

# Bibliographic Instruction and the Development of Online Catalogs

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*Bibliographic instruction librarians face the challenge of explaining both the benefits and limitations of the online catalog to their users. But first they have the responsibility of contributing to the catalog design. By assisting in the creation of help screens, error messages, prompts, and online tutorials, bibliographic instruction librarians can build instruction into the online catalog itself.*

## INTRODUCTION

The best dreams and the worst fears of public service librarians are coming true. The frontiers of computer technology have advanced, and unlike the successful behind-the-scenes applications to acquisitions and cataloging, the changes occurring now are visible to most library users. Online circulation systems are now commonplace. From the user's viewpoint, their advantages are fairly obvious—reduced waiting time at the checkout desk, an end to the tedious completion of sign-out slips, and instantaneous answers to queries about the location and status of library materials.

The benefits of an online catalog, however, may not be as readily apparent to the public. Some library patrons will find the prospect of approaching a terminal rather than a familiar drawer of 3 × 5 cards rather bleak. Most library users were exposed to the basics of card catalog use at an early age, and some of them will understandably feel confused and resentful of the

switch to a catalog that blinks, purrs, and beeps back at them.

Others—perhaps even the majority of library users—will respond with enthusiasm, enchanted by the possibilities of the new system and intrigued by the workings of the terminal. Librarians will have to serve all categories of users: the technophiles who leap at the online catalog with naive enthusiasm; the distrustful traditionalists who tiptoe up to it out of sheer necessity; and the rational types who approach the new catalog with open-minded curiosity.

Depending on the complexity of the system, a significant amount of re-education may be needed before any reader can become self-sufficient at consulting the new catalog, even for a simple author/title lookup. Moreover, considerable instruction and practice in such techniques as Boolean logic, truncation, and command chaining will be required in order to fully realize the expanded retrieval powers online catalogs offer. The burden falls on public service librarians, especially biblio-

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graphic instruction staff, to educate the users of online catalogs.

### WHAT IS AN ONLINE CATALOG?

Questioning the definition of *online catalog* is not simply a semantic exercise. Whether the automated catalog duplicates the kinds of information and access points afforded by a card catalog, fulfills more modest aims, or expands the ability of its users to retrieve bibliographic data, hinges on this initial definition. Participants at a Council on Library Resources workshop on public access to bibliographic databases (many of whom already operate online catalogs) suggested a number of widely varying definitions.<sup>1</sup> Before we offer our own definition, we would like to pause for a moment to explore the underlying issues.

Regarding catalogs, two schools of thought exist. Early in this century, Charles Cutter defined the objectives of library catalogs. Cutter's objectives have, by and large, withstood the test of time. The purposes of a catalog, as outlined by Cutter, are twofold:

1. to enable a person to find a book of which the author, the title, or the subject is known; and
2. to show what the library holds by a given author, on a given topic, or in a given kind of literature.<sup>2</sup>

Cutter's objectives were echoed in the Paris Principles adopted in 1961, and today it is commonly assumed that the card catalog should serve both as a finding tool and as a collocation mechanism.

Some experts, however, argue that this double objective is not applicable to online catalogs. Frederick Kilgour, for instance, believes that the powerful retrieval capabilities available in online catalogs render the concepts of main entry, authority control, and collocation obsolete. Kilgour maintains that the role of the online catalog is restricted to a finding tool, defining a catalog as "a systematic record of the holdings of a collection, its purpose being to enable a user of the collection to find the physical location of information in the collection."<sup>3</sup>

Michael Malinconico and Seymour Lubetzky, on the other hand, argue that Cut-

ter's objectives are as valid for online catalogs as they are for other types of catalogs.<sup>4</sup> At the risk of sounding old-fashioned, we agree. Without the structure imposed by authority files, main entry, and collocation, one has merely a database but not a true catalog. The word *catalog* in itself implies the existence of an orderly, managed structure of information based on established criteria. A database is simply a compilation of records without inherent structure.

Bibliographic data and a structure to organize it are, therefore, two essential elements of a library catalog. If the catalog is offered to the public, yet another factor becomes crucial—ease of use. A catalog that makes sense only to librarians is a catalog in name only.

At this point, we offer a simple working definition of the online public catalog, a definition central to our further discussion in this paper. An online catalog, at the minimum, fulfills the objectives outlined by Cutter. Equally important, it does so in such a way that library patrons can use the catalog without the assistance of library staff.

### WHO SHOULD DESIGN THE ONLINE CATALOG?

Designers of online catalogs must consider five distinct but interrelated factors:

1. Users. Who uses the catalog? Do different user groups—e.g., students, faculty, staff, the general public—exhibit different needs, patterns of use, and levels of skill? Should the catalog be aimed at a specific user group or all users?
2. Interface. What is the best way of mediating between the computer and its users? How can elements of software design, such as the choice of language and the sequence of logical steps, increase the ease and efficiency of consulting the catalog?
3. Files. Which files or records should be available to users: records for the local library or system, MARC records, or records for members of a consortium?
4. Technology. What machine configuration will best support an online catalog? What level of computer resources will be required?

5. Management. How much will it cost to develop and operate an online catalog? What are the staffing implications for both technical and public services?

Because so many variables are involved, the design and development of online catalogs is not a task that can be successfully carried out within the confines of a single profession, as the creation and refinement of the card catalog has been. Skills from several fields, including library science, computer science, and data communications, are required in order to construct an online catalog. Even within the field of library science a wide variety of skills and experience are needed. Deciding who to involve in designing an online catalog is of utmost importance.

There are two alternate courses in the creation of an online system. One approach, frequently used in the data-processing industry, is to centralize development efforts in a single office or unit. Persons assigned to the unit—usually a combination of systems analysts, programmers, and managers—are wholly responsible for the finished product. The unit typically constructs a prototype system, tests it, makes refinements, and implements it. Based on feedback from the users, the system can then be further refined.

The second alternative decentralizes development responsibility and emphasizes collaboration. There are different methods by which to accomplish collaboration within a library organization: a general committee or task force is one example; another is the temporary reassignment of staff to the project. At Stanford University Libraries, a committee composed of staff involved in reference, cataloging, collection development, and bibliographic instruction is now in the process of developing preliminary specifications for an online catalog. During the development of BALLOTS, the online bibliographic system that preceded RLIN, library staff were temporarily assigned to the BALLOTS project. Stanford's decision to follow this collaborative model is based on the belief that a broad-based effort involving staff with a variety of skills, backgrounds, perceptions, and experiences is most likely to

produce an online system acceptable to all of the libraries' users. Douglas Ferguson, manager of the Public Access Project of the Research Libraries Group, has stated the issue very well:

The fundamental principle in designing online systems is to *know the user and the uses*. . . . What this means is that public service librarians cannot sit on the sidelines while patron access systems are being discussed, planned, and built. We must . . . *insist* that we play a primary role in the whole development process.<sup>5</sup>

The authors submit that bibliographic instruction librarians cannot be passive onlookers. Library instruction has an important role to play in the development of online catalogs, and its practitioners should insist on being involved.

Few members of the present generation of librarians have had the opportunity of designing a new catalog, and even those working with new collections have rarely had the opportunity to construct catalogs that differed significantly from traditional card catalogs. The relation of bibliographic instruction to the catalog has, until now, been limited to explaining the existing rules of entry and filing. At this point in the evolution of libraries, bibliographic instruction librarians have much to contribute to online catalogs long before the public confronts terminals in the library lobby, for

. . . public access presents a perfect opportunity to integrate . . . instructional methodologies . . . into a medium which is accessible and attractive to a majority of our users.<sup>6</sup>

BI librarians possess the skills, knowledge, and experience needed to design online tutorials and help screens; they have also cultivated the expressive skills needed to write clear, concise prompts and error messages. In short, BI librarians can make important contributions to the design of the catalog interface—the program that will enable patrons to communicate with the computer. This is, after all, what BI librarians have been doing all along—mediating between the library and the patron to achieve the goal of user independence.

The development of a user-acceptable interface is crucial and cannot be stressed



enough. Lack of acceptance or improper use by library users signals the failure of any catalog, be it card, book, COM, or on-line. Although a reference librarian will often be available to assist baffled users, catalogs should obviously be created to be self-service.

### USER-COMPUTER COMMUNICATION

#### *Error Messages*

Intelligible error messages are important in assuring that the online catalog is used to greatest advantage, and that users, learning from their mistakes, gain greater self-sufficiency. For example, RLIN\* users used to receive a message stating "core exhausted." Only sophisticated users of the system would correctly interpret this response to mean that their search request was too general and, therefore, could not be processed. To the uninitiated user, the message had an ominous ring; perhaps they had worn out a vital circuit deep in the machine's heart. Thankfully, RLIN changed the message to read "search terms too common, please reformulate"—a phrase that both explains the problem and suggests a solution. BI librarians, sensitive to users' needs, may even recommend further improvements.

#### *Help Screens*

An error message is a system response to a problem that is system-caused, or that the system can identify. In many cases, however, the computer cannot deduce the nature of a mistake. For example: Suppose a user miskeyed his search input to "FIND CE GENERAL MOTORS" instead of "FIND Corporate Entry GENERAL MOTORS." The proper index abbreviation is CW for Corporate Word, or CP for Corporate Phrase. CE is meaningless to the computer, and it will respond "CE

NOT RECOGNIZED—?" At this point the user may ask for help from a librarian, fumble through a manual, or try other possible abbreviations. Although the user probably does not know it, he could easily display a help screen with a full listing of the indexes and abbreviations for each index, simply by typing "SHOW INDEXES."

BI librarians can aid the designers of online catalogs by identifying the points in a typical search where help screens could be useful, by writing them, or by assuring that the user is aware of the existence of help screens. In the above example, for instance, "CE NOT RECOGNIZED" might be augmented by the phrase, "TO VIEW A LIST OF RECOGNIZED INDEX ABBREVIATIONS, TYPE 'SHOW INDEXES.'"

Of course, even the term *index* may bewilder the untutored user, since its primary association for most people is with the indexes found in the back of some books. A more efficient redesign of the system would automatically provide a list of acceptable index abbreviations along with the error message.

The designers of the online catalog must decide when to teach users about system terminology and data structure, and when to provide transparent links from common problems to their solutions. BI librarians must resist the urge to explain concepts and technical terms that are of no real use to the average user. We are reminded of the old debate over "main entry"—is it a concept that users need to understand, or is it functional only for librarians? The answer is that the need for understanding the principle of main entry varies from library to library, and by extension, from catalog to catalog. In card catalogs, additional information regarding precise holdings, number of copies,

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\*In this paper we argue for the involvement of bibliographic instruction staff in the design of online catalogs. To that end, we point to a number of factors to be considered when planning how to introduce the new catalog to library users. However, it is not our intention to make specific recommendations, or to survey existing online systems which are now (or may someday be) offered to the public as replacements for the card catalog. We use examples from RLIN, the system most familiar to both of us, to illustrate issues that might arise for BI librarians using and modifying present systems as well as those who may be involved in designing entirely new systems.

and so on, is often paired with the main entry alone. Failure to grasp the concept of main entry can result in failure to find needed information. In the online catalog, such restrictions need not apply; all data can be found under all access points. Help screens can thus be reserved for those bits of information that enable the user to interact with the system in a more successful and efficient manner.

### *Unnatural Language*

The telegraphic brevity of online communication could be major cause of user confusion, yet a verbose system is costly, so the public online catalog must strike a balance between machine efficiency and human efficiency. Abbreviated indexes and responses are fine, if their full meaning is obvious. RLIN's "DIS" for display, "FUL" for full record, and "PN" for personal name are fairly straightforward and easily memorized. However, librarians should be aware of terms and abbreviations that might cause confusion, and be available to suggest alternatives.

An example from the development of RLIN illustrates this point. In the reconfigured RLIN database—dubbed RLIN II—records are displayed in clusters, and the user selects which cluster to view in full. An early test version of the RLIN II system used the term "EDI" for "edition" to identify the desired record. When public service librarians from RLG member libraries pointed out the potential for confusion in employing a bibliographic term that has a different meaning outside of the RLIN display, RLIN staff revised the terminology.

### ONLINE TUTORIALS AND OFFLINE INSTRUCTION

In designing user-oriented interfaces, BI librarians can anticipate and resolve a number of problems that might arise in the course of an ordinary search. Users will learn as they use the catalog, and reference staff can provide further on-the-spot training and guidance. When most librarians speak of bibliographic instruction, however, they refer to a more systematic kind of education that occurs for-

mally and outside the context of immediate need.

Orientation to the card catalog is an integral part of traditional bibliographic instruction. Freshman library tours cover at least the rudiments of catalog use, while upper-level instruction often dwells at considerable length on subject headings within a field. Such emphasis is necessary, since card catalogs are rich and complex tools. Nonetheless, there are comforting parallels between card catalogs and other publications frequently used by the general public. Patrons are used to the alphabetical sequences of card catalogs, for example, for they find the same or similar sequences in phone directories and other everyday publications.

The same is not true of online catalogs. While computer literacy is increasing, it is still limited to a small portion of the population. Further, most card catalogs appear, at least to the patron, to follow the same filing rules. However, the interfaces for online catalogs—the functional equivalent of filing rules—will vary from library to library. Although more and more entering freshmen will feel comfortable at a terminal, academic librarians cannot assume that students will learn the use of online catalogs before they enter college. Moreover, with the initiation of an online catalog, there will be a need to educate *all* users. Programs to teach the use of online catalogs are mandatory; the question is what form such instruction should take.

As we see it, instruction in the use of an online catalog may utilize several approaches, including class instruction, individual instruction, written documentation, slide/tape presentations, and online tutorials. A successful program would probably incorporate several modes of instruction.

Brochures, handouts, and slide/tape presentations lend themselves to promotional efforts. Such approaches may be most effective when the online catalog is first introduced. However, it should not be necessary for a patron to sit through a slide/tape presentation, take a class, or sift through written documentation in order to use an online catalog. Instruction can be built into the catalog itself, in the form of

online tutorials. Programmed tutorials are valuable teaching tools for individuals or small groups. They give learners immediate feedback and reinforcement, while familiarizing them with the terminal.

It is important to remember that in most settings librarians will need to teach the use of *two* catalogs, since complete retrospective conversion of cataloging records to machine-readable form will seldom be undertaken. In addition to very different feelings evoked by flipping through cards or peering at glowing letters on a CRT, there are a number of other dissimilarities between online systems and card catalogs. For example, computers read quite literally. A patron unsure if an author's name is "MacDonald" or "McDonald" can find either spelling in the same location in most card catalogs, but will have to search under both spellings online. Similarly, the numeral "20" may be filed under *t* in many card catalogs, but if the numeric character is used in the online record, a search for "twenty" would not retrieve it.

Users accustomed to dictionary card catalogs will now be asked to specify whether they are looking under author, title, or subject. Users of the card catalog may be satisfied when they find a number of title cards beginning with the word they had chosen as a likely subject term; however, an online subject search using that same word might yield a null result. Keyword-in-title searching (if the system permits it) requires a different, intentional approach. Moreover, some systems (such as RLLIN) may require users to distinguish between personal authors and corporate/conference entries, a distinction difficult for many patrons to make.

Finally, card catalogs will largely reflect AACR1 principles, while online catalogs will increasingly follow AACR2. This may pose difficulties for experienced library users who possess an advanced awareness of traditional forms of entry. On the other hand, the capacity for searching by keywords in corporate entries may make explanations of the new rules of entry unnecessary.

The need to educate library users about two catalogs makes a multifaceted instruc-

tional approach even more appealing. Combining a self-paced workbook with an online tutorial, for example, may facilitate individual comprehension of the differences between old and new catalogs. We have often heard people remark that study of a foreign language enlarged their understanding of English grammar. In the same manner, a forced comparison of the new catalog with the old may serve to teach library users something about the fundamental principles of bibliographic entry in addition to the mechanics of local catalog use.

As Velma Veneziano, one of the designers of Northwestern University's online catalog, stated:

What really becomes obvious when you implement an online catalog is that users do not know how to use any catalog, card or online, effectively. We now have the opportunity to do a more effective job of bibliographic instruction.<sup>7</sup>

The content and format of instructional materials and events will depend in large measure on the online catalogs themselves and on the particular library environments in which they operate. BI librarians should also consider what responsibility, if any, bibliographic utilities and commercial vendors bear for the development and distribution of teaching materials.

Although it may be too early to make concrete suggestions for enhancing existing systems or creating new user-oriented systems, it is certainly time to begin sketching the parameters of instructional programs. Deborah Masters has done just that, in her detailed list of objectives for educating users of the online catalog.<sup>8</sup> Masters stresses three basic goals and then outlines their specific objectives. First, the user should understand the scope and limitations of the online system and its relation to earlier catalogs. Second, the user should have a firm grasp of the procedures necessary to use the system. And third, the user should be able to interpret and evaluate the results of a search.

#### THE CURRENT SITUATION

So far, we have examined the relations between bibliographic instruction and on-



line catalogs as they should exist, or at least as we hope they will exist. Much work has already been done on online catalogs. But what role has bibliographic instruction played to date? In June 1980, OCLC and RLG, under the auspices of the Council on Library Resources, surveyed thirty-five organizations that were operating or developing public access systems. Respondents to the survey were divided into two groups—existing systems and those in the development stage. Of the existing systems, only 14 percent offer some type of formal user assistance. However, 57 percent of the developing systems are planning to provide aid to users. The types of assistance to be offered fall into four categories: instructor-led group instruction; instructor-led individual instruction; written documentation; and online tutorials. In most cases, a combination of all four types of assistance is planned.<sup>9</sup>

What of the existing systems with no formal programs of instruction and the developing systems (only slightly less than half) that have not given thought to BI for

the online catalog? In these libraries, we can assume that the burden for user education will fall onto the reference staff. All training is individualized and occurs at the point of use. While this kind of instruction is certainly valuable, it is hardly cost-effective when compared with approaches that reach many users at once, such as class lectures, or approaches that require no staff intervention, such as online tutorials. Meeting the educational needs of all catalog users without adding new staff is a goal that can best be met by a multifaceted BI program.

### SUMMARY

Bibliographic instruction librarians face the challenge of explaining both the benefits and limitations of the online catalog to their users. But first, they have the responsibility of contributing to the catalog design. By assisting in the creation of help screens, error messages, prompts, and online tutorials, BI librarians can build instruction into the catalog itself.

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