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THE CHANGING ROLE OF A CIRCULATION SYSTEM: THE OSU EXPERIENCE

A description of the development of the Ohio State University Library's Library Control System (LCS) from a circulation system to an on-line catalog.

SUSAN L. MILLER

INTRODUCTION

The Ohio State University Libraries' Library Control System (LCS) was described in 1972 as "one of the most notable and unusual circulation systems operational."¹ It was so cited because of three innovative features:

1. on-line updating of circulation transactions which resulted in immediately available current circulation status,
2. on-line remote query for known item searches by call number, title, or author/title and
3. on-line access to the entire OSU Libraries shelflist in short record form.

However, the LCS planners did not envision library patrons doing their own searches at "public" terminals, and neither did they plan for LCS to become the replacement for the card catalog! The initial design of the circulation system has had a definite impact on the evolution of LCS into a true on-line catalog. Before discussing the heritage of LCS and its effect on the change into a catalog, I will review the environment in which LCS is operational at OSU.

Since November 1970, The Ohio State University Libraries have used the Library Control System for the circulation of library materials in the twenty-six department libraries, two undergraduate libraries, and the main library. The Libraries' collection contains approximately 3.6 million volumes for 1.5 million titles and serves a campus community of more than 70,000 students, faculty, and staff, and has an annual circulation of nearly 2 million items. The Libraries' staff includes 75 librarians, 212 clerical staff, and 480 student workers. LCS is the only way a staff of this size can meet the demands of the campus population.

In addition, in March 1979, the State Library of Ohio began using the OSU LCS for circulation control of approximately 150,000 titles. Sharing the same circulation system has facilitated reciprocal borrowing of the titles from both libraries by the users of each library.²

Each of the library locations has one or more terminals with communications lines to an IBM 370/168 computer operated by OSU's University systems computing center. At the same

time that LCS is available, this computer supports five other on-line systems (computer-based education, student records system, personnel data base, alumni records, and student financial aid). LCS by itself uses a relatively small portion of the total computing capacity. In fact, in simulating computer load at capacity, the removal of LCS from this large computer would gain University Systems only a week before it would be totally committed again.

Currently, the OSU Libraries have 130 display unit and printer terminals linked to LCS. Sixty-six of these terminals are for library staff use in the public and technical service areas, and sixty-four are designated as public terminals.

ON-LINE CATALOG DEVELOPMENT

The features of LCS that influenced the OSU Libraries' plan to modify it into a true on-line catalog were some of the same features that made LCS notable in 1972.

First, the LCS circulation system was an inventory control system which has on-line a short bibliographic record for each title held by the libraries. This short record included call number, main entry title, publication date, Library of Congress card number, the holdings, and the library location. If LCS were an absence system, which listed on those items in circulation, the OSU Libraries would not now be using it as a remote access on-line catalog.

Second, LCS provided for author, author/title, and title access at a time when most circulation systems had access to the records by only the call number and/or a system record number, which are also searchable on LCS.

Third, LCS provided remote access to the university Libraries' total holdings in all library locations. Prior to LCS, only the main library's union card catalog contained the holdings for the total library system. Thus, LCS provided a more complete listing of holdings for the Libraries' patrons than did the department libraries' card catalogs.

Although LCS in the early seventies was a great improvement in service to the campus community, the Libraries' staff was well aware of its limitations as a catalog. Margaret Mann identified seven functions of a catalog.³ The early LCS could be said to provide for three: (1) To show each work in the library under author; (2) To show these author entries so that all the works of one writer will be together; (3) To show the titles of works. The OSU Libraries would have to add four other capabilities before LCS would be considered an on-line catalog by Mann's definition: (1) To show each work under the subjects which it treats; (2) To show these subject entries so that like subjects will fall together; (3) To show cross-references by which a reader may be guided from one entry to another in the catalog; (4) To show a description of each book by giving imprint, collation, and notes when necessary.

In 1978, the LCS functions were enhanced to provide for storage and display of full bibliographic records that also provided subject access and the display of like subjects together. In addition, the storage of the full record permitted access by secondary author and title entries. A complete description of the 1978 system has been reported in the literature.⁴

Currently, the LCS programmers are preparing a new capability called "Headings and Cross-reference Display and Control." When this work is complete in 1982, LCS will include cross-references that will then allow it to fulfill Mann's library catalog functions. This new capability will also allow the OSU Libraries to control and correct headings and have those corrections ramify throughout the system.

INTEGRATING CIRCULATION AND THE CATALOG

The greatest advantage of integrating the circulation system and the catalog is that it permits the patron who is looking for a title to learn that it is available to borrow at the same time that he learns that the library has the title. In addition, if the item desired is not available, the patron may immediately evaluate his needs and may then search for another title or request that a hold be placed for the desired item. In a library system the size of OSU, the knowledge of availability saves patron time and energy and probably has reduced patron frustration.

The remote access from all library locations to the LCS Library Location Record is very important in OSU's decentralized library system. This capability allows the mathematics professor who is working in the mathematics library to learn that a math book that is on loan is available for loan from the physics library. Prior to LCS, the professor would not have known that the book was available to borrow.

The presentation of circulation data for the libraries' users has been a fantastic success. The users and the libraries' staff really appreciate the information on availability and the immediate access to the total library holdings. In fact, those patrons who continue to use the card catalog for their initial search for a book frequently use the LCS call number search to determine if an item will be on the shelf before going to the stacks.⁵

The adaptation of LCS into a public catalog has required user and staff instruction. Some of the instruction is required due to the LCS design rather than to the concept of a combined on-line catalog and circulation system. Similar systems will experience the need for instruction. LCS features that require user instruction include display content, user system communication requirements, card catalog conventions, and constant change.

DISPLAY CONTENT

The catalog data is displayed in a different form or appears to have a different significance in the LCS Library Location Record. For example, the call number is on a single line with no spaces which is different than the blocked call number of two to five lines on the OSU Libraries' catalog cards; and the library location abbreviations on LCS are not the same as those in the card catalog. The Library of Congress card number must be explained to the LCS user, who may never have observed the same number on the catalog card.

In addition, the LCS library Location Record has information that has not appeared on the catalog card. Most of this information is coded, for example, SER for serial, FBR for full bibliographic record, or NENG for non-English.

The availability of an item is also part of the Library Location Record display. This circulation data, which is coded on LCS includes circulation status (charges, renewals, saves, etc.), date borrowed, date due, and reserve codes (such as charges to closed reserve shelves or to the bindery).

For successful use of the combined on-line catalog and circulation system, the users need to understand the display. Obviously the call number, location, and circulation status are most important. The LC card number and date borrowed are of less importance but may be considered important by the patron while learning the system. The LCS Library location Record description was developed to assist the LCS users in understanding this display.

LCS COMMUNICATION

A problem in using any on-line system is learning and remembering how to communicate with the computer. Some on-line library systems have instructions, sometimes called menus, which appear on the terminal display to assist the user so that the learning and remembering are less of a problem.

The LCS on-line catalog has twenty-two commands which may be used to communicate to the computer they type of search desired. Most of these mnemonic commands are prompted by LCS; but nine of the commands, which are the important commands to begin a search, are not prompted by LCS. The AUT/ command for an author search is an example. An LCS brochure has been developed to assist the user in remembering these nine commands.

In addition to the commands, the LCS user must learn what search arguments follow each command. The author, title, and author/title commands are followed by a nine-character search key which is created from the first two significant words of the entry to be searched. The subject search command is followed by a subject, preferably a Library of Congress subject heading. Three commands are followed by call numbers; and three commands require a line number from a previous display. Again, since we cannot expect the user to intuitively know or remember all of these arguments, they are also covered in the LCS brochure.

Because the score is not yet in on user system communication and because the command structure is an integral part of the current LCS programs, the OSU Libraries have not requested reprogramming of the user/ LCS interface. It is not that we don't want a better communication procedure, but rather that we don't want to invest in the reprogramming effort before more is known about user computer communication. Another concern about changing the LCS command structure is our perception regarding the time required to display, read, and respond to prompted on-line systems. We believe that it is necessary for the on-line catalog transaction to allow rapid interaction in order for the libraries to be able to provide a sufficient number of terminals.

Each communication with a computer requires an "end of transmission" signal. For example, on the OCLC terminal the "end of transmission" is the use of the "send" key. At this time, the OSU Libraries have five types of LCS public terminals. There are three different procedures to indicate that the transmission is complete. We know this is not an ideal situation and are posting on each terminal the specific instruction for enter, clear, and backspace. The LCS brochure tells the patron to "enter" the search by following the instructions posted on the specific terminal being used.

The OSU Libraries' plans for the future include a single-terminal type for public use. An OSU Libraries committee determined the necessary features for a public terminal; but no terminal is currently available which is both inexpensive and can display the diacritical marks, which have been determined as necessary in the OSU on-line catalog. OSU has received indications that such a terminal will be in prototype in the fall of 1980.

AUTOMATED CARD CATALOG

Although the LCS on-line catalog is supposedly new, it is in fact an automated card catalog, carrying with it many of the limitations of the card catalog. Some LCS users have not transferred their knowledge about the card catalog use procedures. For instance, the LCS subject search uses the same subject headings that are used in the card catalog. Thus, the subject "Arthur Ashe" should be searched on LCS as in the card catalog as "Ashe, Arthur." At least one LCS user

has been observed searching the first name first. The sequence of the heading has also been observed as a problem in author searches. Boolean logic searches, which are not available on LCS, would not have this problem; however, Boolean logic, when used by novices, frequently results in unsuccessful searches.

As LCS is currently designed, the user must determine whether they are looking for an author, title, or subject, which is also necessary when using a divided catalog. In a dictionary card catalog on the other hand, users frequently find what is needed without knowing why they found the item. Patrons frequently think of corporate authors as either subjects or titles; rarely are corporations thought of as authors, which does cause LCS users some problems.

More information is needed on the cognitive processes in catalog use. The new, untrained LCS user may provide some insight as to the library catalog search process.

CONSTANT CHANGE

LCS has been in constant evolution since it became operational in November 1970. A description of the system, written in 1971,⁶ did not list any of the LCS commands that are used today. One reason is the addition of the new search capabilities for subject, author, and full bibliographic record; but the primary reason was that all of the original commands were changed so that they would be mnemonic. Luckily, this change occurred before the libraries provided public terminals for the patrons.

Generally, the patrons have readily accepted the changes, probably because many of the changes have improved the information and access available on LCS. However, we do not know how many patrons fail to learn of the changes and either are frustrated or are unaware of a missed opportunity. The changes are probably more of a problem for the libraries' staff, who must provide more assistance to the users when the changes occur and for the Committee on Education for On-Line Library Systems, which must revise the instructional materials.

All on-line library systems that are available today have the potential for further evolution. First, none of the current systems are really complete. Second, the rate at which computer technology changes is rapid. And third, research may identify the answers for on-line catalog design. Thus, there is a constant potential for a better on-line catalog.

Libraries must be creative in the instruction for the on-line catalog and should include information that is basic to all on-line systems in order that patrons and staff can readily adapt to changes in on-line catalogs as they develop.

TRAINING OPPORTUNITY

The development of the circulation system into an on-line catalog requires the libraries to supply the user with instruction on LCS operation. At the same time, the libraries have the opportunity to supply the users with general library instruction. The users of a computer system seem more willing to accept assistance than the users of the card catalog.

The libraries' Committee on Education for On-Line Library Systems has developed most of the LCS instructional material. This committee prepared the LCS brochure and the LCS Library Location Record already mentioned. These handouts have been widely distributed in the OSU Libraries. In addition, the committee wrote a detailed *LCS Manual*, which is chained to desks near the public terminals in all library locations.

The committee has also developed a one-hour workshop, which has been offered twenty-two times in the last six months. This workshop includes a thirty-five-minute lecture, which is followed by a demonstration at terminals to provide the participants with hands-on experience. These workshops have been well received and more will be offered this fall.

The OSU Libraries Instruction Program for freshmen students, which began in 1978, includes LCS instruction in both the classroom lectures and in the required library exercise. This program reaches more than 9,000 students each year.⁷

Informal training occurs in all public service areas – reference, circulation, and catalog information. In addition, the libraries have added, in the circulation department, an LCS - assistant position which has the assignment of assisting LCS users at public terminals in the main library.

ATTITUDES

The OSU Libraries are experiencing a new phenomenon. Faculty members bring new faculty to the library and demonstrate the system. This was particularly obvious at commencement when seniors with cap and gown in hand came to the library with parents in tow. Students show other students how to use the terminals. Similar demonstrations have not been observed at the card catalog.

When asked for a report of LCS limitations, a new reference librarian at OSU identified only one problem. She was gaining undesirable weight. When asked why this was a problem with LCS, she replied that the presence of the OCLC and LCS terminals at the reference desk nearly eliminated the need to consult the card catalog to answer reference questions.

The OSU main library is situated between the residence halls and the local pubs. The circulation desk supervisor has mentioned that students stop at the library in the evening when returning to the dorms and do catalog searches on LCS.

The engineering librarian has observed that students search entire reading lists on LCS rather than “just enough to get by” as in the card catalog.

A pilot survey of LCS users and card catalog users indicates that the only statistically significant difference between the users of LCS and the users of the card catalog is that a higher percentage of men than women are LCS users.

CONCLUSION

If the OSU Libraries were beginning an on-line catalog in 1980, there would be nine years of experience in on-line systems to use in writing the specifications. It is hoped that the resulting on-line catalog would be a better system so that the amount of change would be reduced. However, the OSU Libraries do not regret in any way using LCS during its development.

There are some decisions that the OSU Libraries might have made differently if starting over now. First, the full bibliographic record would be converted, and the complete ALA/MARC characters set would be retained for display. Second, the LCS user/system communication would be designed to be easier for the library user. Third, Boolean logic in the search transaction would be considered. However, the OSU Libraries are happy with LCS and intend to keep the LCS evolution underway.

Finally, I know we are doing something right when a fifteen-year-old son of an OSU history professor asks his mother, “Gee, Mom, will all libraries be like this someday?”

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