Twice Removed: Access to Electronic Serials from the User's Point of View

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Determining user preferences for data elements requisite to identifying print format serial titles in OPACs/WebPACs assumes an even greater priority when extrapolated to electronic serials where notions of seriality and periodicity cease to have the same meaning as in a physical object-oriented venue. This study utilized focus group methodology to define more user-centered bibliographic descriptions and displays for serials, and checklist methodology to assess bibliographic elements and holdings data currently captured within records of a sample of twelve Canadian academic libraries. Gaps between user preferences and existing record structure and content were identified and the challenges of utilizing current bibliographic frameworks for identifying and accessing serials in a digital environment discussed.

Introduction and Background to the Study and Background to the Study

Serial publications are, by nature, different from monographs, but online and Web-based public access catalogues (OPACs and WebPACs) display bibliographic records for each using similar content and labels. The process of creating user-centered bibliographic descriptions and displays should involve studying end-users' opinions and accommodating their information access and retrieval requirements. In particular, it is important to know what kinds of data elements end-users need when searching OPACs or WebPACs for the availability of individual serial (journals; newspaper; etc.) issues. While end-users may expect to find holdings information when searching an OPAC or WebPAC for the existence of an issue of a serial, it is not clear how they utilize that data, or what level of detail they find sufficient.

With the increasing availability of electronic serial publications or remote access "e-journals", mechanisms or approaches which facilitate precise identification of "virtual" materials become even more important. Unlike their print cousins, electronic serials are intangible; whereas an OPAC or WebPAC search for print-based serial titles can be followed up by a check for a physical item — an individual issue — on a shelf, the same record linked to an e-journal may serve as a gateway to discrete articles within individual issues. The "holdings" component of a bibliographic record assumes a different meaning and function within the digital context. Likewise, the clarity and detail of the bibliographic description and record display are key to the concept of bibliographic record as gateway or conduit, not only *to* a document, but also *within* the document. Thus, while determining user preferences for data elements requisite to identifying serial titles in OPACs/WebPACs continues to be relevant to accessing individual printed journal issues, it assumes an even greater priority when extrapolated to electronic serials where there is potential for article-level access — where access to required information is, in effect, twice removed.

As Duranceau (1996, 69) explains, "The terminology we have used to describe print publications ... does not always transfer directly to the electronic environment, where continuous updates can replace clearly demarcated editions, versions, or issues; full-text searching can replace numerical or chronological access; and unbundled article distribution can replace the familiar concept of issue or volume." The change in the nature and manifestation of the resources themselves, may undermine or challenge the structure and content of the bibliographic records which have traditionally been created for serials. These records, in turn, have been devised according to a standard, the *Anglo-American Cataloguing Rules*, which has largely "anticipated" user needs for identifying and accessing materials rather than systematically reflecting empirically-determined end-user requirements or preferences.

Literature Review

While researchers, such as Crawford, Snovel and Bales (1986), Stephens (1991), Shires and Olszak (1992), and Wool (1996), have

detailed the type of bibliographic data which could be included in OPAC displays to facilitate user access to materials, and Luk (1996), and Howarth and Cox (1996) have examined, respectively, user preferences for bibliographic record content and display, and the extent to which a sample of monograph records conforms with that client-defined element set, there exists relatively little research addressing the content of bibliographic records for serials, specifically. A few studies have focused on the difficulties users encounter when searching for serials, and have underlined the need for user-oriented solutions to those problems. Bryant (1988; 1989), for one, concluded that, to facilitate retrieval, users want: "... one source of information that tells them whether their library takes, or has taken, the periodical title, and the necessary details to tell them which parts and volumes it stocks, and whether the volume they want is available, missing, mutilated, at binding, etc." (Bryant 1989, 29). Wallace (1996), and Snavely and Clark (1996) likewise suggested a number of enhancements to bibliographic records for serials which could facilitate their identification and subsequent retrieval. researchers, such as Crawford, Snovel and Bales (1986), Stephens (1991), Shires and Olszak (1992), and Wool (1996), have detailed the type of bibliographic data which could be included in OPAC displays to facilitate user access to materials, and Luk (1996), and Howarth and Cox (1996) have examined, respectively, user preferences for bibliographic record content and display, and the extent to which a sample of monograph records conforms with that client-defined element set, there exists relatively little research addressing the content of bibliographic records for serials, specifically. A few studies have focused on the difficulties users encounter when searching for serials, and have underlined the need for user-oriented solutions to those problems. Bryant (1988; 1989), for one, concluded that, to facilitate retrieval, users want "...one source of information that tells them whether their library takes,or has taken,the periodical title, and the necessary details to tell t hem which parts and volumes it stocks, and whether the volume they want is available, missing, mutilated at binding, etc. (Bryant 1989, 29). Wallace (1996), and Snavely and Clark (1996) likewise suggested a number of enhancements to bibliographic records for serials which could facilitate their identification and subsequent retrieval.

Holdings records show the parts (units) of a serial which are held in a particular library collection. Presently, holdings information for serials is recorded in the notes area of the bibliographic record, in a very brief manner. Another way of providing holdings information in OPACs is through the creation of separate holdings statements which are linked to the bibliographic record of the serial, as defined in two standards, namely, the *American National Standard for Information Sciences - Serial Holdings Statements* (ANSI Z39.44-1986) and *USMARC Format for Holdings Data, Including Guidelines for Content Designation* (MFHD) (1994). Authors, such as Chen (1995), Rosenberg (1996), Bloss (1988), and Puccio (1989), have addressed the difficulties in implementing the holdings standards, and in deciding how and where to keep different types of holdings records. There remains, however, a lack of evidence about what holdings information end-users consider important or helpful for determining the availability of an individual issue of a serial title, and about what level of detail they may require from OPAC displays when searching for serial items.

Research Questions and Methodology

Given that little is known about user preferences for descriptive elements and for holdings information in bibliographic records for serials, and that the presence or absence of these data in serial records may impact end-user identification and retrieval of materials, particularly as libraries move to acquire more electronic serials for their collections, research was undertaken to explore the following four questions:

- Which descriptive *bibliographic* elements do end-users rank as most important and useful for uniquely identifying serial titles in a library's collection?

- What kinds of information and what level of detail do end-users require from *holdings* statements in order to identify and access individual issues of serial titles?

- To what extent do existing bibliographic records conform with end-user preferences for descriptive elements and holdings information?

- And finally, based on answers to the preceding questions, what suggestions can be made regarding the nature, content, and detail required of bibliographic records for electronic serials?

As part of a larger ongoing research project, namely, "Towards More Useful Bibliographic Displays" (Cherry and Howarth, in progress), this study utilized focus group and checklist methodologies to assess the content of bibliographic records for serial publications from the users' point of view. To determine the latter, focus group interviews were conducted with a total of twenty-four graduate students (14 Master's level and 10 doctoral level students) in medicine and the sciences — disciplines in which serials (especially journals) are extensively used. Participants were asked to rank the most important and useful descriptive elements in serial records, and to examine the content and level of detail required from holdings statements in order to identify and access individual issues of serial titles.

Next, a checklist of bibliographic elements, based on *AACR2R*, second level of description (developed by Howarth et al. , 1996), was modified and used to evaluate the bibliographic displays for ten selected serial publications in twelve Canadian academic libraries. The sites selected for this project were the same as those chosen for the study of monographs in Canadian academic libraries (Howarth et al. 1996; Howarth and Cox 1996, 1997), and limited to members of the Canadian Association of Research Libraries (CARL) with catalogues accessible through the Internet via telnet connection. The final list of ten printed serial titles was selected in Fall 1995 by two research assistants. In order to evaluate the presence of holdings data in serial records, a second checklist was developed based on ANSI Z39.44-1986.

Analysis and Findings

The data generated from both parts of the study were analyzed in order to identify gaps between user preferences and the availability of data elements (bibliographic and holdings) in existing online catalogues.

Bibliographic Elements

The element Title was ranked first (see Table 1), and, in the ensuing structured discussions, confirmed by all participants as being the most important element. Also considered important were Former title, and Designation. The non-descriptive elements (i.e., access points), Author(s) and Subjects, were ranked quite high, while some elements, such as Dimensions (Extent), and Other physical details were not ranked at all as important.

The checklist methodology provided information about how different academic libraries apply cataloguing codes and guidelines, and how they handle the various bibliographic elements in serial records. Findings suggested that, overall, the sample serial records contained 68.2% of the elements required according to *AACR2R*, second level description, and included in the model records. Only six of the twelve sites (50%) contained 70% or more of the elements required by *AACR2R*, second level description. This percentage falls slightly short of the 80% of Canadian academic and public libraries which, while not asked to specify *level* of description, nonetheless self-reported using *AACR2R* to catalogue serials (Howarth and Weihs 1995).

The elements Title proper, First place of publication, First publisher, Series title proper, Parallel title and Relations to other serials, had the highest occurrence in the actual records (above 70%). Table 1 shows the occurrence (in all serial records at all selected sites) of the elements which were ranked as the top five most important by the participants in the focus groups. The participants were using a list of 31 elements for the ranking. The only element ranked as important by the participants that was present in all serial records was Title (100%). Former title was present in 72.8%, Date of publication in 65.5%, Designation in 55.4%, and Frequency was present in only 47.4% of all serial records. The data for Author(s) showed that it was present in 80.6% of all serial records.

Table 1. Occurrence of the Top Five Bibliographic Elements (BE)Ranked as Most Important (In the Selected Serial Records, All Sites)

Top 5 elements – Master's students	Occurrence of BE in all serial records, %	Top 5 elements - Doctoral students	Occurrence of BE in all serial records, %
Title	100	Title	100
Subjects*	data not analyzed	Designation	55.4
Former title	72.8	Former Title	72.8
Author(s)*	80.6	Author(s)*	80.6
Designation	55.4	Frequency	47.4
Indexed/Cited In	n/a**	Date of publication	65.5
Language	n/a**		

* Author(s) and Subjects are not descriptive elements.
** These elements were not accounted for as separate elements in the checklist; they were part of the Other notes element (68.3% of occurrence in all serial records)

The analysis of the data generated in both parts of the study (see Table 1) showed that the only element that was ranked as important by all participants in the study, and was present in all serial records was Title (100%). Other elements, such as Frequency, and Designation, while being ranked among the top five most important elements, were missing in a large number of serial records (e.g., Frequency was not present in 47.4%, and Designation was not present in 55.4% of the records).

Holdings Information

All participants agreed that holdings information was extremely important for them when searching for journals in OPACs, but they sometimes found these elements confusing. There were a few participants who interpreted the Designation element as the date when the library started collecting the journal. This confirms results from previous studies that this *bibliographic* element (which represents, essentially, the numbering scheme of the first issue of the serial title) is often confused with holdings information (Rosenberg 1996).

Table 2 shows the actual occurrence of holdings data elements in the ten selected serial records at all sites. Table 3 compares the occur-

rence in all serial records at all selected sites of the six holdings elements ranked as most important by the two groups of participants.

Table 2. Occurrence of Holdings Information Elements (HE) In Serial Records

Holdings Information Element (HE)	Occurrence of HE in Serial Records, %
Call number	91.7
Sublocation identifier	83.3
Institution code	58.3
Copy identifier	58.3
Enumeration	50
Chronology	50
Type of holdings	33.3
Gaps	25
Location of current issues	25
Latest (issue) received	25
Acquisition status	16.7
Location of bound issues	16.7
Retention	8.3
Date-of-report	0
Completeness	0

Table 3. Occurrence of Holdings Data Elements (HE) Ranked as Most Important (In All Serial Records, All Sites)

Holdings data elements – Master's students	Occurrence of HE in all serial records, %	Holdings data elements – Doctoral students	Occurrence of HE in all serial records, %
Name of library	83.3	Call number	91.7
Call number	91.7	Location of bound iss	16.7
Location of bound issues	16.7	Name of library	83.3
Summary holdings	33.3	Location of current is	25
Location of current issues	25	Detailed holdings	33.3
Gaps	25	Gaps	25

Call number was ranked second and first in importance by the Master's and doctoral students, respectively, and it appeared in 91.7% of the studied records (see Table 3). The high ranking of Name of the library can be explained by the fact that the participants in this study were from the University of Toronto, which has a large library system with a complicated structure, and participants said that it was sometimes difficult for them to identify the name of the library that holds the journal they needed. Other users from smaller universities might not encounter the same problems, and might have ranked the holdings elements differently.

When creating their "ideal" way of presenting holdings information, the participants in all four focus group sessions included the following four elements (not in rank order):

- Name of library
- Location of bound issues
- Location of current (unbound) issues
- Gaps (Missing issues)

The elements Call number and Summary holdings were included in the ideal representation of holdings information in three of the four sessions.

The low occurrence (see Table 2) of the elements Detailed (Summary) holdings (33.3%), Location of current (unbound) issues (25.0%), Location of bound issues (16.7%), and Gaps (25.0%) in the serial records of existing OPACs is disturbing. This suggests that, in a majority of cases when users are searching the catalogue for journals, they will not be able to identify the existence of the particular issue for which they are looking—a potentially frustrating experience. What is more disturbing is that one of the sites did not contain any holdings information in its full displays, and only four sites contained more than 50% of the holdings data elements that were expected.

As pertains to holdings information, then, this study confirmed the importance to users of this information for identifying and accessing journals and journal issues. More specifically, users showed a preference for a brief holdings information representation in displays,

and they wanted it to be shown on the first screen of the display where the record extended beyond a single screen. User opinions confirmed, then, that *brief* holdings information should always be included in the full displays of the record.

Conclusions

Findings from the study showed that, overall, the sample serial records contained 68.2% of the elements required by the *AACR2R* guidelines governing the creation of second level descriptive cataloguing records, suggesting that Canadian academic libraries are not applying the code to the same degree (i.e., 80%) as they had previously self-reported (Howarth and Weihs 1995). Of the six bibliographic elements occurring in over 70% of the sample records, only one, Title, was ranked by participants among the top five most important elements for identifying serials. This suggests that catalogu-ers are providing richer and more complete information to areas ranked less than important to users. There is an apparent gap between end-user preferences for bibliographic elements and the products of the cataloguing process. Moreover, while the bibliographic element, Title, occurred in all of the sample records, two of the five elements ranked as most important to study participants, were missing, on average, in over one half the records. User preferences for being informed of the numbering system of the first issue of a serial (element = Designation), and of the frequency of publication (element = Frequency) are not being addressed by libraries in this study as fully as the cataloguing code would allow.

Holdings information was even less well represented in the sample records. Three of the four highest ranked holdings data elements, as defined by participants in their "ideal holdings information", occurred, on average, in only 22% of records created by the twelve Canadian academic libraries included in the study. Being able to accurately determine the location of bound or unbound issues, or of identifying gaps in the run of a serial held in the library's collection would prove problematic for a majority of users of the sample libraries. The richness of detail afforded by the ANSI Z39.44-1986 and MFHD 1994 standards are clearly not being exploited or utilized by the libraries in the study. Moreover, holdings information is sometimes excluded from

the display altogether, or is minimal in content, or is presented on a screen other than the first where the bibliographic data are displayed. Not only is holdings information quite sparse in terms of detail, but it is also not an integral or obvious component of some OPAC displays. User frustration in being able to identify and access serial titles and individual issues is understandable given problems associated with holdings content and display.

What do results from the study suggest about the nature, content, and detail required of bibliographic records for electronic serials? While the number of libraries and serial titles sampled for the study are too few to merit broad generalization, findings suggest that libraries are using the descriptive cataloguing code, *AACR2R*, more fully than they are exploiting available holdings data standards (ANSI and MFHD). Yet, beyond the element, Title, users may find the bibliographic records for electronic serials less than adequate for uniquely identifying the objects of their search. Preferred elements may be missing from the records, or not included in the cataloguing code for application. As Duranceau notes (1996, 71): "The descriptive record must now communicate to potential readers a growing set of complexities relating to access, format, editorial policies, and frequency or nature of publication. Describing an electronic journal as 'irregular' will not serve users in the absence of additional information, and describing information that updates daily or changes based on user input is impossible." As electronic serials continue to take their place in the digital collections of libraries, it may behoove cataloguers to consider seriously the bibliographic frameworks which have dominated in a print environment, and to aggressively incorporate a more user-focused, rather than material-focused approach to the cataloguing process.

Perhaps more disturbing, however, is the paucity of content and inadequacy of display of holdings information. In some cases libraries have made policy decisions to limit content and detail (even to exclude holdings information from the records as a whole). In other cases, systems display functionality has presented constraints, and overall, the nature and design of the standards, themselves (*AACR2R*; ANSI; MFHD) may not provide for specific data which end-users consider highly desirable. While such print-dependent data as Loca-

tion of (un)bound issues may cease to be important in the digital environment, identification of Gaps in the serial run will continue to be a useful piece of information. Serials, by their nature, have always been dynamic and changeable. In the electronic environment, notions of "periodicity" and "seriality" are compounded by the fact that an "issue" can be distributed just as soon as it is available, and in "real time". Library holdings can change daily, this compounding the challenge of maintaining records that are accurate to the moment. That holdings information, that is key to identification of, and access to, individual serial items, is relatively poorly represented in traditional print-oriented bibliographic records, bodes less than well when transferred to the electronic environment.

While the study cannot support generalization of findings, it does provide baseline data from which to start if we choose to effect improvements in the nature, content, and presentation of bibliographic elements and holdings information in catalogue records. Well over a century of effort has been expended on designing appropriate tools for the organization and retrieval of information. The gaps between user preferences for data and the cataloguing records and OPACs libraries have created and maintained may warrant revisiting as we stand at the beginning of the shift from a physically-prescribed world to a boundary-less digital environment.

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