the exercise. The results

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show that while the students who viewed the presentation may not have librarian-level searching ability, they were able to search NOTIS more correctly and effectively than their nonviewing counterparts. Our instructional efforts did pay off.

After examining previous related studies, this paper describes the presentation, examines the differences in NOTIS searching abilities between the presentation viewers and nonviewers, recounts students' reactions to NOTIS and the presentation, and discusses the implications of this study for future instructional efforts.

PREVIOUS RESEARCH

A long history of research concerning the value of user training exists. Researchers have explored the role of instruction in improving patron satisfaction with OPACs and have also attempted to evaluate user-education methods. Betsy Baker and Brian Nielsen discussed the development of instructional methodologies for OPACs, noting how instructional theory and library technology have merged.[1] Baker and Nielsen also reviewed the professional literature which outlines conflicting schools of thought on the value of user education.

Baker and Nielsen conducted a substantive study of user-training research involving the NOTIS system at Northwestern University. The study, supported by a grant from the Council on Library Resources, concentrates on establishing an effective instructional program and on evaluating instructional models through such techniques as testing and transaction logs.[2] Researchers particularly mention that transaction log data would be "invaluable to grounding librarians in concrete knowledge about the behavior of users."[3] However, they also note that before any conclusions might be reached "a period of considerable experimentation and practical examination of what works and doesn't work" in regard to OPAC instruction needs to be undertaken.[4] Nielsen, Baker, and Beth Sandore's final report to the Council on Library Resources details information on the project and discusses its objectives, design, findings, and conclusions.[5] The final report also analyzes OPAC instructional theory, concepts, planning and objectives, as well as instructional content and motivational factors.[6]

Several other studies also focus on OPAC user training or behavior. Karen Markey offers an overview of patron attitudes and quantitative statistical results gathered during a study of library user needs in relation to OPACs. This extensive study, which involves 29 libraries and user surveys, transaction logs, and interviews, emphasizes library patrons' use of types of assistance and the importance of printed materials.[7] Mike Berger and Katharina Klemperer provide a more general overview of OPAC instruction, as they separate instructional goals into several broad categories, including teaching catalog use, teaching patrons about the library, and teaching research methods.[8]

Our instructional efforts did pay off.

A number of articles are helpful in addressing the use of computerized large-group presentations for user instruction. Susan K. Charles, Keith A. Waddle, and Jacqueline B. Hambric discuss the use of Show Partner to create a computerized presentation for training InfoTrac users.[9] Nancy Gusack details the use of the SHOW program at UCLA.[10] Emily J. Batista and Deborah A. Einhorn discuss PC Storyboard and its applications in creating an instructional presentation for BRS/MENUS.[11]

PRESENTATION

The instructional presentation was created using the software package Show Partner F/X. This software, produced by Brightbill-Roberts and Company, is designed to create desktop presentations on IBM PCs and compatibles. It consists of several integrated programs that allow the user to import screens from a variety of software systems as well as to create unique text and

image screens. The imported and created screens are then arranged and presented in sequence by the software's run-time module, creating the presentation in a way similar to how edited film is put together to create a videotape.

The following equipment is needed to use Show Partner F/X:

- an IBM PC, PS, or compatible with one or more disk drives (at least one hard disk drive preferred);
- 320K of memory, assuming at least 256K of available memory (more memory may be needed for systems using an IBM Enhanced Graphics Adapter or IBM Video Graphics Array);
- MS-DOS 2.0 or newer;
- one of the following graphics adapters: IBM Color, MultiColor, or Enhanced Graphics Adapter; Hercules Monochrome Card; IBM Video Graphics Array; or a system offering 100 percent compatibility with one of these adapters;
- one of the following monitors: IBM PC; IBM PS/2; IBM Enhanced Color Display; or 100 percent compatible;
- Microsoft mouse or 100 percent compatible (optional, but necessary to run the Object Editor application of the software).

The first step in creating the presentation was the selection of the NOTIS elements to be included (these are discussed below). The creators then searched NOTIS for appropriate screens to illustrate the chosen points. An effort was made to ensure that the examples covered a range of academic disciplines. Once the NOTIS screens were selected, they were downloaded using Procomm telecommunications software. These screens became the presentation's imported screens.

With the instructional agenda and captured screens in hand, the creators wrote a script explaining the necessary points and incorporating the examples. Some of the screens were altered using Show Partner F/X. Most of the altering involved highlighting certain parts of the screens, but it also involved moving and eliminating screen elements.

Several screens used in the presentation were created from scratch. The GraFIX Editor application of Show Partner F/X is a paint program similar to MacPaint. It has many abilities, including the creation of lines, boxes, and circles, and the use of colors and patterns. The created screens enlivened the presentation and provided a visual break from the standard NOTIS screens. They also helped to illustrate certain concepts. For example, the presentation used Venn diagrams to explain Boolean logic.

The creators then decided upon the screen order and selected which visual effects would be used as one screen gave way to another. A variety of effects is possible, such as a simple replacement (the entire screen changes at the same time, simulating how one NOTIS screen changes to another) or a vertical split-screen effect (the existing screen parts in the middle and moves outward, revealing the new screen).

The final two steps in preparing the presentation involved timing. The script was recorded, to ensure that the narration in all the presentation was identical. The creators then determined the length of time each individual screen would be visible by playing the recorded narrative while viewing the presentation and painstakingly adjusting the number of seconds each screen would be projected. The presentation was then ready for viewing.

The participating English classes watched the presentation in their classrooms. This involved transporting a portable Compaq III, an audiotape player, a Dukane MagniView 400 liquid crystal display projection system, and a portable overhead projector.

The presentation gave information on NOTIS 4.6 search commands and techniques. The following information explains the NOTIS basics covered in the presentation and asked for in the exercise. Users search NOTIS by entering a command, which identifies what type of search the patron wants to conduct, and then entering the search term(s). The basic commands are "a="for author, "t=" for title, "s=" for Library of Congress subject heading, and "k=" for keyword. The author, title, and subject

heading commands retrieve all authors, titles, and subject headings that begin with the entered letters. Keyword locates all items with cataloging records that contain the exact entered terms in the fields that are keyword indexed. In a keyword search, search terms can be truncated by entering a word stem followed by a dollar sign. A number can be placed after the dollar sign specifying words having up to and including that number of additional letters. In a keyword search, the Boolean operators AND, OR, and NOT can be used. At any point, a user can access a general help screen by typing "h" <return> or view a help screen on a particular type of search by typing the command letter followed by <return>. NOTIS 4.6 has many other features and techniques (e.g., SAME Boolean operator, field limiting, local subject term searching), but these were neither covered in the presentation nor addressed in the exercise.

METHOD

The presentation's testing used six sections of English 104, a required freshman composition class. Three sections, each having a different instructor, viewed the presentation. Three sections, each taught by one of the same three instructors, did not view the presentation. The students then had a week in which to complete a NOTIS exercise. While completing the exercise was required, the students were not graded on their performance. A total of 68 viewers and 69 nonviewers completed the exercise.

The NOTIS exercise consisted of demographic questions, questions about NOTIS commands and search strategy, questions asking students to locate items on NOTIS, and questions about the respondent's opinions of and perceived use of NOTIS. The viewers' questionnaires also included questions about the presentation. All the questions except those on reactions to NOTIS and the presentation were multiple choice. Some asked students for one answer, while others asked them to mark all applicable answers. A copy of the questionnaire is available from the authors.

The respondents were asked to use NOTIS terminals in order to answer the questions and were seated at NOTIS terminals while they completed the exercise. In order to prevent respondents from asking for help from other participants, librarians, or library users, the students completed the exercise during the evening under the supervision of the librarians conducting the study in the Processing Division of the library. The data were analyzed using Statpal, a microcomputer program for statistical collection and manipulation.

Transaction logs were also collected for all the participants' NOTIS searches. A transaction log records every keystroke entered into a NOTIS terminal. The transaction logs were identified by terminal number and time, making it possible to identify a search as having been conducted by a viewer or a nonviewer. The transaction logs were examined for additional information and insight relating to specific questions and issues.

RESULTS

A comparison of the questionnaires and transaction logs for the viewers and nonviewers makes clear that there are significant differences in the abilities of the two groups to understand and use proper NOTIS commands and to formulate search strategies. The following section examines the differences in NOTIS use between viewers and nonviewers. An examination of demographic differences between the two groups follows.

Viewers versus Nonviewers

Viewers demonstrated greater NOTIS searching ability in three areas: the use and understanding of basic NOTIS commands; subject searching (both keyword and Library of Congress subject heading); and the ability to locate specific items.

Basic Searching. The smallest amount of difference between the viewers and nonviewers is apparent in the most basic types of searching: searching by author and title. While some differences were evident, these two concepts seemed the easiest for the nonviewers to grasp.

Viewers exhibited a better understanding of and performance ability in NOTIS author searching. When asked which of five commands was the correct one to use when searching by author for John Steinbeck's *Travels with Charley*, 85% of the viewers chose a=Steinbeck John as their only answer, while 79% of the nonviewers did so. When exercises with multiple responses are included, 93% of the viewers chose a=Steinbeck John, compared to 81% of the nonviewers. While the general understanding of title searching was similar between the two groups, those who viewed the presentation were much more conversant with its intricacies.

While nonviewers performed only slightly more poorly than viewers in a straightforward author search question, a more complicated question showed that they have less understanding of what the a= command locates and when it is appropriate for use. When asked to locate books about Shakespeare, 48% of the nonviewers said a=Shakespeare William would do this, while only 31% of viewers did so. A t-test reveals a p value of .02 for these responses, meaning that there is a 2% probability a difference of this size in the mean score for this question between viewers and nonviewers would occur by chance.[12] For 38% of the nonviewers a=Shakespeare William was their only answer to the subject search question, compared to 24% of the viewers.

The difference between viewers and nonviewers in title searching was less related to their understanding of the t= command than their understanding of one technicality of it. When asked how they could locate *The Sun Also Rises* by Ernest Hemingway, 99% of the viewers and 94% of the nonviewers chose t= as a response. On a question asking how the respondent could find a book for which the respondent is given two possible titles and told that the author is either Cohen or Kohen, 97% of both viewers and nonviewers selected t= as one of their answers. Despite these similar results, the transaction logs revealed a nonviewer problem with title searching that the questionnaires did not. Twenty-nine percent of the nonviewers attempted title searches with a title beginning *a*, *an*, or *the*, which is not allowed by NOTIS and was covered in the presentation. Only 12% of the viewers did so. While the general understanding of title searching was similar between the two groups, those who viewed the presentation were much more conversant with its intricacies.

Subject Searching. Subject searching, the second area of difference, involves keyword searching and Library of Congress subject heading searching. Effective keyword searching includes the ability to use truncation and Boolean operators. All of these skills were covered in the presentation and the exercise.

Viewers demonstrated a clearer understanding of what a subject heading does and when it is appropriate to search using subject headings. On the question asking students how they would locate books about Shakespeare, 53% of the viewers chose s=Shakespeare William as one of their answers, while only 36% of the nonviewers did so. A t-test reveals that the responses to this question have a p value of .02.

Viewers exhibited their better grasp of when subject heading searching was appropriate in several additional instances. When asked to locate books about movies, 34% of the viewers used s=, while 20% of the nonviewers did so. On a question in which subject heading searching was not an effective way to find the desired book (the students were told an author's last name was Cohen or Kohen and two variant titles), only 10% of the viewers tried s=. Nineteen percent of the nonviewers did so.

Viewers were also more aware of instances where keyword was an appropriate search strategy. When asked how they could use NOTIS to locate *The Sun Also Rises* by Ernest Hemingway, 59% of the viewers said they could use keyword, compared to 45% of the nonviewers. A t-test reveals this question's results have a p value of .05. All told, 35% of the viewers chose all three viable options (t=, a=, k=) while not choosing s=, while only 25% of the nonviewers did so.

Viewers also demonstrated a better grasp of the intricacies of keyword searching. When asked how they actually used NOTIS to locate a book about which they knew that the author was Cohen or Kohen and that it had one of two titles, 46% of the viewers reported using a Boolean keyword search, compared to 23% of the nonviewers. The transaction logs reflect the increased use of Boolean searches by viewers. Fifty-three percent of the viewers employed correct Boolean keyword searches while doing the exercise (outside of the questions asking about the Boolean AND and OR), compared to 39% of the nonviewers.

Viewers were also more aware of instances where keyword was an appropriate search strategy.

The students were tested on truncation, an aspect of keyword searching, by a question that asked what "mason$" would retrieve. The correct response was all of the multiple-choice options offered. Fifty-four percent of the viewers responded correctly, compared to 33% of the nonviewers. A t-test reveals these responses have a p value of .01.

Two questions tested respondents' knowledge of the Boolean AND and OR. The questions asked what the search requests "k=cat and dog" and "k=cat or dog" would retrieve. Sixty-nine percent of the viewers gave the correct answer to the AND question, while only 36% of the nonviewers did so. Interestingly, the OR question was an instance where the nonviewers performed better than the viewers. Sixty-eight percent of the viewers said that OR would locate any items having either *cat* or *dog* in it, while 81% of the nonviewers gave this correct response. When the AND/OR responses are cross-tabulated for the viewers and nonviewers, the results show that 60% of the viewers still selected the correct answer for both questions, while 33% of the nonviewers did so. The viewers who selected incorrect answers did not follow a pattern in which incorrect answer they chose. The nonviewers had a predilection for OR. Twenty-six percent selected the correct OR answer as their response to both questions.

The transaction logs revealed an additional way in which viewers had a better grasp of what is and is not an appropriate way to search for items on subject. Thirty percent of the nonviewers attempted to locate items on a subject by using a= followed by a subject, exclusive of the Shakespeare question. Eighteen percent of the viewers did this.

Locating Specific Items. Given the viewers' better grasp of basic NOTIS commands and subject searching, they unsurprisingly proved more adept at locating specific items on NOTIS than the nonviewers. A simple question identified a book by author (S. Hawking) and subject (superstrings) and asked students to indicate which of four call numbers was the correct one for the desired item. Ninety-four percent of the viewers were able to do so, while only 80% of the nonviewers were successful. A t-test attaches a p value of .01 to this question's responses.

A similar question asked students whether or not the library has an anthropology film on the Yanomamo Indians. This was a trickier question, since the library has such a film but it cannot be located using s=Yanomamo. The Library of Congress subject heading is Yanoama Indians. This item could only be located using keyword. Sixty-nine percent of the viewers said the library had the film, while only 44% of the nonviewers responded affirmatively. A t-test shows these results have a p value of .001. Not only does their better grasp of subject searching allow viewers to search for items on specific topics more effectively, it also enables them to locate specific items more successfully.

Demographic Differences. The demographic questions on the students' questionnaires were designed with one purpose in mind: to identify differences between the viewing and nonviewing groups and to see if these differences might have affected the study's results.

While there were two noticeable differences between the viewers and nonviewers, these demographic differences appear to have had only a slight relationship to NOTIS searching skills.

The questionnaire asked about the following demographic variables: class; number of semesters at A&M; experience in using library catalogs, indexes, and abstracts; frequency of use of library catalogs, indexes, and abstracts; credit hours of computer courses; frequency of computer use; and previous NOTIS use. Table 1 shows the differences between viewers and nonviewers in these areas.

Two major differences between the groups are apparent. First, more viewers were upperclassmen. Even though English 104 is a freshman-level class, only 44% of the viewers were freshmen, compared to 70% of the nonviewers. There were more sophomore, junior, and senior viewers than nonviewers. Not surprising given this, the viewers had been at A&M longer than the nonviewers. Twenty-seven percent of the viewers attended A&M for five or more semesters, compared to 7% of the nonviewers.

The second major difference was in computer experience. Sixty-eight percent of the nonviewers had not taken any computer classes, compared to 42% of the viewers. Viewers used computers more frequently than nonviewers, 21% noting they used them daily. Only 9% of the nonviewers used computers this frequently.

While viewers claimed to have used NOTIS more frequently than nonviewers, the difference here was not as marked as that of class and computer experience. Viewers and nonviewers claimed similar experience with and frequency of use of library catalogs, indexes, and abstracts.

The students' seniority may have played a part in how they answered some of the questions about NOTIS. When their answers to questions mentioned earlier are examined in light of this factor, as opposed to whether or not they viewed the presentation, discrepancies were apparent in two instances (see table 2). On the question asking respondents to indicate the correct call number of a book about superstrings by S. Hawking, all but one of the incorrect responses came from a freshman. All but two of the incorrect answers, not surprisingly, were from students who had been at A&M two or fewer semesters. On the Yanomamo film question, freshmen and sophomores performed similarly, while seniors and especially juniors performed better. This pattern is not as strong when examined by number of semesters at A&M. It should be noted that several demographic categories (i.e., juniors, seniors, and those at A&M one or three semesters) do not have as large a population as other categories.

Students' computer experiences reveal a similar pattern (see table 3). Ninety-five percent of students with any computer hours located the correct call number for the superstrings book, compared to 79% of students who had not taken computer courses. Students who never use computers located the correct call number 67% of the time, while those who use them once a month or more found the correct call number in from 86% to 100% of the attempts. This pattern does not hold true for the Yanomamo call number question, where students who never use computers actually performed better than any other group except those who use computers daily.

It appears that the high number of upperclass viewers and more experienced computer users (two distinct groups, as a higher class does not necessarily mean more computer use in this sample) may have slightly skewed the viewer/nonviewer results in these two questions. The varying and sometimes small numbers of respondents in these demographic categories make broader generalizations or a stronger statement difficult.

REACTION TO NOTIS

All students were asked how confident they felt searching NOTIS in general; searching by author, title, Library of Congress subject heading, and keyword; and how well they felt they used NOTIS. They were asked to re-

TABLE 1
DEMOGRAPHIC DIFFERENCES

	% of Viewers	% of Nonviewers
Class		
Freshman	44	70
Sophomore	31	23
Junior	16	6
Senior	9	1
Semesters at A&M		
1	7	6
2	43	62
3	6	4
4	18	20
5+	27	7
Experience in Catalog Use		
Not experienced	12	6
	29	30
	43	51
	13	12
Very experienced	3	1
Frequency of Catalog Use		
Never	13	7
1 x semester	38	39
1 x month	29	39
1 x week	16	7
1+ x week	3	7
Computer Hours		
0	42	68
3–6	55	30
9–12	3	1
15+	0	0
Frequency of Computer Use		
Never	10	7
1 x month	28	48
1 x week	29	23
2–6 x week	12	13
Daily	21	9
Prior NOTIS Use		
Never	21	26
1–2 x	24	29
3–7 x	31	25
8–18 x	10	13
19+ x	15	7

TABLE 2
STUDENT SENIORITY

	Superstrings Correct		Yanomamo Correct	
Seniority	No.	%	No.	%
Freshman	61	78	40	51
Sophomore	37	100	20	54
Junior	14	93	12	80
Senior	7	100	5	71
One semester	8	89	5	56
Two semesters	57	79	38	53
Three semesters	6	86	6	86
Four semesters	26	100	12	46
Five+ semesters	22	96	16	70

TABLE 3
COMPUTER EXPERIENCE

	Superstrings Correct		Yanomamo Correct	
Computer Experience	No.	%	No.	%
0 computer hours	59	79	38	51
3–6 computer hours	56	97	35	60
9–12 computer hours	3	100	3	100
15+ computer hours	N/A	N/A	N/A	N/A
Never use computers	8	67	8	67
Use computers 1x month	45	87	24	46
Use computers 1x week	31	86	21	58
Use computers 2–6x week	17	100	10	59
Use computers daily	18	90	14	70

spond on a scale of one to five, one being "not confident" and "not well" and five being "very confident" and "very well." The responses, overall and broken down by viewing status, appear in table 4.

Several observations can be made from the responses to these questions. First, viewers felt more confident using NOTIS and felt they used NOTIS better than nonviewers. In all instances but one, viewers had a higher average response. This is especially apparent in keyword confidence, where there is a .41 difference between viewers (average response 4.12) and nonviewers (average response 3.71). The greatest difference in the distribution of ratings by viewers and nonviewers is in the "very confident" and "very well" categories. Viewers were much more likely to respond at the high end of the scale, while nonviewers tended to settle in the middle.

The most positive responses went to author and title searching confidence, these being the only two categories to average above four with both viewers and nonviewers. Over half of all viewers said they were very confident when title searching (52%) and author searching (50%). The figures for nonviewers are 48% for title and 39% for author.

Viewers and nonviewers apparently felt identical in regard to Library of Congress subject heading searching confidence, giving that question the same average response. This question had the lowest average response, with the second lowest being how well the respondent felt he or she used NOTIS. Only 3% of the viewers and 6% of the nonviewers

TABLE 4
PERCEIVED NOTIS USE AND REACTION TO PRESENTATION

Question	All	Viewers	Nonviewers
23. Overall searching (easy/difficult)	3.86	4.03	3.72
24. How well feel used NOTIS (not/very)	3.59	3.67	3.51
25. Confident overall (not/very)	3.78	3.88	3.68
26. Confident author (not/very)	4.26	4.41	4.12
27. Confident title (not/very)	4.39	4.41	4.36
28. Confident LCSH (not/very)	3.26	3.26	3.26
29. Confident keyword (not/very)	3.91	4.12	3.71

Note: All questions are on a 1–5 scale, with 1 being the most negative and 5 being the most positive. The ends of the scales are indicated in parentheses.

said they felt very confident when searching by subject heading.

Interestingly, respondents' admitted confidence levels do not correlate to their NOTIS-searching abilities. On the question asking students which of five choices were Library of Congress subject headings, none of the 8% who answered correctly said they felt "very confident" searching by subject heading. None of those who said they were "very confident" searching by subject heading answered correctly. On a question testing knowledge of truncation used in keyword searching, 36% of those choosing the correct answer were "very confident" about keyword searching, while 55% of those choosing an incorrect answer were "very confident" about keyword searching.

All respondents were asked what made NOTIS easy and hard to use. While not all students answered all the open-ended questions, among those who did several trends emerged.

The factor cited most often as making NOTIS easy to use was its on-screen instructions. This was mentioned by 29% of the viewers and 30% of the nonviewers, so even those with prior NOTIS instruction found these helpful. The most mentioned difficulty using NOTIS was knowing what terms to use when searching for items on a subject. Many of these comments specifically mentioned the Library of Congress subject headings. These comments echo the students' low confidence in subject heading searching.

RESPONSE TO THE PRESENTATION

Those participants who viewed the presentation were asked for their responses to it. On a scale of 1 (not helpful) to 5 (very helpful), they gave it a 3.76. When asked how helpful the presentation was in regards to forming their search strategies, viewers rated it a 3.38.

In addition to these ratings, open-ended questions asked what the students liked best and least about the presentation, what would make it more helpful, and what, if anything, in the presentation was not explained in an understandable manner. Comments elicited by these questions pointed in several directions. Of those who responded, 71% said the presentation was understandable (52% of the total viewers). The most popular response to "what would make the presentation more helpful" was hands-on experience. This was selected by 41% of those who answered the question (13% of total viewers). Twenty-nine percent of those who responded said they thought the presentation was informative, and 31% complained that they already knew a lot of the information presented.

DISCUSSION

The most encouraging result of this study is that the viewers of the presentation clearly demonstrated a better understanding of how to search NOTIS and were more successful in their searches. The library instruction did make a difference. When librarians are at the end of a

week full of seemingly unending and unappreciated instructional sessions, it is reassuring and encouraging to know that our attempts are benefiting the library's users.

By highlighting the differences between the viewers and nonviewers, this study points out the areas in which instruction is most needed. The greatest areas of difference, as noted above, are subject heading and keyword searching. This is not surprising, as these are the more complicated aspects of online catalog use, but it reaffirms that this is where we should focus our instructional energies.

In addition, this study shows areas that continue to be problems despite the instruction provided. Boolean searching, although employed to some effect by the viewers, is one area in clear need of additional explanation. Users' ability to perform truncation would also benefit from further instruction. Another major error among the viewers was the distinction between a= and s= when an author's name was involved. These were an even greater problem among nonviewers. These problem areas suggest a need for more instruction in critical thinking as opposed to purely procedural instruction.

The type of instruction employed—a projected computerized presentation—points to another benefit of this study. This type of presentation can be effective in teaching online library catalog use. While no type of instruction can replace individualized or interactive instruction, staffing and budgeting realities make such teaching an impossibility. A computerized presentation such as this one can be produced once and then used repeatedly to reach a large number of students in an effective manner. It could be projected large-screen (as in this study) in teaching classrooms or in the library or made available on disk for viewing in campus computer laboratories. It also suggests that similar instructional tools that can be produced once and viewed repeatedly, such as videotape, would be helpful. Two advantages of a computerized presentation, however, are that it can produce exact replicas of OPAC screens, and the creator can manipulate those screens to focus viewer attention as needed.

While constructing a presentation such as this is certainly more work than producing the most common instructional tool, a handout, the purposes and benefits of the two instructional methods are quite different. A computerized presentation such as this one is intended to introduce patrons to the online catalog before they need to use it. It is designed to communicate not just commands and procedures but to show the catalog in action. A primary goal of any instructional session is to let potential patrons know what they need to use in the library, how to use the necessary tool(s), and to instill in them a positive attitude toward the library and its resources. When the subject of the instructional session is the online library catalog, these goals are better accomplished when the patron can view the catalog, thus becoming familiar with what is, to many, a strange and confusing resource.

Furthermore, patron use of printed instructions occurs only at the patron's discretion. The most useful of online catalog handouts becomes useless when the patron declines to look at it. In NOTIS, as in many online systems, complete written instructions in online help screens are available to all users. These help screens are accessible at any point during NOTIS use, and users are alerted to them via on-screen instructions. However, the user must ask for them. A presentation such as this one gives the handout and help screen reader a head start, and the nonreader vital information he or she would otherwise be without.

The methods employed in this study highlight a relatively new tool—transaction logs—with great potential for library research. While much of the data cited in this paper came from library exercises filled out by students, it was supplemented by the records of the students' actual NOTIS searches. These logs can be used for several purposes, most notably discovering errors or problems that would not be evident from the exercises alone. The nonviewers' problem with beginning title searches with an article is

a good example of this. Transaction logs are physical reminders of how patrons really search a library catalog: what commands are problematic, what skills they lack, what errors they repeatedly make. Transaction logs do not need to be part of a formal study such as this to provide these benefits to a library.

This study brought valuable insight to the Sterling C. Evans Library. We hope it is useful to other libraries concerned with the value of library instruction and that it encourages similar studies in an effort to add continually to our storehouse of knowledge about how and why patrons really use libraries.

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