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# Canadians Use a Bilingual Union Catalog as an Online Public Catalog

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## INTRODUCTION

AN ONLINE CATALOG in use in the Canadian federal government is based on the DOBIS library management system, and end users in several federal libraries access this catalog. There are special aspects of this use which have not been widely addressed in the literature on online public access catalogs (OPAC). One aspect is that users are both anglophone and francophone, and therefore DOBIS is a bilingual system. Libraries using this system as their own catalog are research and special libraries in the Canadian government, and their primary users are public servants, politicians, and researchers. The system and database are shared with one common bibliographic record for each bibliographic item to which libraries attach their holdings and local information. The system is used for the maintenance of the Canadian Union Catalog by the National Library of Canada (NLC) and contains the holdings of over 200 Canadian libraries in addition to the fifteen libraries cataloging directly on the system. Reference librarians and end users have direct access to this union catalog.

## OBJECTIVES

In a literature review, several categories of papers relevant to this study were identified: definitions and analyses of the basic characteristics of an online public access catalog, considerations of OPAC design and use in a bilingual or multilingual environment, and discussions of use of online union catalogs by the public.

By examining use of the Canadian government DOBIS system as a case study, the findings and hypotheses of previous studies are exam-

ined. The case study focuses on use of DOBIS as an OPAC. Data and opinions were gathered through interviews of managers, reference librarians, and users in three libraries using DOBIS as their cataloging system and catalog.

The author also tested several of her own hypotheses. These were:

1. Although a system has not been explicitly designed as an online public access catalog, if made available to users, it will be used as such.
2. End users adapt readily to a shared database/single record concept and like union catalog features.
3. End users are frustrated by source records with no locations.
4. English and French users both adapt to a bilingual system and accept that the bulk of records are in English with English access points.
5. The system could be improved to better meet end users needs by adding OPAC features.

### THE CANADIAN FEDERAL GOVERNMENT DOBIS

The National Library of Canada acquired DOBIS in 1976 to be used as a cataloging system for NLC and Canadian federal government libraries, to be used as the basis for automating the Canadian Union Catalog, and to produce the national bibliography *Canadiana*. The system was extensively modified by NLC and the Canada Institute for Scientific and Technical Information (CISTI). In particular, network and bilingual features were added. Although DOBIS is an integrated library management system, only the cataloging and searching functions were implemented in the Canadian government. The Canadian government or NLC version of DOBIS now differs considerably from DOBIS/LIBIS or DOBIS Leuven marketed by IBM. In this article, DOBIS refers to the Canadian government installation of DOBIS.

There are two categories of DOBIS user libraries. DOBIS full service users are libraries which use DOBIS as their cataloging system. They input data to the system, receive products, and participate in user committees. The fifteen current full service users are all federal government libraries including NLC and CISTI. DOBIS search service users have search-only asynchronous access to DOBIS through the Canadian public packet switching network, Datapac. There are over 400 search service users. This study focuses on full service users. Three full service libraries were selected for interviews. All three libraries have public access DOBIS terminals. One is a large special library, the Library of Parliament. Another is a medium-sized special library, the library of the Department of Finance and the Treasury Board. The third is a research library, the National Library of Canada. These three are representative of the types of libraries among DOBIS full service users.

DOBIS is a menu driven system with many access points for searching (National Library of Canada, 1986). Each type of access point is stored in a separate access point file. In DOBIS, these access point files

are indexes to the bibliographic database and to the authority file. To maintain authority control in DOBIS, an authority heading is created only once. All bibliographic records associated with that heading are linked to it.

The creation and maintenance of shared files are emphasized. The objective of shared files is to have one common bibliographic record for each bibliographic item. Individual libraries can then attach their holdings to this one record. Similarly, in the shared authority file, the objective is to have one common authority record for each authority heading. System standards, policies, and procedures are necessary to eliminate unnecessary duplication and make the shared files useful for all cooperating libraries. DOBIS has the ability to handle varying levels of records which is an important feature in a shared system since all libraries cannot achieve the same level of cataloging completeness. Other users can change those records to upgrade them both for quality and completeness.

The shared data are stored in the system-level files. However, individual full service libraries may create local files linked to the system-level files or records. These are used for information required by only the local library or for information which may conflict with the shared data. Only users associated with the local library have access to the local-level files. All of these system features and policies have an impact on the use of DOBIS as a public access catalog.

### DOBIS AS THE CANADIAN UNION CATALOG

Maintenance of a Canadian Union Catalog is part of the mandate of NLC and one of its basic functions since its founding in 1953. Until 1980 the union catalog was a manual card file which included catalog cards for new accessions received from over 200 Canadian libraries. This manual catalog was heavily used by NLC staff as the basis of a national location service, but it was also accessible to the public visiting NLC.

In 1980 the manual union catalog was closed and all new accessions were input online to DOBIS. In addition, a program of machine-readable reporting to the union catalog (MARA) was begun whereby libraries could send tapes of new accessions in the CAN/MARC format to be loaded offline to DOBIS. Source records (e.g., LC MARC, CONSER) are also loaded offline to DOBIS, greatly increasing the match rate for all DOBIS users, and, in particular, the union catalog staff.

Union catalog staff finding a match in DOBIS simply add a library location symbol to the bibliographic record. A sophisticated matching algorithm is used to ensure that offline loaded MARA records match appropriate records in the database. When required to input original records, union catalog staff input a brief record sufficient to identify an item and facilitate offline matching. Staff also review error logs of offline MARA loads. A recent article by Dinberg (1988) explains use of DOBIS for the union catalog in more detail than presented here.

All DOBIS users have access to union catalog information since the single shared record used by an individual full service library also has union catalog holdings attached. The decision to allow asynchronous search-only access through creation of the DOBIS Search Service was made primarily to allow Canadian libraries access to this union catalog information. Since DOBIS was implemented in NLC, a public access terminal has been available to allow patrons access to the automated union catalog.

The DOBIS database contains 5 million bibliographic records. The combination of the presence of source records, many with no Canadian locations attached, and records with union catalog locations results in a complex database. In 1985 the system was enhanced to provide optional user views, one of which was specifically designed for public use. There are three options for record display format and three levels of holdings for display of summaries of records. The preferred options are linked to user sign-ons, but the user may select other options at any appropriate time during an online session.

The search process in DOBIS involves selection of an access point file, input of a search term which may be truncated, and selection of the appropriate term from a 14-line display of terms in the access point file closest to the input term. The access point file display indicates the number of records attached to each access point and selection of an access point brings up a summary of records attached, again in a 14-line display. Both the access point file display and the summary of records are browsable, although the summary of records is not in any logical sequence unless it is explicitly sorted by the searcher.

In the initial design of the system, all records in the database attached to a particular access point are displayed in the summary of records, and there was no way of knowing from the summary screen whether any holdings were attached to the records. Since 1985 there are three options for display of the summary of records.

Only records with *local holdings*—i.e., holdings of the searcher's library—are displayed. This option is used for all public access sign-ons. The display indicates the number of records displayed and the total number in the database.

All records with *system holdings* can display, for example, all records with any locations attached. This option is used by interlibrary loan staff and reference staff in some libraries.

With the third option, *all records* are displayed including those source records with no holdings. In all cases the display includes the number of records displayed and the total number of records.

From the summary of records, the searcher selects an individual record to view. Again there are three optional record displays. In all three displays, if the record is held by the searcher's own library, the local call number is displayed at the top of the display. Other locations can be viewed by entering *k*.

A *brief record*, designed for patron use, includes main entry, title statement, edition, imprint, collation, and ISBN and LC card number. The inclusion of two control numbers reflects a compromise. Although control numbers are not needed by the public user, the brief display is also heavily used by union catalog staff for online matching and by interlibrary loan staff, and these control numbers are essential.

A *complete record* includes all control numbers, names, titles, subject headings, classification numbers, edition, imprint, collation, and notes. Reference staff generally use this display.

An *editorial record* is designed for catalogers and contains the textual equivalents in DOBIS to MARC tags and indicators as well as subfield codes. In all the displays, each field has a textual label and is displayed on a separate line.

As a result of these optional displays, the end user can be somewhat sheltered from the size and complexity of the union catalog database. However, all users must deal with the full complexity of the access point files. In DOBIS the components of a bibliographic record are stored in different files and only brought together at the time a record is displayed. Therefore it would be very difficult to identify location or holdings information at the access point file level.

## DOBIS AS AN INDIVIDUAL LIBRARY'S CATALOG

As outlined earlier, a patron in a DOBIS full service library has a view of the system which displays all the access points in the system, limits the display of records attached to an access point to those held in his library, and displays a brief record with his local call number prominent in the display. The patron may select other levels of display during his search. The searcher may also have access to local files, but these must be explicitly selected at the beginning of the search.

Is DOBIS, as used in the full service libraries, an online public access catalog? IBM has developed an OPAC module as part of the DOBIS/LIBIS system (McAllister, 1987; Deemer, 1983; Ashoor & Khurshid, 1987), however, NLC has not implemented this module. The public has access to DOBIS through the same searching module used by staff. As described earlier, some modifications were made to this module to facilitate public access.

In a 1985 review article on OPACs, Hildreth (1985) refers to several definitions of an OPAC. OPACs are distinguished from information retrieval systems (e.g., DIALOG) and online cataloging systems (e.g., OCLC). The latter may be available for patron use in some libraries but were not initially designed to be used directly by library patrons and are used predominantly by trained technical services staff (Friedman, 1980). DOBIS is by no means an information retrieval system. Neither was it designed to be used predominantly by technical services staff. Reference and public access terminals were provided at initial installation or shortly after in most DOBIS full service libraries.

Another definition cited by Hildreth (1985) says "online public access means that library users can search a library's online bibliographic database without the assistance of library staff" (p. 234). Patrons in several full service libraries are encouraged to do this, but some assistance is required by many patrons.

Another common feature of OPACs is the ability of the catalog system to "look into the circulation system"—i.e., provide direct access to circulation status of retrieved items. None of the DOBIS full service users has an automated circulation system yet so this feature has not been relevant.

Actual use is probably the best test of the definition. Although all full service libraries have a COM catalog available for public use, in libraries where a public access terminal is available, online access is the preferred access for many users. One Finance/Treasury Board Library user said: "I use DOBIS partly because it's convenient and partly because I have no choice." To this user, the COM catalog, which is available, is not a viable choice. Such users are using DOBIS as the public catalog tool for their library.

## BILINGUAL FEATURES OF DOBIS

DOBIS is used by Canadian government employees and is also a service provided by the Canadian government to other Canadian users. Therefore, in accordance with the Official Languages Act, DOBIS must recognize the two official Canadian languages of English and French.

The full DOBIS dialog is available in English and French, and the user makes his selection at log-on. Because DOBIS is menu driven, the dialog is extensive. The dialog also includes all the field labels in records. A library science terminologist, Rita Belanger, worked on the French dialog in DOBIS and, to a considerable extent, the DOBIS dialog has created a working language for francophone employees.

DOBIS contains records of publications in many languages. English and French publications predominate and there are many bilingual publications, very common in Canadian federal government publishing. Records are coded according to language of publication. However, a DOBIS search cannot be limited by language of publication. The searcher must limit his search to titles of known items in his language of preference or extract items from lists which include multiple languages.

Linkages called "relationships" can be made between records. These are used to link successive titles of a serial or parts to a series. The relationship feature will also allow the searcher to identify other language editions if these linkages have been made by catalogers. This feature allows users and reference librarians to answer the frequently posed question: Is there a French (or English) translation of this work?

DOBIS allows material to be cataloged in either English or French independent of the language of the publication. An item cataloged in French will have notes in French and the French version of access points

or authorities. In practice, the policy of most libraries cataloging in DOBIS is to catalog French publications in French, bilingual publications twice (once in French and once in English), and other publications in English. Some libraries add English and French subject headings to all cataloging records used. DOBIS allows an equivalence relationship to be made between English and French cataloging records for the same item. Hence one set of holdings may be attached to two equivalent records. The user will see the same holdings information no matter which record he uses. A link is also made between equivalent headings, although two steps are required to retrieve all records attached to both headings. DOBIS standards enforce bilingual cataloging policies and procedures but they do not force full service libraries to do bilingual cataloging. Each library decides in which cases bilingual cataloging will be most useful and allocates its limited resources accordingly. Neither can bilingual cataloging be expected in source records—e.g., all LC MARC records are cataloged in English regardless of language of publication. Thus, from the user viewpoint, there is no consistent bilingual approach to the full DOBIS database.

Access points are also identified by language. This is particularly relevant for corporate bodies and uniform titles.

A further level of language identification is language of permutation. Corporate names and titles are permuted in DOBIS and there are two stopword lists, one in English and one in French. For instance "pour" (French for "for") would be a stopword in French but not in English.

Treatment of special characters must be considered. DOBIS inputters use the full ALA character set. A word in French may have different meanings depending on the presence or absence of accents. Accents are ignored in filing in the system and can be omitted from search terms, but they are displayed. More problematic is the use of the apostrophe. In English apostrophes can be ignored in filing. In French they commonly indicate separate words and must be considered. Using the capability for identifying the language of an access point, different sort forms are created depending on the language.

Many of the records in DOBIS are loaded offline from MARC tapes, particularly from the Library of Congress. Language of access point and language of permutation are not features of the MARC format, so the language is set at loading time to a logical default. The default does not handle all situations, so users must often search in two places for French headings, once assuming the apostrophe is ignored and again assuming it is a filing element.

DOBIS has powerful capabilities for bilingual input and searching. However, the search process is heavily dependent on the content of the database. Individual libraries are quite consistent in treatment of material held by their library. But the database as a whole has many inconsistencies which impede searching.

## DOBIS USERS IN THE NATIONAL LIBRARY OF CANADA

The National Library of Canada has evolved from the Canadian Bibliographic Centre, founded in 1951, to a full-fledged library with a strong general reference service, the Canadian legal deposit collection, and many special collections. It is a "library's library," but also, because of its strong Canadian collections, it is a research library for Canadian studies. Visiting academics, genealogists, public servants, and students use NLC on-site. NLC's Bibliographic Centre roots are still strong and provision of bibliographic and location information is still a significant part of the reference service. NLC clientele often do not expect to find the publication they seek at NLC. They are seeking information about publications. In this context both the union catalog aspect of DOBIS and the source records without locations are heavily used.

The public has had access to DOBIS in NLC since the pilot project stage of the system in 1978. Patrons can access one terminal in the main reading room twenty-four hours a day although at present the system is only available from 7 A.M. until 8 P.M. But since staff are only on duty from 8:30 A.M. until 5 P.M., this one terminal extends library service. There are at present ten public access terminals in the main reference room. The public can also search DOBIS in all the special collections.

From 1978, patron self-sufficiency in using DOBIS has been an objective. Initially, the public access terminals were so remote from the reference desk, due to wiring constraints, that self-sufficiency was a necessity. Staffing restraints have also forced staff to continue to devise ways to meet this self-sufficiency objective. Public service staff wrote a brief user guide and a quick reference sheet. Staff predefined keys to simplify the log-on procedure. Recent changes in equipment have highlighted problems with this approach. If the keyboard allows staff to predefine or program keys, then patrons can do this too, and many have done this accidentally with unpredictable results. One patron commented: "I have no problems in the system but the problem is getting into it." New user guides were written and placed by the new terminals on a trial basis. Unfortunately the draft version was only in English and a complaint that public documentation was not available in French ensued. Fortunately the terminals are now much closer to the reference desk and reference staff have been close at hand to assist.

Most training of patrons in how to use DOBIS is done by reference staff on a one-to-one basis. A longer training session is given to a researcher who will be using NLC over a period of time. The many one-day users are frequently local university students who are increasingly adept at using online catalogs. A typical library user in Ottawa says: "I am used to online catalogs. I could not go back to cards." Reference staff are planning more formal training sessions to be offered at set times each week to long-term researchers. They feel this will be a more effective use of patron and staff time. The uncertain future of an increasingly costly and unwieldy COM catalog is further impetus for more DOBIS training for patrons.

Many NLC patrons adapt readily to the union catalog aspects of DOBIS, although patrons specifically looking for material at NLC appreciate the local view. Researchers who have used the single entry manual union catalog welcome the multiple access points provided by DOBIS.

In response to the question "How do you feel when you find locations other than NLC or no locations?" one patron replied: "Frustrated, but some information regarding a title is better than none at all." Another researcher explained: "The location function is helpful....One can begin to identify—after a while—particularly good locations for more obscure material and amalgamate these titles for a specific research visit. Consequently, it makes the visit to the non-NLC site more efficient."

NLC patrons log-on to the system in both English and French. A francophone patron points out an inequity due to use rather than the system: "Les terminaux sont presque toujours en anglais lorsque je commence a m'en servir. Il me faut alors effectuer 'log-off' puis 'log-on.'" [The terminals are almost always in English when I begin to search. I must log-off and then log-on to reset the language of dialog.]

After logging on, a patron soon becomes aware that there is more English material than French in the database. When doing a subject search, patrons will likely find more material under English subject headings than French subject headings. One patron perceived: "Les problèmes d'utilisation se situent surtout au niveau des termes de recherche qui sont habituellement en anglais." [The main problem accessing the system in French is with search terms which are usually in English.] NLC assigns both English and French subject headings to material included in the national bibliography, *Canadiana*. However, other material is cataloged as expeditiously as possible. If an LC record for a French publication is found, it is used and the item is added to the NLC collection rather than waiting in a backlog for French subject headings to be assigned. NLC patrons are also encouraged to use title keywords in subject searching since there is a large amount of material in the collection with no subject headings, particularly official publications. Title keywords have their limitations but they do provide a subject access where none was available in a manual system.

NLC patrons know they have a wealth of information at their fingertips, and with patience and some assistance from staff, they will likely find the bibliographic information they are seeking.

## DOBIS USERS IN THE LIBRARY OF PARLIAMENT

The Library of Parliament is a special library with a collection of over 230,000 titles which serves the members of the Parliament of Canada and their staffs as a primary clientele and a demanding one. The library has a research branch staffed by subject specialists in addition to performing the traditional library functions. A retrospective conversion

project is virtually completed and almost all the library's collection is represented in DOBIS.

Staff at the Library of Parliament have a very strong orientation to service to their primary clientele. They try to develop the collection to meet all the clients' needs. Technical services staff are well known for prompt, consistent, and high quality cataloging. Library staff provide enhanced services such as indexing and current awareness. They try to optimize effective use of new technologies. Thus when a local area network, OASIS, was installed in the Parliament buildings, it was natural that the Library of Parliament would consider how to use this network to provide better service to its clientele.

In 1985, the Library of Parliament indicated to NLC, the operator of DOBIS, that they wanted to make their collection directly available to Parliamentarians and their staffs via an online public catalog, and that they were interested in using DOBIS to do so. However, they wanted to offer access only to their own collection and not to the shared union base as a whole. Some of the enhancements they needed were about to be implemented in the optional user views described earlier. However, the Library of Parliament requested additional enhancements: a simplified log-on and selection of language of dialog, a local "help" function, access to a limited number of types of access points, displays limited to the local holdings display and the brief record display, and tailored messages such as "No items are held by the Library of Parliament. Please consult a reference librarian." A project was undertaken to meet all of these requirements except the local help and tailored messages and the Library of Parliament local view was implemented in 1986. The library decided to test the new screens with a limited number of users, primarily library staff and research branch staff who were already using DOBIS. After using this local view for six months and soliciting feedback from the trial users, the library decided the system was still not suitable for remote or direct access by its clientele. In other words, DOBIS was not suitable as a remote access online catalog.

Remote access has been provided successfully to DOBIS/LIBIS in other installations (DeBruijn & Matheson, 1987). Why was the Canadian government DOBIS installation not suitable for the Library of Parliament? The Library of Parliament had a public access DOBIS terminal in its main reference room for several years and provided public access in its branches. But these were controlled situations with experienced users. In fact, these experienced users prefer to use the full union catalog on DOBIS rather than the Library of Parliament view. But the heaviest use of the library is via telephone, not onsite, even though the patrons may be in the same building as the library.

Even when using the local view option, Library of Parliament searchers see all the system access point files. In the name and title access point files there are often multiple entries for the same name or title. These are regularly corrected by online inputters, but new duplicates are

created by offline loading and occasionally online input, particularly by the union catalog. Library of Parliament catalogers identify problems with authority control in the union catalog. The searcher cannot tell at the access point level which form of the access point has been used by the Library of Parliament and at times may assume the local library does not hold the publication he seeks. Although the searcher with access to union catalog holdings may readily identify other locations, Library of Parliament staff want to ensure that their clients are aware of their own collection. Clients need assistance from a reference librarian in identifying substitute publications held by the Library of Parliament.

Library of Parliament catalogers are very consistent in bilingual cataloging and attach only French subject headings to records for French language publications. Thus a user seeking French material on a subject can look in the French subject heading index in the Library of Parliament COM catalog and find all the French publications. In the online database, the French and English subject headings are interfiled and many different cataloging policies are reflected. If the searcher selects an English subject heading because it has the most records attached, he may well miss all the French material held by his own library and be misled by seeing records for other French publications.

The Library of Parliament has used local files for two purposes: to add bibliographic information that is not appropriate at the system level—e.g., a bound-with note—and for access points that it feels are needed by its users but cannot be justified according to cataloging rules. Fortunately system standards have become more flexible on this latter point, and local files are now rarely used for access points. Local files must be selected at the beginning of a search and searched separately. Because of the small amount of relevant information in local files, this second step is rarely fruitful and seldom used by searchers.

There are other capabilities Library of Parliament staff would like to have in an OPAC. They would like to incorporate their special in-house indexes in the same database or system. An OPAC should provide integrated access transparent to the user.

Despite the negative views mentioned earlier of the impact of the union catalog on the utility of DOBIS as an OPAC, present users of DOBIS are used to fast access to a union catalog and would not want to give it up. So one of the requirements of a future system for the Library of Parliament is the capability to send users, based on their sign-on, directly to a union catalog if an item is not in the local catalog.

### **DOBIS USERS IN THE FINANCE/TREASURY BOARD LIBRARY**

The Finance/Treasury Board Library is a special library with a primary clientele of departmental employees. This library has also just completed a retrospective conversion project and its entire collection is represented in DOBIS. There is a diversity of subject interests among the clientele and interests in topics may not be long lived. Most patrons are

operating with short deadlines. With a limited acquisitions budget and space, this library does not attempt to meet all its clients' needs from its own collection. It has an excellent and heavily used interlibrary loan service. Library staff view the library more as an information center than as a research-oriented library. This service philosophy is in contrast to that of the Library of Parliament. This contrast is also seen in the use of DOBIS as a public access tool.

The Finance/Treasury Board Library has two public access terminals very close to the reference desk. Public service staff provide a formal orientation program for new employees which includes an introduction to DOBIS. In the introduction, staff try to make DOBIS less of a mystery and emphasize the content of the database, especially the union catalog features. Employees are given a quick demonstration and invited to ask for help when they come back to use the library. At one time, a more in-depth training in the use of DOBIS was given as part of the orientation program. However, it proved to be a waste of time for all but the steady users of the library. Now training is given on a one-to-one basis when a patron has a need and the interest to use the system. As the use of microcomputers spreads in the department, so does this interest spread. At times there is a need for a third public access terminal.

How do Finance/Treasury Board reference librarians and patrons react to the union catalog aspect of DOBIS? Librarians see complete records and often use the system holdings approach to the system. They know that to meet their patrons' needs they may need to go beyond their own collection. Source records with no locations are also very useful for identifying a source of acquisition for new titles. The public access sign-on defaults to local holdings and a brief record but patrons are instructed how to broaden their search to system holdings. Patrons are very impressed by the easy access they have to the holdings of "the nation's libraries." In practice they are most interested in the holdings of the libraries of "the nation's capital," Ottawa. And since the holdings of many federal government libraries and Carleton University in Ottawa are represented in DOBIS, they can often find locations close at hand. Turn around time for document delivery is the key factor in the utility of the holdings information found in the union catalog. There is no evidence that Finance/Treasury Board patrons find the union catalog confusing. Rather, they see it as a great advantage.

How do Finance/Treasury Board staff and patrons use the bilingual capabilities of DOBIS? There are substantial francophone staff in the departments and the French dialog of DOBIS is used periodically. Library staff try to develop a balanced collection of French and English material. However, most documents in the departments are prepared initially in English and more publishing in the subjects of specific interest (e.g., finance, management) is in English rather than French. Therefore, many users approach the system seeking English publications, either as known items or through English subject headings. Both

anglophone and francophone users experience the frustration with subject headings expressed by one patron: "My biggest frustration is that the subject headings in the system do not match my search terms. I have difficulty making the transition."

What problems do patrons have using DOBIS? The first problem is logging on to the system. To quote one patron: "It's always difficult to sign on. I always need help." Staff have predefined three keys, marked them with colored dots, and devised a very simple instruction sheet (in both official languages) left beside the terminal. New users invariably misinterpret the instructions and staff are constantly trying to think of ways to improve them. Fortunately the reference desk is so close to the public access terminals that the reference librarian can observe any patron difficulties and quickly provide assistance. There have been recent improvements in terminology on DOBIS displays, suggested by public service librarians in DOBIS full service libraries, which have addressed some recurring problems. For instance, the title access point file has been renamed "Title and Keyword," emphasizing that it is possible to search on keywords in titles. Some patrons approach DOBIS with broad needs and because of the size of the database find: "DOBIS is hard to search for general topics. There are too many hits under one subject."

DOBIS is based on full screen displays rather than a line-by-line display. When correcting an input error, the searcher must wait for the complete screen to display again. At busy times of the day or when doing particular types of searches, this results in a response delay that may cause the patron to try to reenter data or, in extreme cases, abandon the terminal. Fast response time is essential in a public access environment. Finance/Treasury Board patrons also have difficulties with the size and complexities of the access point files and the idiosyncrasies of cataloging rules. Where is the 1987 Tax Reform White Paper? Cataloged as "Tax reform 1987: the white paper." Duplicate records are a problem. The patron may find the record he wants but not the one with Finance/Treasury Board holdings attached. In many cases, a capability to limit searches or sort results by date of publication would be very useful.

What is the future of DOBIS as a public access catalog in this library? Library staff would like patrons to have access to the online catalog from their offices. The technical infrastructure for this is not yet available in the departments but soon will be. Library staff realize that if DOBIS is accessible outside the library, they will have to provide a substitute for the hands-on help they now provide in the library. They will need a telephone or online hotline and perhaps a more formal training program. The Finance/Treasury Board Library is in the midst of a search for a stand-alone library system with an OPAC module that they hope would overcome some of the limitations of DOBIS as an OPAC. However, the librarians and patrons would still like direct access to the union catalog.

## UNION CATALOG AS AN OPAC

This study reports on use of a union catalog as an OPAC in three libraries. What have similar studies reported?

A recent Australian study (Weiming, 1988) reports on use of an OPAC system with union catalog and circulation status information. There was limited positive reaction to the union catalog feature. Only 3 of 175 positive comments indicated they liked the ability to search holdings of other libraries. An initial problem was the inability to search local holdings only, but this capability now exists. Patrons also had problems interpreting the location codes although there was a list of codes at each terminal. There was a need for continuing instruction by staff. On the other hand, there was some demand to expand the union catalog to university libraries from its base of technical institutes. It appears that some users found that the union catalog overly complicated their searches. But those who appreciated the union catalog wanted more. When circulation status was requested in a union catalog search there was a significant delay (sixty seconds) for the information to cross from a local circulation database to the bibliographic database, another barrier to effective use of a full function union catalog.

The University of Guelph has considered a union catalog environment and Beckman (1987) concluded:

Accepting that the most important single requirement of an online catalog in a primarily undergraduate university is immediate access to material needed for teaching or learning purposes, the discovery that a title is at another university is not an essential consideration unless:

- the status of the book is known—i.e., is it or when will it be available?
- the book can be easily retrieved—i.e., the other university is close enough to drive to or there is a transit system which will deliver the book in a few days. (pp. 534-35)

The DOBIS experience differs from that in Australia and at the University of Guelph in the service objectives of its full service libraries and in type of clientele. A library striving to meet all its users' needs directly does not want to encourage access to other collections. On the other hand, a special library serving diverse interests wants to facilitate access to other collections while recognizing the time constraints of its clientele.

Beckman (1982) interprets Lancaster's (1977) conclusions in reviewing studies of catalog use: "What is not found in the first place a user looks is often not found or used at all" (p. 5). If a library knows its patrons need to use the collections of other libraries and wants to meet this need, providing a union catalog as part of an OPAC is a beneficial service. Even providing the union catalog as an easy second step, as the Library of Parliament and the Finance/Treasury Board Library wish, may not meet this need.

The University of California has identified this need, at least at a corporate level. "If the collections of the University's libraries are to be used as a single collection, and the resources in this collection made

easily available to all students and faculty of the university, a union catalog is clearly an absolute necessity" (Salmon, 1982, p. 352). The University of California designed its MELVYL system as a public access union catalog.

### BILINGUAL CATALOG AS AN OPAC

In an article on multinational OPACS, Gossens (1987) identifies several characteristics of OPACs relevant to language: the man-machine dialog, the search process, the display of bibliographic information on the screen, and the storage of data. DOBIS is not a multinational OPAC, but it is worthwhile to evaluate DOBIS against Gossens's analysis of requirements for a multilingual union catalog. The basic requirement is a multilingual *dialog* which is available in DOBIS.

According to Gossens, in a multinational OPAC (which is also multilingual), the patron should have the opportunity to control his *search* area by geographic location and the languages of publications wanted. He should be able to broaden or narrow his search at any stage.

DOBIS is bilingual and, as described earlier, it provides access to the holdings of many libraries. DOBIS provides the capability of broadening or narrowing the location of material under consideration at two levels, the summary of bibliographic items associated with one access point and the system holdings level. (When there are many holdings attached to a record, the searcher can search among these locations for a particular province, city, or library.) A DOBIS search cannot be limited by language of publication. The user must scan titles of the publications found and make his own decisions as to relevance. In the Canadian government environment, most users will use publications in English or French if they are equally available. A user requiring only French material will have some difficulty retrieving material unless his search is quite specific and a French publication exists in this specific area.

Gossens supposes a known item search by title causes few problems and this is true in DOBIS. If the title is in the database, the user will retrieve it in the language he input. The relationship feature will also allow him to identify other language editions.

Gossens also sees no problem with authority-based and controlled access points—i.e., names. Multilingual forms will be provided when appropriate, and the user can work in his own language. DOBIS provides the capability for creating and linking equivalent forms of authority headings in English and French and system standards encourage the creation of the headings. However, the practicality of resource constraints enters the picture, and, in some situations, libraries cannot afford to create these headings.

Gossens speaks of the impact of special characters on searching: "special characters need a unique representation and particular treatment in index building." Again the DOBIS system has addressed this problem but the practicalities of offline loading introduce inconsistencies.

For Gossens the most serious problem for searching a multilingual OPAC is the lack of an internationally recognized multilingual subject heading tool. Fortunately in Canada such a tool is available in English and French if one combines the Library of Congress Subject Headings (LCSH), the Canadian Subject Headings developed by NLC to supplement LCSH in English, and the Répertoire des Védettes Matières, a translation of the two English lists.

In terms of display of bibliographic information, Gossens suggests that neutral authority headings and those in the language of the patron should be displayed. DOBIS displays all forms used in the system, but access to all forms is necessary to be able to retrieve all records since, in general, only one form is attached to one record. The bilingual cataloging policies in DOBIS are based on those developed by NLC for the national bibliography. They may need some rethinking in an online catalog environment. Gossens feels that the descriptive cataloging data added by the cataloger should be in the language of the publication. In DOBIS this is true for records for English and French publications, but other language material is predominantly cataloged in English. As Gossens suggests, in DOBIS, tables are used so that the coded information is displayed in text in the language of the user.

Storage of data must allow for multilingual authority data as DOBIS does. Language of publication should be coded as should the geographic locations of material. Both are coded in DOBIS. Headings should be identified by language and by the transliteration scheme used. DOBIS identifies language of access point but not transliteration schemes. Two standard transliteration tables are used, one for English forms and one for French. Gossens recommends that index design include special characters and geographic and language qualifiers. DOBIS addresses some of the concerns with special characters by identifying language of permutation. Other concerns of Gossens are handled by using the full ALA character set. Although the language and geographic location are coded in DOBIS, they are not fully indexed thus precluding some of Gossens's search strategies.

DOBIS stands up very well to Gossens's requirements. Yet the study of DOBIS use in three libraries identifies some serious limitations in bilingual access. The limitations relate primarily to the content of the database and not the database or system design. The level of bilingual access provided by the database content is directly related to the resources available for cataloging and the service priorities of the full service libraries. These are realities that must be taken into account in any multilingual cooperative endeavor.

## CONCLUSIONS

How do the findings of this study support the author's hypotheses? Although not explicitly designed as an OPAC, DOBIS is being used as such in several full service libraries and in the eyes of many users has

replaced other forms of catalogs. However, assistance from staff is readily available and frequently used, contrary to one of the basic definitions of an OPAC. It is debatable whether DOBIS could be used as a remote access OPAC. Some of the problems with DOBIS as an OPAC have little to do with the user interface of the system itself but relate to more basic aspects such as keyboards and log-on sequences. These basic factors deserve more attention by OPAC designers and implementors.

*End users adapt readily to a shared database/single record concept and like union catalog features.* End users who have accessed the holdings of many libraries in one search like this feature and do not want to give it up. The shared database causes more problems for searchers because it is so difficult to implement well. Duplication always creeps in and confuses users. Looking ahead to remote access OPACs, library managers of two of the libraries studied have more doubts about user adaptability to union catalog features than was uncovered in interviews with users in this study. *End users are frustrated by source records with no locations.* There was no mention of frustration with source records without locations using DOBIS.

*English and French users both adapt to a bilingual system and accept that the bulk of records are in English with English access points.* English and French users have adapted to the bilingual features of the system and seem able to ignore the inconsistencies in the database. However, there is no doubt that, in many cases, they are not retrieving all the relevant records in a subject search, particularly for French publications.

*The system could be improved to better meet end user needs by adding OPAC features.* Some OPAC features such as optional user views and improvements in dialog have been added to DOBIS and are welcomed by searchers. Additional features such as Boolean search would help reference librarians greatly. But the future system requirements expressed by the Library of Parliament and the Finance/Treasury Board Library go beyond requirements that could be met by DOBIS. The large and complex shared database and, in particular, the access point files are real barriers to patron use. These barriers are difficult to overcome in DOBIS because they are inherent in the basic structure of the system and its use by NLC.

Libraries are moving from OPACs in the library to remote public access catalogs. In this expanded service environment, elimination of barriers becomes imperative. At the same time, libraries must expect increased service demands from the new remote users. And access to other library locations and even the ability to initiate an interlibrary loan are service demands that will come from some users. It is hoped that this study will assist those developing services and systems to meet these demands.

## REFERENCES

- Ashoor, M. S., & Khurshid, Z. (1987). User reactions to the online catalog at the University of Petroleum and Minerals Library. *Journal of Academic Librarianship*, 13 (September), 221-225.
- Beckman, M. (1987). Online catalog development at the University of Guelph. *Library Trends*, 34(4), 527-537.
- Beckman, M. (1982). Online catalogs and library users. *Library Journal*, 107(19), 2043-2047.
- De Bruijn, D., & Matheson, A. (1987). University of Calgary: Remote access to on-line catalogues. *Canadian Library Journal*, 44(August), 225-228.
- Deemer, S. S. (1983). Public access searching through DOBIS. *Software Review*, 2(3), 148-157.
- Dinberg, D. J. (1988). DOBIS and the Canadian Union Catalogue. *Cataloguing and Classification Quarterly*, 8(3/4), 165-186.
- Friedman, E. S. (1980). Patron access to online cataloging systems: OCLC in the public service environment. *Journal of Academic Librarianship*, 6(July), 132-139.
- Gossens, P. (1987). Across the language barriers in multinational OPACS. In *Les Bibliothèques: Tradition et mutation: Mélanges offerts à Jean-Pierre Clavel à l'occasion de son 65e anniversaire* (pp. 401-16). Lausanne: Bibliothèque cantonale et universitaire.
- Hildreth, C. R. (1985). Online public access catalogs. In M. E. Williams (Ed.), *Annual review of information science and technology* (pp. 233-85). White Plains, NY: Knowledge Industry Publications.
- Lancaster, F. W. (1977). *The measurement and evaluation of library services*. Washington, DC: Information Resources Press.
- McAllister, C. (1987). The online public access catalogue in DOBIS/LIBIS. *Program*, 21(January), 25-36.
- National Library of Canada. (1986). *DOBIS searching manual*. Ottawa: NLC, Library Systems Center.
- Salmon, S. R. (1982). Planning for library automation: The origins of MELVYL. *Information Technology and Libraries*, 1(December), 350-358.
- Weiming, L. (1988). User reactions to OPACs, an Australian case study. *LASIE*, 18(January/February), 92-101.