members more aware of political developments affecting our environment and to mobilize the academic community for a more effective response.

On another front, our Professional Association Liaison Committee is attempting to promote collaborative efforts with other groups in higher education: the Modern Language Association, the American Chemical Society, the American Council on Education, the American Association for Higher Education, the Association of American Colleges, and others. We are becoming more active in EDUCOM. We have encouraged our executive director to extend her efforts to identify opportunities for interacting with a variety of non-library agencies with whom we have mutual interests.

In short, a number of efforts are already underway. The ACRL President's Program in Chicago this summer will be devoted to extending these initiatives. I invite all members to forward their suggestions to me or the program chair, Patricia Breivik (associate vice president for information resources, Towson State University). As long as we're in the process of transition, we have excellent opportunities—now—to transform the Association from a group that spends too much time talking to itself into one that is both visible and heard by other members of the academic community.

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Automating reserve activities at Northwestern University

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A modification of the NOTIS circulation system adds flexibility to Reserve Room record maintenance.

During the 1985–86 academic year, following successful implementation of a new circulation system in NOTIS, there was increased demand at the Northwestern University Library to provide some automated capabilities for the Reserve Room. The main Library's Reserve Room has a small, active collection of roughly 5,000 titles, including cataloged works, photocopies of journal articles, an exam file, and faculty-owned items. Well over half of the 8,000 items processed for Reserve each year are uncataloged. There are three separate loan periods: 2-hour, 2-hour or overnight, and 3-day. The average annual circulation over the past five years is nearly 70,000.

Northwestern Library staff reviewed the specifications for the Course Reserve module being designed for the commercial version of NOTIS, but decided not to implement it for several reasons:

1. The initial release would not provide several features which were felt to be essential: bibliographic access in public mode (LUIS), dynamic maintenance of all indexes, and an online list of

overdue items. Also, a substantial improvement was needed to the NOTIS algorithm for calculating due date and time but it was not included in the specifications.

2. The proposed module involved a change in the structure of NOTIS item records, affecting many programs. This change introduced additional complexity into all processing of item records and required a conversion of the entire existing item file.

3. Since under the proposal the reserve items would be a part of the library's main database, the introduction of records for such common reserve items as exams, photocopies, and instructors' personal copies could cause authority control problems (lack of consistency in headings).

4. The overall complexity would result in a long development time; thus the proposed system would not be available to Northwestern for several years.

Design of the initial system

A careful analysis of the existing NOTIS circulation system indicated that our objectives could be met with relatively minor modifications by establishing reserve as a separate database (Institution Group, in NOTIS terminology). Although this would require duplication of bibliographic information for those items which were normally in the regular collection, the number of items and the limited amount of detail needed in the reserve database (e.g., no subject headings are needed) resulted in a relatively modest storage requirement. Also, because reserve is a separate database, the Reserve Room staff could tailor the bibliographic information to the specific needs of their users without causing authority control problems (because there would be no authority control). The existing "derive" (copy record) function of NOTIS would permit new bibliographic records to be created with minimal effort for items which have a record in the existing union file.

To provide for the necessary course and instructor information, a 799 field was activated in the bibliographic record. The $a subfield is used for the course (department abbreviation and course number) and the $b subfield for instructor name. Index entries are generated for each combination of $a and $b subfields in each 799 field. Indicators control whether or not index entries are generated from the field, and whether or not a "note" is included in the bibliographic data display in the public catalog.

Since a parallel development effort by the Library's Information Systems Development Office was in process for new bibliographic indexes (to be made available by NOTIS Systems, Inc., under the name of Merged Heading Index), the modifications in the NOTIS bibliographic processing module were already made to provide dynamic maintenance of indexes. All that was needed was a minor modification to the existing author/title index generation program to include processing for the 799 field.

Similarly, implementation was in process for a dynamically maintained index of items charged. A minor modification was made to change the sequence of entries, arranging them in order of charge location (Service Unit) and due date/time instead of by borrower.

More substantial modifications were needed in two other areas. There was a clear need for an improvement in the calculation of date and time due. It became apparent that a fourth time was needed in the NOTIS calendar table to provide a "cut-off" time, in order to automatically shift the due time of items classified as "2-hour/overnight" to the next day if they were charged after a specific time in the evening. (The existing three times provided opening time, closing time, and the time when items would be due in the morning if the calculation forced the due time to be advanced past closing time.)

To provide additional flexibility, a modification was made to the date/time override capability in NOTIS. The existing capability allowed an authorized operator to set the charge or discharge date/time to a value earlier than the current value. (This was intended primarily for processing items after a period of system down time, or for items returned through the book drop after closing.) The modification, which requires additional operator authorization, allows the date/time to be set ahead as well as back (for charges only). However, when it is set ahead, it is interpreted as the date/time *due* rather than the date/time *charged*.

Probably the most complex modifications were to the public access module (LUIS) to permit patrons in the Reserve Room to switch between display of the reserve index and the standard union catalog display. Since the procedure is being changed as part of a package of additional improvements (described later), the details of how the switching worked will not be described here.

The Reserve Room maintains a queue of patrons waiting for a particular item, and some consideration was given to the possibility of using the existing NOTIS procedures for placing recalls and holds on items for this purpose. It appeared that there would be a number of problems in following this approach, so that a decision was made to continue to maintain the queue manually. This aspect of the system may be considered for future enhancement.

Finally, some additional report programs were written to provide usage statistics by course and instructor, and to alert Reserve Room staff when items should be removed from reserve.

The reserve module as described above was put into production for the 1987 summer session, allowing time for working out procedures and correction of minor problems before the start of the 1987-1988 academic year.

Effect on procedures

The enthusiasm of the Reserve Room staff for the new reserve control system was evident in the spring of 1987 as training began and new procedures were developed. It continued to be evident during the summer session testing of the system and as the staff dealt successfully with the usual onslaught of faculty reserve requests for the fall quarter. The system continues to evoke praise, perhaps because many support staff can still recall the frantic hours spent typing and filing and pulling cards to keep the reserve card catalog up to date. Staff enthusiasm has also been fed by the ease with which patrons find materials in the online reserve catalog.

Processing items for the automated reserve system involves relatively simple procedures that make it easy to train the support staff who do this work. Records for the reserve file are created either by direct input of data or by using the "derive" command to copy a record from the union file. The latter technique is used for materials that are in the library or on order and that have an existing bibliographic record. This includes everything cataloged or processed since 1970. For other titles, such as faculty-owned items or photocopies of journal articles, a record is created by direct input of author, title, and imprint fields. Since reserve file records will not conflict with the controlled headings in the union catalog, the form of the author's name can be the name on the item, or the name supplied by the faculty member requesting that the item be placed on reserve, or the established heading, or whatever seems logical. Staff do not have to understand complex cataloging rules.

In all reserve records, one or more 799 fields are created to identify and index the course name and the instructor's name. One or more courses and one or more instructors can be recorded in 799 fields and all will index, as will the author and title fields. All of these index entries are created dynamically when the new record is stored; staff and patrons can find current information in the reserve catalog immediately.

The bibliographic record used in reserve can also contain one or more 500 note fields for information such as the loan period, or for other miscellaneous information such as the title of the source journal or the fact that another copy is in a noncirculating collection. Data in these fields and in the author, title, imprint, and course/instructor fields all display in the public access catalog in the Reserve Room, as does the shelf location, the assigned call number, and the circulation status for each copy. "Internal use only" notes, such as copyright related information for photocopies, can be entered in 940 local note fields that will not display in the public catalog. The Reserve Room supervisory staff has almost unlimited flexibility in determining what data will be included in its records and how it will be displayed.

Flexibility also is possible in recording copy related data in the copy holdings record that is created for and associated with each bibliographic record. Here are listed copies that are in the Reserve Room, with appropriate location and actual or pseudo call number information. This record also contains an action date field that may be used to trigger a future action, such as following up on a copy on order.

Other future actions such as removal from the reserve shelves and return to the stacks is usually triggered by another action date field that is found in the item record. An item record is created for each copy and/or volume in the Reserve Room and is linked to the copy holdings statement. The item record is used by the circulation system to record charge and discharge information, including the identification of the borrower, the date and time charged, and the date and time due or discharged. It also contains the number of the bar code label that is in each piece.

Reserve Room staff are able to identify overdue items at any time by viewing an online list of all charges arranged in chronological order by due date and time. Entering a line number from this list displays the item record, for which the staff member may print a slip containing the call number, author and title for the item, and the borrower's name, address, and telephone number. This slip also gives the due date and time, and the borrower's status code, e.g., "und" for an undergraduate. Because of the generally urgent need for reserve items, delinquent borrowers are usually telephoned, but the computer printed slip is suitable for mailing along with a form letter.

As the Reserve Room staff used the system they were prompted to make some substantive suggestions for improvements. Many minor improvements were made during the last two and a half years and some major enhancements are about to be implemented.

Effect on library users

Library users often begin their search for reserve materials in the union database. If an item in the main collection is on reserve, a circulation status message displays in the record which refers the user to the main Library Reserve Room. At terminals in the Reserve Room, users may search the reserve database by author, title, course, or instructor's name. These are more access points than were available to them in the former Reserve Room card catalog. Every item requested for reserve by a faculty member has a record online regardless of whether or not it is actually in the Reserve Room. Various messages in LUIS explain the item's status. If the item is not on reserve, the message may indicate that it is on order, recalled from another borrower, or it may simply refer the patron to a copy in a noncirculating location such as the Reference Department. When patrons retrieve the records for items on reserve, they can learn immediately from the display if the items are charged out, and if so the date and time due—particularly valuable information for a high-demand collection.

In addition to a brief bibliographic description and holdings information, the loan period for the item, the abbreviation for the academic department, the course number, and the instructor's name display in the LUIS reserve record. If the item is on reserve for a specific academic term, the term will display also. Special help screens designed for the LUIS reserve module provide patrons with online assistance. Because the Reserve Room is often the first library service to be used by students, many are introduced to LUIS there. The transition from using one form of LUIS to another is not difficult for most students. They appear to need no more assistance with reserve LUIS than they did with the reserve card catalog. Just as the reserve system has saved staff time, it also has saved patrons' time and has saved them from the frustration of waiting in line only to learn that the item they wanted is already charged out.

Enhancements in process

The reserve module had barely entered the production phase before there were requests for its use by branch libraries. Initially these were discouraged, primarily because of the complications with the public display. These complications might have been avoided by setting up a completely separate database for each reserve collection, but this did not seem reasonable for such small collections.

However, following the development of a search qualification technique for the main bibliographic indexes, it became apparent that it would be possible to implement for reserve an automatic qualification of all searches by processing unit. Thus, by making each reserve location a separate processing unit, patrons and staff would see only their own records. Users of the public catalog would be able to enter reserve searches by preceding the usual command (a=<author> or t=<title>) with an "r"; this was actually more consistent with the rc=<course number> and ri=<instructor> introduced in the original version. This change also makes it possible to provide access to the reserve database from all public terminals instead of only those in the Reserve Room.

Operational experience also led to an additional enhancement; the addition of $d (begin date) and $e (end date) subfields in the 799 field, to replace the use of the indicators for controlling display/nondisplay of index entries and bibliographic note generation. This reduces the time pressure on Reserve staff to change records from inactive to active or vice versa during intersession periods.

Another enhancement is the inclusion in the bibliographic record of a "suppress to the public flag." This allows author and title index entries to continue to display in the reserve index as long as the item is physically in the reserve collection, even though it is not being used for a particular course at the time. As long as this flag is not on, index records generated from the bibliographic record are included in the public view of the indexes. The flag will be set on when the item is physically transferred back to its usual place in the main collection or returned to its owner. Such records will remain in the database for possible later reactivation. During their inactive period the records continue to be indexed but the indexes display only in the staff view; not to the public. A purge program, to remove records not used for several years, is to be written.

Modifications to the public display have been made to include the standard list of course abbreviations as part of the introductory displays; this is tailored to the particular reserve collection where the display is located. In addition the display of the reserve collection is permitted from any of the public terminals in the same building instead of being restricted to those in the Reserve Room.

One final improvement will be to provide printers adjacent to the public terminals in the Reserve Room to produce call slips on request.

Most of these enhancements have already been implemented and staff reaction to them is extremely favorable. It is expected that both staff and patrons will be even more enthusiastic about the Northwestern University Library reserve system after the remaining enhancements have become operational. ■■