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Editorial

Peggy Johnson

As a journal editor, I am frequently asked to suggest topics for research or a paper that will result in publication. The simple answer is to look at the scope and content of a journal. In the case of *LRTS,* the topics represent the interests of each of the sections of ALCTS—Acquisitions, Cataloging and Classification, Collection Management and Development, Preservation and Reformatting, and Serials. Specifically, *LRTS* seek papers that contribute to the advancement of knowledge by sharing research results or reporting unique or evolving technical processes or research methods. Papers should address topics of interest to practitioners, researchers, educators, and students.

This often is not the answer sought. What potential authors really want to know is, "How do I get ideas for potential topics?" I can offer several answers to this second question. Consider the problems you are trying to address in your work. Think of topics about which you want to learn more. Revisit a paper by someone else that left you with questions or with whom you do not agree. Revise a paper you wrote for a class or presented at a conference. Stake out an area related to your position and explore it from several angles—become an expert. Finally, read the library literature extensively and dip into the literature of other fields as well. Reading widely can engage your interest and lead you to areas you wish to explore in more depth

I recently read an intriguing review piece, "What's Ahead for 2004?" in *Information Today*.[1] In it, eleven well-known figures in the information industry make predictions. They identify several hot topics that are ripe for research and consideration and would provide interesting themes for papers that are appropriate for *LRTS*. These topics include:

- Understanding user behavior
- Standards
- Open access/open archives
- Creating added value
- Technologies with greater flexibility
- Data exchange, data mining, and linking technologies—the interconnectedness of content and access tools
- Archiving and preservation, including primary source digitization
- Access control that is more sophisticated
- Greater consolidation of online services and content providers

Think about the implications of these topics for catalogers, selectors, serials librarians, preservationists and conservators, and acquisitions librarians. They suggest a wealth of important areas for exploration—and for research and publication.

Reference

1. "What's Ahead for 2004," *Information Today* 21, no. 1 (Jan. 2004). Accessed Jan. 24, 2004, www.infotoday.com/it/jam04/whatsahead.shtml.

The Effectiveness of Copy Cataloging at Eliminating Typographical Errors in Shared Bibliographic Records

Jeffrey Beall and Karen Kafadar

Typographical errors in bibliographic records can cause retrieval problems in online catalogs. This study examined one hundred typographical errors in records in the OCLC WorldCat database. The local catalogs of five libraries holding the items described by the bibliographic records with typographical errors were searched to determine whether each library had corrected the errors. The study found that only 35.8 percent of the errors had been corrected. Knowledge of copy cataloging error rates can help underscore the importance of quality data in bibliographic utilities and, further, can serve as an indication to libraries whether they need to pay more attention to correcting typos in the copy cataloging process.

Copy cataloging, the process of copying bibliographic records from a source database such as OCLC WorldCat, has increased librarians' efficiency by eliminating duplication of effort. One library creates a bibliographic record for an item such as a book and many other libraries can copy or migrate the data into their local online catalogs, thus saving each individual library the work of cataloging the item and entering the data into the system.

However, the ability to copy data from other libraries potentially can detract from the value it adds to the cataloging process. Libraries that copy data from a bibliographic record in the source database can also copy typographical errors made in the record.

Libraries differ in the amount of quality control they perform during the copy cataloging process. Several factors relating to the source of the bibliographic records (such as records created by the Library of Congress) may affect the amount of editing or quality control an individual record receives. This paper describes a study that sought to answer the question, "How successful are copy catalogers at finding and correcting typographical errors found in bibliographic records imported from OCLC WorldCat?"

Previous Studies

Only a few papers have reported on the extent of typographical errors originating in cataloging copy and remaining uncorrected in local library online cata-

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logs. A 1989 paper by Sheila Intner titled, "Quality in Bibliographic Databases: An Analysis of Member-Contributed Cataloging in OCLC and RLIN," compared the quality of data between the two utilities and found it to be similar.[1] The points of comparison included such elements as adherence to cataloging rules, tagging errors, and spelling errors. Intner did not use the term "typographical error" and refers to all such errors as spelling errors. She found that "simple spelling and tagging errors, troublesome wherever they occurred, affected retrieval negatively in headings, while errors in capitalization and punctuation usually did not, although they look peculiar."[2]

A brief report in *American Libraries* in 1991 described a rough method of determining the quality of a particular bibliographic database, suggested by Jeffrey Beall, that entailed performing keyword searches of ten misspelled words and counting how many records were retrieved in the searches.[3] The method was called the "Dirty Database Test." This report inspired and influenced several other writers who improved and followed up on the idea. Jim Dwyer described the test and the reactions it generated from catalogers on two cataloging-related electronic discussion lists.[4] He described both positive and negative reactions to the test and reported that one posting "commented that any test which might result in a cleaner data base was of some use."[5]

A paper by Terry Ballard in 1992 improved on the Dirty Database Test and described a systematic method for eliminating typographical errors from a database.[6] His method involved using a particular feature of the INNOPAC integrated library system to search through every keyword in the database (a lengthy task) and identify and correct obvious errors. The paper included a list of the most common misspellings found in Ballard's local database and invited readers to search and correct these misspelled words in their own local databases. A second paper by Ballard and Arthur Lifshin from the same year analyzes typographical errors themselves.[7] They found that "all of the words that are misspelled many times tend to have eight or more letters and at least three syllables."[8] Moreover, "it is the more common words that have been misspelled and not the more esoteric technical terms."[9] They suggest, "Every library that has an OPAC with keyword capability should search the problem words that we have identified and fix the inevitable errors."[10]

Another paper in 1992 by Sylvia Gardner examined spelling errors in online databases from a user's point of view.[11] Like other authors writing on typographical errors, she made little distinction between spelling and typographical errors. She classified the four types of typos as errors of letter omission, errors of letter insertion, errors of letter substitution, and errors of letter transposition.[12] Describing the negative impact of spelling errors on database users, Gardner claimed there was a "reduced recall and precision in the retrieval of information."[13]

In their paper, "Lost Articles: Filing Problems with Initial Articles in Databases," Ralph Nielsen and Jan M. Pyle found the "quantity of such errors . . . to be high."[14] They studied bibliographic records representing works in European languages and noted that "every single error represents a title that will not be found by someone looking for it."[15] Barbara Nichols Randall, on the other hand, in her paper, "Spelling Errors in the Database: Shadow or Substance" concluded, "Most spelling errors are redundant errors and thus do not prevent users from finding the needed record."[16] She attributed most typographical errors in the database she studied to lax standards during retrospective conversion.

A 2002 monograph by David Bade, *The Creation and Persistence of Misinformation in Shared Library Catalogs: Language and Subject Knowledge in a Technological Era*, presents a philosophy of errors in bibliographic records.[17] Bade provides many thoughtful and provocative insights on the impact of all types of errors—such as linguistic, typographical, and cataloging—in bibliographic records. He states, "Mistakes in MARC coding of bibliographic and authority records, whether as typographical mistakes or improper coding, is a greater problem since they can seriously disrupt a user's ability to find and interpret bibliographic information."[18] Referring to libraries' using copy from the bibliographic utilities, Bade claims, "If catalog records from these external sources have any inadequacies or errors, the library will be paying for, and living with a great body of misinformation."[19] He criticizes the current state of copy cataloging and its high error rate and says, "'See no evil, fix no evil,' applies to much of the copy-cataloging done in academic libraries. As a result, bad records persist and are being edited locally by each institution according to 'whatever' standards: the exact opposite of how shared databases should function."[20] He continues, "By accepting without review these various kinds of records, the quality of the shared database is undermined."[21] Bade offers a potential solution to the problem of errors in shared bibliographic records. He suggests, "Any librarian can spot the errors and report them to the appropriate person."[22]

The Importance of Studying Typos

The presence of a typographical error in a bibliographic record can adversely affect the ability of a library user to find needed information, or, in other words, "a single error can render a document virtually irretrievable."[23] Typographical errors can occur in almost any part of a bibliographic record. Errors that occur in headings, such as authors, titles, and subjects, can be more of an obstacle to library users because they may cause a particular record not

to be retrieved in an OPAC search and thereby prevent a user from accessing information about an item that the library actually holds. For example, if a user is looking for a particular work by Shakespeare and the author heading for the bibliographic record for that work uses an erroneously spelled name, "Shkespeare, William, 1564–1616," the error will prevent the user from accessing the desired work.

Typos that occur in the non-heading elements of a bibliographic record, such as contents notes, also can obstruct access when the data in these fields are included in a library's keyword indexes. If a word is misspelled in one heading in a record and then is spelled correctly elsewhere in the same record, then retrieval may not be affected. However, some library catalogs have precise keyword searching capabilities, such as specific keyword author or keyword subject searches, so a second, correctly spelled instance of a misspelled word does not always get included in a specific keyword index. Moreover, a word containing a typographical error may be the only instance of that word in the entire record.

The copy cataloging process often involves migrating or copying bibliographic records from a bibliographic utility, such as OCLC WorldCat, into a library's local integrated library system. If an error exists in a bibliographic record in a utility, then library copy catalogers have the opportunity to correct the error at the time of copy cataloging. Libraries have different policies for verifying data quality in copy cataloging. Some libraries do little or no checking of records for data quality, such as correct form of heading, accuracy in transcription of title and other data, and absence of typographical errors. Some libraries apply different levels of scrutiny depending on the source of the record. For example, a library may accept all records that originate from the Library of Congress (LC) without any editing or quality control but do a more thorough check of records from non-LC libraries, even though typographical errors can and do occur in records created by the Library of Congress.

This study was designed to characterize the degree to which cataloging departments have been successful in finding and correcting errors that occur on shared bibliographic records. Knowledge of the copy cataloging error rates helps to underscore the importance of quality data in the bibliographic utilities and further, can serve as an indication to libraries whether they need to pay more attention to correcting typos in the copy cataloging process. This study did not look at the proportion of typographical errors in a given bibliographic database in relation to the size of that database. Clearly, a large database with a thousand errors is not as serious a problem as a small database with the same number of errors. Instead, this investigation looks at how successful copy cataloging in general is at correcting typographical errors.

Scope of Typographical Errors

The typographical errors investigated in this study are those made by catalogers or those doing data entry—not the typographical errors that occur in published items that are followed by the error indicator [*sic*] in the bibliographic record. This study considers genuine typographical errors including misspellings, transposed letters, and missing letters. Only English language words were examined in the study.

The typographical errors are taken from the Web site titled, "Typographical Errors in Library Databases," which is maintained by Terry Ballard.[24] This site provides a list of the most common typos that tend to occur in online library catalogs. The authors used the list of typos as it existed in May 2002. New words are added regularly to the list and it is supplemented by an electronic discussion list, with librarians cooperatively contributing typographical errors as they encounter (or make) them. This list of common library OPAC typos is extensive and includes over a thousand words. It is divided into five categories that correspond to the probability of encountering the typo in a library database: very high, high, moderate, low, and very low.

Research Project

Study Design

The effort involved in this study dictated that a maximum of about 500 individual bibliographic records could be examined. The response for each record was binary, either "corrected" or "not corrected." This number (500) was split among word frequency categories (f), words within each category (w), and libraries to be examined for each word (n); in other words, $f \cdot w \cdot n \ ? \ 500$. With f (word frequency categories) equaling five (very low, low, medium, high, very high), the product of w (number of words in each frequency category) and n (number of libraries to query for each possibly misspelled word) was constrained to be not more than one hundred. The choice of w and n (say, $w = 4$ different words and $n = 25$ libraries for each word, or $w = 20$ and $n = 5$, or $w = 10$ and $n = 10$) involved considerations of expected variability within libraries on a given word or within words in a given word frequency category. For example, checking twenty-five libraries for each of four words would yield more precise estimates of the proportion of libraries that had corrected four specific words, but yield no information at all on other words. This strategy would be sensible if the probabilities of corrections were basically the same for all words. However, it was deemed more likely that these probabilities might vary considerably for different words. For that reason, larger values of w were selected, at the expense of having less information (smaller n) on the probability of correction for each of the words. In this study, twenty words in each cate-

gory were randomly selected from a list according to a random number table, and online library catalogs from five libraries among those that listed the record in their holdings were examined to see if the error had been corrected.[25]

To obtain a valid estimate of the error rate across multiple library catalogs and different types of words, a carefully designed study was needed. A convenience (non-random) sample of records would potentially have been inadequate for several reasons. First, a convenience sample might have resulted in the use of frequently accessed records, which are hardly representative of all records in a given library's catalog. Second, frequently accessed records could have afforded more chances for errors to be noticed and possibly corrected, so the true error rate may be underestimated if based on such a sample. Finally, more common words might have appeared to be misspelled more often simply because they appear more often. A study to estimate the overall error rate needed to take into consideration both the frequency of the misspelled words in the English language as well as their likelihood of being misspelled.

We started with a table of word frequency.[26] We also used a list of words commonly misspelled.[27] Five categories of word frequency and five categories of likelihood of misspelling were identified (very high, high, moderate, low, very low). The strong dependence between these two factors—word frequency and likelihood of misspelling—became readily apparent; words that are very common often showed up in the list of frequently misspelled words, and vice versa. Thus we abandoned the first factor, word frequency, in our stratification of words and sampled words within only five categories of likelihood of misspelling.

Gathering the Data

The basic strategy of this study was to take a random sample of errors found in OCLC bibliographic records, determine which libraries had used or copied the bibliographic record into their local systems, and then examine a sampling of those local systems to determine what proportion of the libraries had corrected the errors.

For help in designing this study, we presented it as a class project in the Mathematics Department of the University of Colorado at Denver. The class, Statistical Consulting Workshop, works on real-world statistical problems presented by members of the local community. The Math Department charges a small fee for this service, which benefits a departmental fund. To cover the fee, we used money from the 2002 Samuel Lazerow Fellowship awarded by ACRL to support this research. The class was taught during the spring semester of 2002.

Based on a recommendation from the statistical consulting class, we randomly selected twenty words from each of the five categories for a total of one hundred words. The sample size was dictated by a desire to obtain a reasonably precise estimate of the overall error rate as well as an indication of whether this error rate was consistent across the five categories. The randomization was done using tables of random numbers provided to us by the class. In selecting twenty words from each category, we chose enough words to have a reasonably stable estimate of the probability that the ratio of corrected words to uncorrected words would not greatly vary within any given category. We needed to examine enough words to rule out the possibility that the frequency category of a word did not determine whether or not it was more likely to be corrected. For each of the one hundred misspelled words, we searched the online catalogs of five libraries selected at random from a random number table. The study design, therefore, took into account that the number of corrected errors might differ according to category

Next, we performed a keyword search for the misspelled words in OCLC to find suitable records containing the errors. We performed author, title, subject, and note keyword searches to find records containing the misspelled words. Finding records containing typos from the "very high" probability category was generally easier than finding typos from the "very low" probability category. In some cases, the word itself determined what type of keyword search should be used. For example, for the typo "pictorialworks," which is the two words "pictorial" and "works" run together without a space, we did a subject keyword search because the term "pictorial works" occurs most frequently in bibliographic records as a subject form subdivision. We sought records that both contained the particular typo and had at least ten or more holdings (records that resulted in fewer than ten holdings referred to rather uncommon words).

After finding a suitable record for each misspelled word, we printed the list of holdings that corresponded to the record. Using a list of random numbers provided by the statistical consulting class, we determined the first of the five holding libraries whose catalogs we would examine. For example, if the next number on the random list was seventeen, we counted to the seventeenth library in the holdings list.

To determine the other four libraries from the holdings list, we first counted the total number of holding libraries listed and divided that number by five. Continuing the example from above, for a record that contained fifty holdings, we would divide fifty by five. The dividend, ten, would become the spacing increment between that first holding library and the other four in the list. With the first library being number seventeen on the list, we would thus also examine libraries numbered twenty seven, thirty seven, fourty seven, and seven. We would start around back at the beginning of the list whenever we ran to the end of the list of libraries. In this manner, bibliographic records from five

libraries were randomly selected and examined for each of the one hundred typographical errors.

Examining the Records

The purpose of examining the records was to determine if each randomly selected library had corrected the typo. Though this seems straightforward, this step actually turned out to be the most difficult part of the study. We soon learned that some libraries had their holdings listed in OCLC but did not migrate the OCLC record into their local system. Instead, they obtained the record from some other source. When we encountered this situation, we selected the next library in the holdings list, because the typo would not be present in the record the library used. Before we determined whether a particular library had corrected a typo, we used several methods to be very sure that the library was indeed using the same record that contained the typo. First, whenever possible, we looked at the MARC display in the local system. (More and more integrated library system (ILS) vendors include this functionality in the public mode of their online catalogs.) Upon viewing the MARC display, we compared the OCLC number in the record with the number on the master OCLC record and verified that they matched. If they did not match, we selected the next library from the list and began the process again.

In some instances, the typographical error was present in a field that had been added to the record some time after the record had been created. When we examined the records, we determined that most did not contain the field with the typo. In these cases, we eliminated the master record containing the typo and found a new record with the same typo.

The Data

We looked at the online catalogs of five randomly selected libraries for each of the one hundred typographical errors, for a total of 500 individual bibliographic records examined. We found that, out of the 500 records, 179, or 35.8 percent, had been corrected, and 321, or 64.2 percent, had not been corrected. Table 1 shows the number and percentages of errors corrected and uncorrected. A 95 percent confidence interval for the proportion of remaining errors is (60.0 percent, 68.4 percent). That is, if this same study were repeated, in exactly the same manner, one hundred times, and a 95 percent confidence interval was computed for each of those one hundred times in exactly the same manner, then ninety-five of those intervals would cover the true proportion of remaining errors.

Table 1. Numbers and percentages of errors found corrected and not corrected

	Total corrected	Total not corrected	Total
Number	179	321	500
%	35.8	64.2	100

Statistical Analysis

The misspelled words that were randomly selected for this study are listed in table 2. The overall proportion corrected in each word frequency category also is stated in this table. Consider, for example, the word "literature" in the high frequency category, misspelled as "literatue." Among the five randomly selected libraries with this holding, two of them had corrected this misspelling and three had not, resulting in an estimated probability of correction of .40 (40 percent). A fuller version of table 2 is available in Appendix 1 and includes explanations of the typographical errors and data about the MARC field in which each typo occurred.

Figure 1 displays these one hundred proportions (twenty in each word frequency category) using a box-and-whiskers display.[28] The center line in each box is located at the median in each group (in other words, the average of the tenth and eleventh largest proportions among the twenty). The lower and upper ends of the box appear at the lower and upper quartiles (that is, the average of the fifth and sixth proportions, and the average of the fifteenth and sixteenth proportions, respectively). The "whiskers" extend out to the extremes (minimum = 0 and maximum = 1 in the first two categories, 0 and 0.8 in the last three categories). Notice that for six of the twenty words in the "low" category, zero out of the five sampled libraries had corrected the record, so the lower quartile is the same as the minimum (zero).

Figure 1 and table 2 both suggest that the proportion of words corrected in the record may depend on the word frequency. This proportion seems to be about 0.40 (40 percent) if the word is in the very high (VH), high (H), or moderate (M) frequency category, but somewhat lower, about 0.30 (30 percent), if the word frequency is low (L) or very low (VL). Combining the data on the sixty words in the first three categories yields an estimated proportion corrected of 120/300 = 0.40; among the forty words in the last two (low frequency) categories, the estimated proportion corrected is 59/200 = 0.295.

To test our hypothesis that the true proportions of corrected words in these two groups is the same, we compare 0.40 and 0.295 using a conventional two-sample test of proportions.[29]

$$\frac{(0.40 \quad 0.295)}{\sqrt{\frac{(0.40)(0.6\ 0)}{300} \quad \frac{(0.295)(0.705)}{200}}} = \frac{0.105}{0.043} = 2.44$$

This is statistically different from zero at the $a = 0.05$ level of significance (two-sided p-value is 0.0146). These data suggest that the probability of correction depends on word frequency, which is not surprising. A 90 percent confidence interval for the proportion corrected in the VH + H + M categories is:

$$0.40 \pm 1.645 \times \sqrt{\frac{(0.40)(0.60)}{300}} = (0.353, 0.447) = 35.3\% \text{ to } 44.7\%$$

A 90 percent confidence interval for the proportion corrected in the L + VL categories is:

$$0.295 \pm 1.645 \times \sqrt{\frac{(0.295)(0.705)}{200}} = (0.242, 0.348) = 24.2\% \text{ to } 34.8\%$$

A 95 percent confidence interval for the difference in proportions is (0.021, 0.189) = 2.1 percent to 18.9 percent; that is, the true difference is likely (with probability 0.95) to be at least 2.1 percent and no more than 18.9 percent. A box and whisker plot of the data combined into the two groups is shown in figure 2. The "notches" in the boxes show the approximate limits of a 95 percent confidence interval for the medians of the groups.[30]

During the data collection process, it appeared as if the location of the word within the individual MARC field might affect its likelihood of being corrected. Figure 3 is a plot of the "depth" in the field (i.e., location of the word among the k words on the line) as a function of the estimated proportion of libraries that corrected the word (x-axis).

The mean depth is denoted by an enlarged "**x**" when depth is 0–0.20, 0.20–0.40, 0.40–0.60, 0.60–0.80, 0.80–1.00. The data do not suggest an association between depth and correction probability, so this hypothesis was not investigated further.

Conclusion

A random sample of records containing misspelled words and a random sample of five of the libraries whose online catalogs contained bibliographic records with these misspelled words revealed a surprisingly large proportion of records that remain uncorrected. This proportion appears to depend on the frequency of the words: very high, high, or moderate frequency words tend to be corrected about 40 percent of the time (90 percent confidence interval: 35 percent to 45 percent), while low or very low frequency words tend to be corrected only about 30 percent of the time (90 percent confidence interval: 23 percent to 36 percent). This study was not large enough to detect an effect of "depth"; in other words, an association between the location of a word in the MARC field and the total number of words in the field may affect the proportion corrected, but the data are insufficient to confirm this hypothesis.

Libraries can take several steps to eliminate typographical errors in bibliographic records and improve access. First, libraries can search their catalogs for the common typographical errors in the list created by Terry Ballard. Second, utilities and other suppliers of bibliographic records can routinely search and correct errors in their master databases. This work can be done by professionals on the utilities' staffs, but OCLC and other utilities need to redouble their commitment to eliminating typographical errors and develop more sophisticated algorithms to detect and eliminate the errors. Vendors of integrated library systems also need to develop similar algorithms and spell-check functionality in online library catalogs. Third, utilities need to increase the incentives for enhancing master records by correcting typos,

Table 2. Number of the five sampled libraries with corrected records

Word frequency category									
Very high		High		Moderate		Low		Very low	
Word	#	Word	#	Word	#	Word	#	Word	#
accomodation	2	asessing	2	Adddison	4	0'Donnell*	4	0ccupied*	5
activites	1	Bismark*	1	artifical	1	appendox	1	5oth*	2
amd	3	Carribean	3	bizzare	1	batle	1	autobiograaphy	5
artic	3	charaters	3	Buddist	4	choregraphy	4	Behaviroal	1
cby*	0	Cincinnat	0	commitee	1	comentaries	1	Berkley Calif.	4
Cincinatti	1	classsification	1	Disabilites	2	Comission	2	chlidren	3
commision	5	commom	2	estabishment	2	estalished	2	colleages*	5
commmunity	2	decisons	4	goup	3	inclduing	3	consolidaton	5
environmental	3	Engineeering	2	Havard	3	Januaury	3	dstrict	2
John Hopkins*	2	l865*	0	incoporation	0	nutritution	0	edittion	5
ℓ895*	1	literatue	2	Libray	2	occupatonal	2	Hnery	3
ℓ970*	2	Natonal	0	Miltary	0	peroidical	0	jewlery	4
managment	4	Pennyslvania	3	ocupation	4	pesented	4	microcopes	4
Weidenfeld & Nicholson*	0	peotry	3	Mrs. Polifax*	2	Pesonnel	2	microcopmuters	3
reseach	0	Phillipines	0	proceedngs	1	shinning	1	muusic	4
Tuscon	1	pictoral	1	prodcuts	2	Sulllivan	2	personalites	5
Univeristy	2	poeples	1	rsources	1	surban	1	Pictorialworks	3
Wasington	2	pschological	4	Rusian	2	toliet	2	reseasrch	3
x History*	1	responsiblity	5	Spainish	2	undergradutes	2	VBiography*	1
z United*	4	Russsian	3	supplment	4	wiht	4	worongs	5

* See appendix for correct spellings

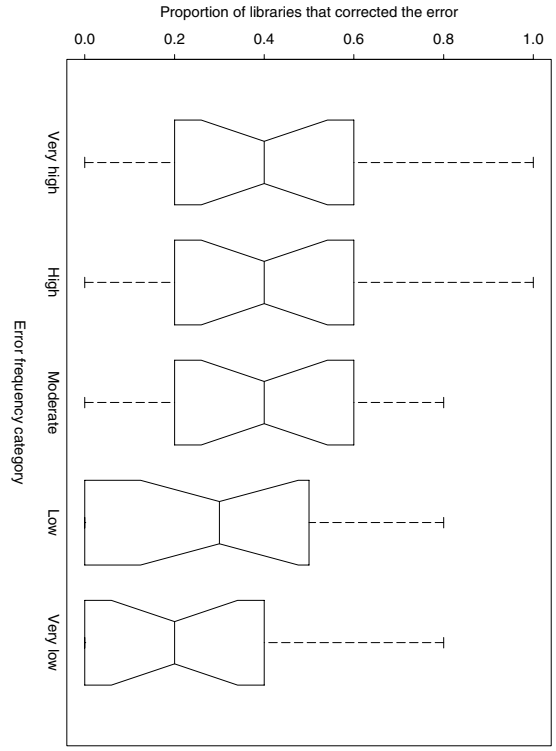

Figure 1. Box-and-whiskers plot of the proportion of errors corrected, by category of error frequency. The first three categories (very high, high, and moderate) show relatively consistent proportions of corrected words, while the last two categories (low, very low) show lower proportions of corrected words.

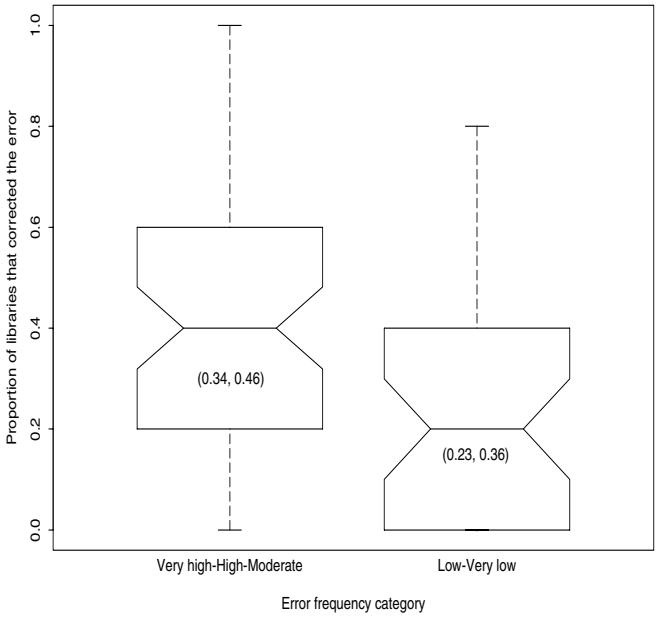

Figure 2. Same as Figure 1, but with the very high, high, and moderate categories combined into one category (sixty words), and the two categories (low, very low) combined into one category (forty words). The 95 percent confidence interval for the true mean proportion corrected for the very high-high-moderate words is (0.34, 0.46). The 95 percent confidence interval for the true mean proportion corrected for the low-very low words is (0.23, 0.36). The 95 percent confidence interval for the difference in these two proportions is (0.02, 0.19), indicating that the observed difference is statistically significantly different from zero with confidence coefficient 0.95.

and they should make it easier for libraries either to correct the typos or to report them to the utilities' quality control departments.

Other areas in the field of bibliographic record error analysis also need to be studied. One valuable direction for future research would be to develop a standard measure of bibliographic database quality. This measure would be based on overall record quality and fullness; number and types of errors present in the records, including not only typographical errors, but also cataloging and authority errors; and size of the database. The resulting database quality rating would aid libraries in planning their database quality control and cleanup work. Perhaps it also would serve as an incentive for libraries to eliminate dirty data from their catalogs and prevent new dirty data from entering them.

Future research also might compare the rate of typographical errors to other types of errors found in bibliographic records, such as errors in subject analysis, errors in the application of the Anglo-American Cataloguing Rules and the Library of Congress Rule Interpretations, and errors in choice of heading. We hope the ability to search many local libraries' online catalogs through the Internet will encourage studies modeled after this one and provide an accurate look at bibliographic data quality in online catalogs overall.

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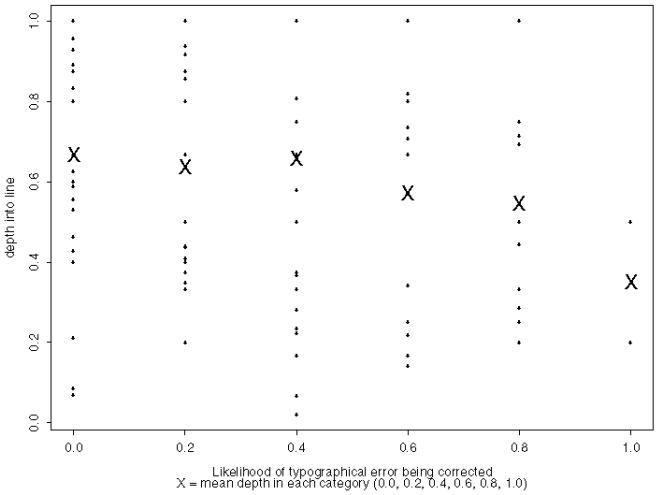

Figure 3. Plot of association between location of word in field ("depth" = (position of word in field)/(number of words in field)) and "likelihood" that typographical error in the word was corrected (0.0, 0.2, 0.4, 0.6, 0.8, 1.0). The capital X's denote the means of the depths for all words in each of the six "likelihood" categories. The lack of any apparent trend in the X's suggests little association between the location of the typographical error in the line and its likelihood of being corrected.

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Appendix
List of Words Containing Typographical Errors and the Number Corrected/Not Corrected
(Sorted by frequency, then by word)

Word	Frequency	Tag	Corrected	Not corrected
accomodation	1-very high	650	2	3
activites	1-very high	245	1	4
amd	1-very high	245	3	2
artic	1-very high	245	3	2
cby[1]	1-very high	245	0	5
Cincinatti	1-very high	245	1	4
commision	1-very high	710	5	0
commmunity	1-very high	610	2	3
enviromental	1-very high	650	3	2
John Hopkins[2]	1-very high	245	2	3
l895[3]	1-very high	100	1	4
l970[3]	1-very high	245	2	3
managment	1-very high	240	4	1
Weidenfeld & Nicholson[4]	1-very high	260	0	5
reseach	1-very high	245	0	5
Tuscon	1-very high	111	1	4
univeristy	1-very high	711	2	3
Wasington	1-very high	650	2	3
x history[5]	1-very high	651	1	4
z United[5]	1-very high	650	4	1
asessing	2-high	245	2	3
Bismark[6]	2-high	651	1	4
Carribean	2-high	650	3	2
charaters	2-high	600	3	2
Cincinnat	2-high	245	0	5
classsification	2-high	650	1	4
commom	2-high	650	2	3
decisons	2-high	245	4	1
Engineeering	2-high	710	2	3
l865[3]	2-high	245	0	5
literatue	2-high	650	2	3
Natonal	2-high	651	0	5
Pennyslvania	2-high	245	3	2
peotry	2-high	245	3	2
Phillipines	2-high	650	0	5
pictoral	2-high	610	1	4
poeples	2-high	245	1	4
pschological	2-high	245	4	1
responsiblity	2-high	710	5	0
Russsian	2-high	650	3	2
Adddison	3-moderate	700	4	1
artifical	3-moderate	650	1	4
bizzare	3-moderate	245	1	4
Buddist	3-moderate	650	4	1
commitee	3-moderate	710	1	4
Disabilites	3-moderate	710	2	3
estabishment	3-moderate	245	2	3
goup	3-moderate	520	3	2
Havard	3-moderate	710	3	2
incoporation	3-moderate	245	0	5
Libray	3-moderate	710	2	3
Miltary	3-moderate	651	0	5
ocupation	3-moderate	651	4	1
Mrs. Polifax[7]	3-moderate	245	2	3
proceedngs	3-moderate	245	1	4
prodcuts	3-moderate	650	2	3
rsources	3-moderate	710	1	4
Rusian	3-moderate	245	2	3

Appendix (continued)

Word	Frequency	Tag	Corrected	Not corrected
Spainish	3-moderate	650	2	3
supplment	3-moderate	245	4	1
0'Donnell[8]	4-low	100	4	1
appendox	4-low	245	2	3
batle	4-low	650	4	1
choregraphy	4-low	246	2	3
comentaries	4-low	245	0	5
Comission	4-low	710	2	3
estalished	4-low	500	2	3
inclduing	4-low	245	0	5
Januaury 4-low	245	0	5	
nutritution	4-low	246	0	5
occupatonal	4-low	245	3	2
peroidical	4-low	245	0	5
pesented	4-low	245	1	4
Pesonnel	4-low	110	3	2
shinning	4-low	700	0	5
Sulllivan	4-low	600	4	1
surban	4-low	245	1	4
toliet	4-low	500	0	5
undergradutes	4-low	245	1	4
wiht	4-low	245	2	3
0ccupied[8]	5-very low	245	0	5
5oth[9]	5-very low	245	3	2
autobiograaphy	5-very low	245	0	5
Behaviroal	5-very low	710	4	1
Berkley Calif.	5-very low	111	1	4
chlidren	5-very low	246	2	3
colleages[10]	5-very low	245	0	5
consolidaton	5-very low	245	0	5
dstrict	5-very low	650	3	2
edittion	5-very low	500	0	5
Hnery	5-very low	245	2	3
jewlery	5-very low	650	1	4
microcopes	5-very low	245	1	4
microcopmuters	5-very low	650	2	3
muusic	5-very low	650	1	4
personalites	5-very low	740	0	5
Pictorialworks	5-very low	650	2	3
reseasrch	5-very low	500	2	3
vBiography[5]	5-very low	650	4	1
worongs	5-very low	245	0	5

1. The correct form is: |c by. The subfield delimiter was left out, and the letter "c" was attached to the word "by."
2. The correct form is Johns Hopkins.
3. The letter "l" was input instead of the numeral for one.
4. This is the name of a publisher. The correct form is Weidenfeld & Nicolson.
5. These are tagging errors. The subfield delimiter "|" was left out.
6. The correct spelling is Bismarck, as in Bismarck, North Dakota.
7. The correct spelling is Mrs. Pollifax. This is the name of a fictitious character.
8. The first letter in the word was entered as a zero (0) rather than an uppercase "O."
9. The zero (0) in 50th was mistakenly entered with a lower-case "o."
10. The correct spelling is colleagues.

Citation Analysis of Education Dissertations for Collection Development

Laurel A. Haycock

The reference lists of forty-three education dissertations on curriculum and instruction completed at the University of Minnesota during the calendar years 2000–2002 were analyzed to inform collection development. As one measure of use of the academic library collection, the citation analysis yielded data to guide journal selection, retention, and cancellation decisions. The project aimed to ensure that the most frequently cited journals were retained on subscription. The serial monograph ratio for citation also was evaluated in comparison with other studies and explored in the context of funding ratios. Results of citation studies can provide a basis for liaison conversations with faculty in addition to guiding selection decisions. This research project can serve as a model for similar projects in other libraries that look at literature in education as well as other fields.

As a component of the collection development toolkit, citation analysis can yield data regarding use of library collections to guide and support selection decisions. Given current conflicting and increasing pressures on library collection budgets, academic librarians with selection responsibilities may want to draw on tools such as citation analysis for help in making decisions about journal acquisition, retention, cancellation, and provision of electronic access.

Librarians with selection responsibilities in academic libraries often are liaisons to academic departments. A key role in liaison work is consultation with faculty regarding collection decisions.[1] Results of a citation analysis study can be a useful part of those faculty liaison conversations by offering data on journal use. Such data might help focus faculty comments when there is disagreement about proposed cancellations.[2] Additionally, data from citation analysis and other methodologies can provide documentation supporting selector decisions. This documentation may be requested to support fiscal and other types of accountability.

A variety of tools are used in academic libraries to assess collection use. Circulation and shelving data, cost-per-use measures, interlibrary loan studies, reviews of core lists, citation analyses, and other methods are regularly employed. No one method will provide a full picture of collection use. Assessments that use several methods are likely to offer the most valid outcomes.[3] While high or low use of a journal may not necessarily dictate selection, retention, or cancellation decisions, use patterns do enable close examination of the subscription and associated costs. Those new to selection and serials management may want to consider using methods such as citation analysis as they explore ways to evaluate and balance their collections. The methods outlined

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here can serve as an introduction to the process and as a model for those wanting to undertake a similar study in disciplines other than education.

Citation Analysis of Theses and Dissertations

Academic librarians have long used various types of citation analysis to study collections. Analysis of dissertation and thesis reference lists is one approach used to measure library use by graduate students, who are traditionally frequent and heavy library users. Dissertations may be "invaluable roadsigns" to the literature of a discipline.[4]

Recent examples of this methodology include Sylvia and Lesher's study of psychology and counseling dissertations and theses, Marinko's research on women's studies dissertations, and Kuyper-Rushing's examination of music dissertations.[5] While citation analysis studies have tended to rely on local institutional data, some have integrated data from other institutions.[6] Buchanan and Herubel explored serial monograph ratios comparing political science and philosophy dissertations and found that journals were heavily used in these disciplines.[7] Beile, Boote, and Killingsworth studied education dissertations from the perspective of reference list quality to assess student expertise in use of the literature. They advised caution in using the results of a citation analysis to assess the adequacy of a collection.[8] Citation study results may have implications for the ratios of funds expended for serials versus that for monographs.[9]

One of the advantages of citation analysis of thesis and dissertation references lists is that the results may reliably predict faculty use. Zipp analyzed several large data sets from theses and dissertations in geology and biology.[10] Her statistical analysis supported the predictive value of the graduate student citations in identifying faculty journal citations in their publications. While logical given the mentoring and advising roles of faculty, Zipp's research began to validate the role that the dissertation and thesis writers' reference lists can have in identifying faculty reference patterns. This information is valuable because comprehensively identifying faculty journal publications for study can be difficult.

As true for citation studies with other types of materials, a disadvantage of dissertation citation analysis is that the results usually reflect only those sources actually included in the completed dissertation or thesis and not the many other sources consulted during the research and writing process.[11] Further, an underlying assumption in graduate research is that students will retrieve, use, and cite important journal articles and other materials even if they are not held in the local library collection. In reality, some graduate students may rely primarily on sources that are local or conveniently available, and their reference lists may then reflect that.[12] In such a scenario, a weak collection could lead to inadequate study of the literature for a dissertation that then might be reflected in the reference lists and so on, in an unfortunate self-perpetuating cycle. Faculty members, in contrast, often have personal subscriptions and extended professional networks and so are less likely to depend on the convenience of their local collections. An additional consideration in evaluating the local data derived from a citation analysis study is that the results may be skewed by citations for specific sources heavily used by a few students during the particular time period analyzed.

Citation Analysis of University of Minnesota Education Dissertations

The citation analysis study reported here was undertaken during a cancellation project to develop an indication of education journal collection use as reflected in curriculum and instruction dissertations completed at the University of Minnesota during the calendar years 2000–2002. Students in the College of Education and Human Development's Department of Curriculum and Instruction complete most campus dissertations on curriculum and instruction topics, although a few students in other disciplines also complete research in this area. The large, diverse, and highly ranked Department of Curriculum and Instruction at Minnesota emphasizes teacher preparation and educational research in curriculum, instruction, assessment, and the various contextual factors impacting education.

This author, as education librarian and bibliographer, undertook the study to understand current journal use patterns. In addition to the usual financial pressures on collection development funds leading to cancellations, the education collection was moved in the late 1990s from a separately housed, broadly focused Education Library and integrated into the main library serving the humanities and social sciences. These two factors prompted a review and refocusing of the education serial subscriptions with the broad goal of better aligning the subscriptions with the current teaching and research mission of the college.

Several specific purposes guided this project. The first aimed to identify the journals the dissertation writers cited most frequently and to determine if the University of Minnesota Libraries have the high-use journals on subscription. Identification of high- and low-use titles is one of the most common uses of citation analysis. Clearly, the academic research library should, if possible, have subscriptions to journals with high frequency of citations, depending on cost and scope considerations.

Second, the ratio of serials to monographs was explored to identify the current ratio of journals to monographs cited in education. Other researchers have studied this ratio. Beile,

Boote, and Killingsworth reported a 45 percent serial-to-monograph cited ratio in a citation analysis of education dissertations.[13] Previously, in an overview of many studies on the serial-to-monograph ratio in a wide range of diverse disciplines, Devin and Kellogg reported ratios of 40.5 percent to 42.6 percent for serial use for education.[14] A similar ratio was expected in this study.

Finally, the ratio of serials to monograph use was explored in comparison to the allocation of money in the library's education fund. In many academic libraries, funds for purchases are allocated by discipline, and within the discipline the allocation is divided between serial and monograph purchases. Budget constraints may preclude any changes in allocations; however, having some indication of use offers an opportunity to reconsider the allocation ratio. Such comparisons can be problematic for the discipline of education because education acquisitions in large academic research collections may be supported not only by an education fund but also by funds from many other disciplines.

Research Methods

To identify dissertations, the Digital Dissertations database was searched for references to University of Minnesota dissertations completed in 2000–2002 using the advanced search Subject Tree function for education and the category term "curriculum and instruction," combined with the appropriate selection from the School Index advanced search function. In a second search strategy, all faculty names from the Department of Curriculum and Instruction Web page were input using the "advisor" field to retrieve any other dissertations completed by students in that department. These two searches resulted in the retrieval of forty-three dissertations. The majority of these dissertations were completed in the Department of Curriculum and Instruction, some had co-advisors from different departments within the College of Education and Human Development, and a few were completed in departments external to the college.

Dissertations were retrieved from the library's collections and the reference lists were examined. For each dissertation reference list, the journal title and citation date were listed in a format that allowed use of the Excel Sort command. The count of journal and non-journal references was tallied. The citations to report literature were examined and were found to vary widely in accuracy and completeness. Given the problems with accuracy and format of report literature citations, correct categorization of these references was not possible without examining the original documents. Thus, a decision was made to include ERIC documents, technical reports, and other non-journal references in the same category as monographs. An alternative would have been to exclude these types of citations from the study.

Results and Discussion

In this study, 4,542 citations from forty-three education dissertations completed in 2000–2002 were identified, with an average of 105 citations (range = 41–295) per dissertation. These findings support the notion that graduate students are likely to be heavy library resource users, although it is not possible to determine where or how these students obtained their literature. As highlighted in table 1, 44 percent (2,001) of the citations were for journal articles, and 56 percent (2,541) were for monographs and reports. More than half of the citations (57 percent) were from works published in 1990–2002 (see tables 1 and 2).

The graduate students cited 558 unique journal titles. This is considerably more than the 293 unique titles found by Beile, Boote, and Killingsworth in their analysis of education dissertations.[15] They examined a smaller pool of 1,842 citations from thirty education dissertations, with the number of citations per dissertation ranging from 25 to 159. This difference in unique titles may be due simply to sample size. Further, a scan of the titles for the University of Minnesota education dissertations examined here indicates that these students have researched a very diverse range of topics, suggesting a need for access to an equally diverse range of journals. Institutional differences in mission, teaching, and research could translate into varying patterns of literature use and citation, as could wide-ranging faculty research interests. These differences also could reflect evolving changes in the nature of research in the field of education overall.

The most frequently cited journal, *Educational Leadership*, was cited seventy-four times. Table 3 lists the eighteen journal titles cited twenty or more times. (Readers wishing to see the complete list of titles may contact the author.) These accounted for 30 percent of the total journal citations. About half (47 percent) of the journal citations were from the thirty-nine journals cited ten or more times. Interestingly, as noted, *Educational Leadership* was the most frequently cited journal in these University of Minnesota dissertations, but in Beile, Boote, and Killingsworth's study, it did not rank particularly high in the list of journals cited, again suggesting sample or institutional differences.[16]

Several of the most frequently cited journals are not considered to be education journals (such as *American Journal of Physics* and *Social Change*). These titles reflect the interdisciplinary nature of educational research and well as the skewing of results by a few dissertation writers. Additionally, they serve as a reminder of the importance of collaboration with other discipline selectors during journal cancellation projects.[17]

As in other citation studies, a large number of journals were found to have very few citations in this group of dissertations. As shown in table 4, 55 percent (309) of the

Table 1. Frequency of types of citations

Type of citation	Count	Percentage
Journals	2,001	44
Monographs and reports	2,541	56
Total	**4,542**	**100**

Table 2. Dates of journal citations

Date range	Frequency of citation
2000–2002	57
1990–1999	1,146
1980–1989	572
1970–1979	166
1960–1969	37
Pre-1960	23
Total	**2,001**

Table 3. Journals with more than twenty citations with citation frequency

Cited journal title	Frequency of citation
Educational Leadership	74
Phi Delta Kappan	66
Journal of Research in Science Teaching	52
Reading Research Quarterly	51
Reading Teacher	41
Science Education	40
Journal of Educational Psychology	39
Educational Researcher	35
American Educational Research Journal	35
Elementary School Journal	31
Review of Educational Research	31
Studies in Art Education	31
Social Change	30
Journal for Research in Mathematics Education	29
American Journal of Physics	26
Language Arts	25
School Science and Mathematics	23
Journal of Teacher Education	22
Total	**681**

journals were cited only one time. While many of them were education journals, many were from other disciplines. Some of these less cited journals could become candidates for review (using other evaluation criteria as well) for potential cancellation, if currently on subscription.

Many explanations are possible for infrequent use of certain journals and it can be challenging for the librarian to discern which of them applies to specific journals. Location in the library, completeness of cataloging records, availability of electronic access, usability of the library Web pages, inclusion in key indexes, and number of articles published per year are examples of the many factors that could affect frequency of use of a journal. However, the dissertations examined in this study were drawn from three years—2000–2002—a period too short to accurately measure infrequency of use. A more accurate list of infrequently used titles could be developed by examining dissertation reference lists over an extended period of time or by sampling several two-year clusters.

With the one exception—*Physics Teacher,* which was cancelled previously—all of the journals cited ten or more times are active subscriptions at the University of Minnesota. *Physics Teacher* will be considered for reinstatement. Although not evaluated in this study, the availability of high-use journals in electronic format would be helpful from a collection development perspective.

Comparing the ratio of serials citations to monograph citations (44 percent to 56 percent) with the ratio of funds allocated for purchase of those materials proved problematic. The overall education acquisition funds ratio (85 percent serials to 15 percent monographs) varies widely from the citation ratios. This difference is moderated because a number of non-journal items such as electronic indexes are included in the serials funds. Further, the fund balances are affected by adjustments for funds carried over from previous years, recision of money from the allocations, and other similar factors, as well as the difficulties inherent in comparing a monograph purchase to a serial subscription. Additionally, an unidentified number of education journals are paid with funds from other disciplines, further complicating the development of accurate ratios. The relationship of funding ratios to citation ratios could be explored in further research.

Regardless, given the citation ratio obtained in this study of University of Minnesota education dissertations and the school's mission of supporting faculty- and graduate-level research, it is appropriate to aim toward a more balanced ratio of funding for education monographs and serials. The practice of diverting funds from monograph purchases to support increasingly expensive serials could negatively impact education graduate students' access to the monographs needed to support their dissertations.[18] Interlibrary loan can supplement gaps in collections, but many graduate students may not have the expertise to access comprehensive literature sources in that manner.[19]

Conclusions

Citation analysis of dissertations is a tool that academic librarians can use to develop an indicator of collection use by graduate students. Results can inform and support collection development decisions and be used effectively in liaison work. Those new to selection in a particular discipline or library may find this type of methodology to be a helpful tool for understanding the use of their collections. Dissertation

Table 4. Overall frequency of citation by journal

Count of citations	Journal cited frequency
60 or more citations	2
50–59	2
40–49	2
30–39	7
20–29	5
10–19	21
9	4
8	10
7	12
6	11
5	14
4	25
3	35
2	99
1	309
Total count of journals cited	558

citation information is not difficult to obtain and tabulate. Procedures could be established for collecting dissertation reference data routinely to establish a larger data set spanning a several years. Dissertation citations may predict faculty journal article citations, a finding that if replicated in different disciplines and studies, offers librarians opportunities to more readily assess faculty use.[20]

Citation use data alone does not give a complete picture of collection use and should be combined with other indicators. Further, graduate students may lack skills needed to identify, obtain, and then use the best quality literature for their dissertations, relying instead on materials available at their institution's library.[21] If collections are weak, the reference lists may reflect an inadequate use of the literature—unless students are taught by librarians and faculty advisors and are challenged to expand their retrieval of literature by using interlibrary loan and other retrieval methods.

More research is needed to explore further the relationship between faculty and graduate student reference lists, to learn how graduate students actually obtain literature in the Internet era, and to explore the types of literature consulted—in contrast to cited—in dissertations. Additional studies could help clarify the length of time needed for a citation study to reveal a true picture of collection use and the breadth of graduate student knowledge and use of interlibrary loan.

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Cataloging Practices and Access Methods for Videos at ARL and Public Libraries in the United States

Jeannette Ho

Libraries may vary in the level and fullness of cataloging they give to video recordings and in the methods they use to provide access to them. This paper reports the results of a survey exploring the level of cataloging and access methods applied to videos, the degree to which catalogers view screen credits, and how often various credit information is included and used to create access points in catalog records in selected U.S. public and Association of Research Libraries member libraries. Resources for cataloging videos also were examined. Results showed that most libraries cataloged videos at the full level and provided access points to similar types of information in catalog records. Academic librarians reported viewing videos and providing access points to certain information to a greater extent than public librarians did. This study offers a general picture of the credit information libraries include or omit in video catalog records.

Libraries in the United States have collected video recordings for more than three decades, but few surveys have examined their cataloging practices regarding this format. Video recordings (hereafter, videos) encompass video tapes and video discs in all formats (e.g., VHS, DVD, laser discs). In 1993, Kristine R. Brancolini and Rick E. Provine examined the extent to which members of the Association of Research Libraries (ARL) classified videos and included them in their online catalogs; because their investigation was part of a broader survey of video collections and services, other aspects of cataloging practices were not examined in depth.[1] Other research projects include Anna T. Slawek's analysis of video cataloging practices in Canadian public libraries and, more recently, a survey by the Association of Moving Image Archivists of archival moving image cataloging practices.[2] Furthermore, in a subsequent study, Brancolini and Provine concluded that many ARL libraries did not meet the Association of College and Research Libraries' (ACRL) *Guidelines for Media Resources in Academic Libraries*.[3] The purpose of the present study is to examine issues related to video cataloging and access at selected public and ARL academic libraries in the United States and to explore issues related to the ACRL guidelines' first three recommendations for bibliographic access and cataloging.[4] In particular, the study examines the following areas:

1. The extent to which libraries use the online catalog versus other methods to provide access to videos;

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2. The degree to which catalogers view screen credits of videos to obtain bibliographic information, as well as the availability of viewing equipment and full-time staff for cataloging videos; and
3. The level of fullness at which libraries catalog videos, including the degree to which various types of credit information are included and used as access points in records.

According to the first recommendation in the ACRL guidelines' bibliographic control and cataloging section, "Bibliographic and holdings information about media resources should be made accessible through the same retrieval mechanisms available for other library materials."[5] A review of the literature shows that libraries have been slow to integrate nonbook materials into online catalogs. According to James C. Scholtz, early video collections were organized by annotated lists.[6] In 1993, Kristine R. Brancolini and Rick E. Provien found that 30 percent of ARL libraries with video collections included either only some or none of their videos in their online catalogs.[7]

In 1995, Jean Weihs and Lynne C. Howarth found that 10.7 percent of Canadian libraries still had not cataloged their videos and that libraries with smaller collections (100,000 items or fewer) were least likely to catalog them according to AACR2.[8] Even libraries that have integrated videos into their online catalogs may still retain older means of access for the format. In 1994, Rebecca M. Adler described how individual campus media centers at the City University of New York (CUNY) retained their media catalogs after the adoption of a campus-wide online public access catalog (OPAC).[9] The study reported in this paper examines the degree to which public and ARL academic libraries in the United States include records for videos in their OPACs. This study also examines alternative methods of providing access to videos, such as offering separate catalogs or lists of titles, or shelving videos in public where they may be browsed.

According to the ACRL guidelines, catalogers should have access to "playback equipment in all formats represented in the collection, and the Web."[10] Equipment is necessary for video catalogers to obtain bibliographic information from the credits. According to AACR2 rule 7.0B1, the preferred chief source of information for videos is "the item itself (e.g., the title frames)."[11] Not viewing the title frames may result in the omission of important information from the catalog record and be a disservice to users. For example, video containers or labels may not always contain information about a title in a foreign language or the language of the soundtrack. This study examines the extent to which cataloging units have viewing equipment and to which video catalogers view credits as the chief source of information. Since viewing habits may depend on staffing, this study also examined the number of full-time personnel available to perform both copy and original cataloging of videos.

The ACRL guidelines recommend that "media resources should be cataloged in accordance with current national standards and practices, including full subject access, description, system requirements, and classification to provide maximum information to the user of the library catalog."[12] This study focuses on the fullness of the description and added entry coverage. According to Paul Graham, complete bibliographic descriptions are especially important for audiovisual media, since they cannot be browsed without the use of special equipment.[13] In libraries that shelve videos in closed stacks, users may rely solely on the OPAC to learn about titles in this format. While some libraries apply minimal-level cataloging to videos to reduce costs, Gary Handman has criticized this approach for reducing access.[14] More recently, a core record for moving-image materials has been proposed.

This study examines the extent to which libraries include specific credit information in the statement of responsibility and notes, as well as provide access points in records for videos. Catalogers have greater flexibility with audiovisual media than for books regarding what to include in records and use as added entries. According to AACR2 rule 7.1F1, catalogers are to transcribe data from the chief source of information relating to individuals or corporate bodies with a major creative role, such as producers and directors, and to put other credit information in notes. Rule 7.7B6 states that credit notes may include "featured players, performers, narrators, and/or presenters."[15] The former Library of Congress Rule Interpretation (LCRI) 7.7B6 included a prescribed list of functions to include in a note, such as photographer, artist/illustrator of graphics, editor, narrator, music, and advisor/consultant, and specified the order in which they were to be given. As this rule interpretation is now obsolete, catalogers may have more freedom to decide what to include in the description. It is of interest to find whether ARL academic and public libraries differ in the extent to which they include and create added entries for information commonly found in video credits. Because catalogers may find that different information is relevant for fiction and nonfiction videos, this study examined the extent information is employed in records for documentaries and feature films. According to the *Moving Image Genre-Form Guide* cited in the authority record for "Documentary videos," a documentary is defined as

> the creative treatment of actuality. Grounded in some aspect of real life, documentaries may vary from a very deliberate account of facts to an extremely interpretive rendering of a subject, advocating a particular viewpoint on a political, social, or

> historical issue. In Documentary, actuality should still be dominant over the creative treatment, which, while often staged for the camera, should not go so far as to be dramatized for emotional impact and belong to such genres as Historical fiction or Propaganda. Documentaries may include re-enactments, such as showing the movements of armies, or brief scenes of individuals and dialogue, but do not include films that merely use a realistic technique in telling a fictional story.[16]

Finally, according to the OCLC Online Computer Library Center's *Bibliographic Formats and Standards* manual, librarians cataloging at the full level should provide "full added entry coverage according to the latest revision of AACR2 and LCRIs."[17] LCRI 21.29D provides guidance on when to make added entries (for example: "Make added entries for all featured players, performers, and narrators."),[18] By examining how often librarians create added entries for these elements, this study seeks to determine how closely respondents follow this rule interpretation. In particular, this study focuses on three specific statements of LCRI 21.29D.

1. Do not make added entries for persons (producers, directors, writers, etc.) if there is a production company, unit, etc. for which an added entry is made, unless their contributions are significant.
2. In the absence of a production company, unit, etc., make added entries for those persons who are listed as producers, directors, and writers.
3. Make added entry headings for all corporate bodies named in the publication, distribution, etc., area.[19]

Examples of "significant" contributions given in LCRI 21.29D include "the animator of an animated film, the producer/director of a student film, the director of a theatrical film."[20] Despite the presence of these examples, the definition of what constitutes a significant contribution remains flexible and open to interpretation. This study examines the frequency with which libraries apply these statements and the degree to which they find them useful.

Method

Sample

In the spring of 2002, questionnaires were mailed to the heads of cataloging or the library directors of ninety-three ARL libraries and seventy-four public libraries within the United States. The public libraries were selected from those that had contributed OCLC video records found in the Texas A&M University Libraries' online catalog. This was done to ensure that the sample would include only public libraries that collected and cataloged videos. In the cover letter, participants were asked to respond to the questionnaire only if their library cataloged videos, and to give it to the librarian who had the greatest responsibility for cataloging them.

The Questionnaire

The questionnaire is presented in the appendix to this paper. Respondents to the questionnaire first indicated whether they were affiliated with an academic or public library and answered a series of questions about the nature and shelving of their video collections. They were asked to estimate the approximate number of titles in the VHS, DVD, and laserdisc formats that their library owned, and the approximate percentages of their video collection that consisted of the following genres: feature films, documentaries, instructional videos, and "other," an open category for which they were asked to list any additional genres. Participants were then asked to indicate the extent to which videos were included in their catalogs (all, some, or none) and whether they provided alternative means of access to their videos besides the catalog (separate catalog for media resources, printed list, electronic list, none, or other). They were also asked whether their video collections were shelved in closed stacks, interfiled with books, or shelved in a separate public area. If in closed stacks, they were asked if they shelved containers or container art for the videos in public areas where they could be browsed. Finally, participants indicated the number of full-time professional and support staff involved in both original and copy cataloging of videos and noted the percentage of time spent on those tasks.

Participants then responded to a series of questions regarding video cataloging practices. They were asked whether they cataloged all videos at the same level and, if so, at what level (minimal, core, full, other). If they did not catalog all videos at the same level, they were asked to explain. Participants were asked about the extent to which they viewed videos for original and copy cataloging and whether they had access to viewing equipment in their departments. They were presented with a list of twenty-seven elements commonly found in catalog records for videos. These elements were based on information cited in AACR2 and found in OCLC records as elements in notes and the statement of responsibility. The elements included director, producer, narrator, and summary. Participants were asked to rate the extent to which they included each element in records for feature films and documentaries (never, sometimes, always). Following this section, participants were presented with a list of twenty-one elements commonly found as access points for video records. Participants were asked to rate the extent to which they

included each element as an access point in records for both feature films and documentaries (never, sometimes, always). Finally, they were presented with three statements from LCRI 21.29D and asked to indicate how closely they followed them (always, sometimes, not at all); if not always, they were asked to explain why. The statements were:

- Do not make added entries for persons (producers, directors, writers, etc.) if there is a production company, unit, etc. for which an added entry is made unless their contributions are significant.
- In the absence of a production company, unit, etc., make added entries for those persons who are listed as producers, directors, and writers.
- Make added entries for all corporate bodies named in the publication, distribution, etc. area.[21]

Results

Background Information

Respondents

Forty-four (47 percent) of the ARL libraries surveyed and forty-one (55 percent) of the public libraries surveyed responded. Of the eighty-five respondents, 52 percent were from ARL academic libraries and 48 percent were from public libraries. All libraries reported belonging to a bibliographic utility. All academic libraries and 90 percent of public libraries reported contributing original records to their utilities. A total of eighty-five libraries responded to the survey; the number of respondents to each question varied, depending on the question, and does not always equal eighty-five.

Format

While not all librarians responded to each question, among those who did it was apparent that public librarians perceived that their video collections contained a larger number of DVDs, while ARL librarians perceived that their collections contain a larger number of VHS tapes. On average, public libraries reported having 2,108 VHS tapes and 868 DVDs, while ARL libraries reported having 6,387 VHS tapes and 344 DVDs. Both ARL and public libraries estimated that feature films and documentaries made up the greatest percentage of their collections. On average, ARL libraries reported that feature films made up 44 percent of their collections while public libraries reported 52 percent. ARL libraries reported that documentaries made up 39 percent of their collections, while public libraries reported 25 percent. Fewer than 70 percent of libraries responded to questions about other types of videos (such as instructional, plays, juvenile films, short films, television programs, and literary readings); those that did respond estimated that these types made up less than 20 percent of their collections.

Staffing and Work Assignment

ARL respondents reported a slightly higher number of full-time professional librarians who did original cataloging of videos than public library respondents. Thirty-eight ARL libraries reported an average of two full-time professionals, while thirty-seven public libraries reported one full-time professional. Thirty-two ARL librarians reported that full-time professionals who did original cataloging of videos devoted an average of 13 percent of their time to this task, while thirty-four public libraries reported that they devoted 15 percent of their time. Twenty-seven ARL and thirty-two public libraries reported having, on average, one professional who performed copy cataloging. Some libraries commented that this was the same person who handled both the copy and original cataloging of videos. Professional librarians spent less time copy cataloging videos in academic libraries than in public libraries. Twenty ARL libraries reported that professionals spent an average of 15 percent of their time copy cataloging, while thirty public libraries reported that they spent an average of 28 percent of their time.

ARL respondents reported having a slightly higher number of full-time support staff who did original cataloging of videos than public library respondents. Yet ARL and public library respondents reported the same number of support staff who did copy cataloging. Nineteen ARL libraries reported that an average of two full-time support staff members performed original cataloging, while twenty-three public libraries reported one full-time support staff member. Twenty ARL librarians reported that their support staff spent an average of 17 percent of their time doing original cataloging of videos, while ten public libraries reported that support staff spent an average of 11 percent of their time on this task.

Meanwhile, thirty-five ARL and twenty-four public libraries both reported an average of two support staff members who copy cataloged videos. Thirty-two ARL libraries reported that support staff devoted an average of 36 percent of their time copy cataloging videos, while twenty-one public libraries reported that their support staff devoted an average of 38 percent of their time doing copy cataloging of videos.

Methods of Providing Access to Videos

All eighty-four respondents reported that they include records for all videos in their online catalogs. Forty-eight percent reported that they provided no other means of access besides the online catalog (that is, no supplemental lists or catalogs). An equal proportion of libraries provided

printed lists (19 percent) and Web-based lists (19 percent) of titles in their video collections. While a greater proportion of ARL libraries reported providing electronic lists, a greater proportion of public libraries reported providing printed lists. Ten percent of libraries reported that they used other methods to provide access to videos, including lists of newly acquired videos and DVDs, finding aids for videos on selected topics (for example, women filmmakers or foreign-language films) and a separate online database of video titles. Meanwhile, only 7 percent reported maintaining separate catalogs for videos. Table 1 shows the numbers and percentages of ARL and public libraries that used each method of access.

Table 1. Methods used by ARL and public libraries to provide access to videos

	ARL libraries		Public libraries		Total	
	No.	(%)	No.	(%)	No.	(%)
Online catalog	43	(100)	41	(100)	84	(100)
Separate catalog for videos	4	(9)	2	(5)	6	(7)
Printed list of titles	5	(12)	11	(28)	16	(19)
Electronic list of titles	12	(28)	4	(10)	16	(19)
Other method	2	(5)	6	(15)	8	(10)

Table 2. Level of cataloging applied to videos by ARL and public libraries

	ARL libraries		Public libraries		Total	
	No.	(%)	No.	(%)	No.	(%)
Full	34	(97)	24	(80)	58	(89)
Core	0	(0)	2	(7)	2	(3)
Minimal	1	(3)	4	(13)	5	(8)

Note: This table includes data from libraries that reported cataloging videos at the same level.

Shelving Practices

The study examined the extent to which libraries allowed users to browse videos on shelves. Of eighty-three respondents, 39 percent reported shelving videos in closed stacks and 39 percent reported shelving them in a separate public area. More ARL libraries than public libraries shelved videos in closed stacks, with thirty-one (73 percent) ARL libraries and one (3 percent) public library reporting doing so. A greater percentage of public libraries were likely to shelve videos in a separate public area, with twenty-six (65 percent) public libraries and six (14 percent) ARL libraries reporting this practice.

The remaining nineteen (22 percent) respondents reported a mixture of practices, with less than 5 percent responding to each of the following categories: interfiling videos with books, a mixture of closed stacks and interfiling, a mixture of closed stacks and shelving in a separate public area, a mixture of interfiling and public shelving, and a mixture of all three practices.

Level of Cataloging

Sixty-eight participants reported cataloging all videos at the same level. In this group, 89 percent reported cataloging videos at the full level, with a greater proportion of ARL libraries reporting this. Eight percent of respondents cataloged videos at the minimal level. Finally, only 3 percent of respondents cataloged them at the core level. Table 2 shows the numbers and percentages of ARL and public libraries cataloging at each level.

All respondents that did not catalog their entire video collections at the same level (eight ARL libraries and eight public libraries) wrote descriptions of their procedures. Slightly more than half reported applying less than full cataloging to certain kinds of videos (such as films shot in foreign languages or containing obscure subject matter, or popular feature films) while applying full-level cataloging to others (such as documentary and educational videos). Others reported that they accepted the level found on OCLC records during copy cataloging, had varying policies at different library branches, or let the extent of information in the video determine the level of fullness at which they coded the record.

Viewing of Credits

A greater proportion of ARL libraries than public libraries indicated having access to viewing equipment in their cataloging departments, with thirty-nine (89 percent) ARL libraries and twenty-seven (68 percent) public libraries reporting this. ARL libraries reported viewing credits of videos to a greater extent than public libraries for both original and copy cataloging. Thirty-eight (88 percent) ARL libraries and eighteen (46 percent) public libraries reported viewing credits for all videos that needed original cataloging, while twenty (45 percent) ARL libraries and three (8 percent) public libraries reported viewing credits for all videos that needed copy cataloging. Consistent with this pattern, a greater proportion of ARL libraries reported viewing both beginning and ending credits for original and copy cataloging. Tables 3 and 4 show the numbers and percentages of ARL and public librarians that viewed credits.

Libraries that did not view all videos specified the following reasons: lack of time, insufficient staffing, not having access to equipment, finding adequate OCLC records for copy cataloging, and having sufficient bibliographic information on video containers and cassette labels. Some respondents commented that they only viewed videos for

copy cataloging if they could not find an OCLC record with the full bibliographic level code "I," or if they suspected that the record did not match the item in hand.

Information Included in Records

A majority of respondents indicated always including the following elements in original records for feature films in the following descending order: language, director, actors, year produced as a motion picture, producer, author of work the video was based on, production company, summary, narrator, distributor, writer, and country of original release as a motion picture. Table 5 presents data for only those elements always included in catalog records for feature films by at least 50 percent of all responding libraries. Since none of these elements is always used by any libraries, data on libraries that never use or sometimes use these elements is also presented.

The greatest percentage of respondents reported always including the following elements in original records for documentaries in the following descending order: language, year produced as a motion picture, director, author of work the film was based on, narrator, producer, summary, production company, host, distributor, interviewer, lecturer, actors, writer, and interviewee. Table 6 presents data for only those elements always included in catalog records for documentaries by at least 50 percent of all responding libraries. Since none of these elements is always used by any libraries, data on libraries that never use or sometimes use these elements is also presented.

Respondents reported including the following elements the least frequently in records for feature films and documentaries: costume designer, artist/illustrator of graphics, advisor/consultant, audience level, awards, executive producer, and film editor. Table 7 shows the numbers and percentages of total respondents including these elements in records for both feature films and documentaries. Some elements in the table reflect less agreement regarding whether they should be included in records. For instance, 49 percent of respondents reported sometimes including executive producers for feature films, while the rest of the respondents were evenly divided between never (25 percent) or always including them (25 percent). Other elements in the table showing similar patterns include: audience level, awards, and film editor for both feature films and documentaries, and photographer for documentaries.

A majority of ARL and public libraries included most of the elements at least some of the time (either sometimes or always). Tables 8 and 9 show the numbers and percentages of elements for which the differences between percentages of ARL and public libraries including them at least some of the time were ten or greater. A greater percentage of public libraries reported including audience level, illustrators of graphics, and executive producers for both feature films and documentaries, as well as country of origin for documentaries and award notes for feature films. Meanwhile, a greater percentage of ARL libraries reported including choreographers, photographers, and film editors for both feature films and documentaries, as well as summaries for feature films.

Table 3. Videos viewed at ARL and public libraries for original and copy cataloging

	ARL libraries		Public libraries		Total	
	No.	(%)	No.	(%)	No.	(%)
Original Cataloging						
All videos	38	(88)	18	(46)	56	(68)
Some videos	5	(12)	15	(38)	20	(24)
No videos	0	(0)	6	(15)	6	(7)
Copy Cataloging						
All videos	20	(45)	3	(8)	23	(27)
Some videos	15	(34)	23	(58)	38	(45)
No videos	9	(20)	14	(35)	23	(27)

Table 4. Extent of credits viewed at ARL and public libraries for original and copy cataloging

	ARL libraries		Public libraries		Total	
	No.	(%)	No.	(%)	No.	(%)
Original cataloging						
Entire credits	43	(100)	28	(85)	71	(93)
Beginning credits only	0	(0)	5	(15)	5	(7)
Copy cataloging						
Entire credits	34	(94)	24	(83)	58	(89)
Beginning credits only	2	(6)	5	(17)	7	(11)

Table 5. Catalog information included most often for feature films

	Never		Sometimes		Always	
	No.	(%)	No.	(%)	No.	(%)
Language	0	(0)	2	(3)	75	(97)
Director	0	(0)	4	(5)	74	(95)
Actors	0	(0)	6	(8)	73	(92)
Year produced	0	(0)	9	(12)	69	(88)
Producer	3	(4)	12	(15)	64	(81)
Author	1	(1)	15	(19)	63	(80)
Production company	1	(1)	15	(19)	63	(80)
Summary	4	(5)	14	(18)	61	(77)
Narrator	0	(0)	22	(28)	57	(72)
Distributor	2	(3)	23	(29)	54	(68)
Writer	2	(3)	25	(32)	19	(53)
Country	13	(16)	25	(32)	41	(52)

Note: This table includes elements that were reported as always included by at least 50 percent of respondents. Elements in this table are ranked from most frequently reported to least frequently reported in the "always" category.

Table 6. Catalog information included most often for documentaries

	Never		Sometimes		Always	
	No.	(%)	No.	(%)	No.	(%)
Language	0	(0)	3	(4)	77	(96)
Year of production	0	(0)	10	(12)	68	(87)
Director	1	(1)	11	(14)	68	(85)
Author	0	(0)	12	(15)	67	(85)
Narrator	0	(0)	17	(21)	63	(79)
Producer	2	(3)	15	(19)	63	(79)
Summary	2	(3)	18	(23)	60	(75)
Production company	2	(3)	18	(23)	60	(75)
Host	0	(0)	22	(28)	58	(73)
Distributor	2	(3)	23	(29)	55	(69)
Interviewer	1	(1)	24	(30)	55	(69)
Lecturer	0	(0)	28	(38)	46	(62)
Actors	1	(1)	29	(38)	47	(61)
Writer	2	(3)	30	(38)	47	(60)
Interviewee	1	(1)	38	(48)	41	(52)

Note: This table includes elements that were reported as always included by at least 50 percent of respondents. Elements in this table are ranked from the ones reported most frequently to the ones reported least frequently in the "always" category.

Table 7. Elements included least frequently in records for feature films and documentaries

	Never		Sometimes		Always	
	No.	(%)	No.	(%)	No.	(%)
Feature Films						
Costume designer	39	(49)	34	(43)	6	(8)
Artist/illustrator	32	(41)	40	(51)	3	(7)
Advisor	22	(29)	50	(66)	4	(5)
Audience	23	(29)	37	(47)	18	(23)
Awards	20	(25)	45	(57)	14	(17)
Executive producer	20	(25)	39	(49)	20	(25)
Film editor	19	(24)	35	(45)	25	(32)
Documentaries						
Costume designer	44	(56)	29	(37)	6	(8)
Artist/illustrator	32	(40)	43	(54)	5	(6)
Awards	21	(27)	44	(56)	14	(18)
Audience	20	(25)	43	(54)	16	(20)
Executive producer	20	(25)	39	(49)	21	(26)
Film editor	19	(24)	40	(50)	21	(26)
Advisor	18	(23)	53	(67)	8	(10)
Photographer	16	(21)	46	(59)	16	(21)

Information Added as Supplemental Access Points

In contrast to the information included in records, fewer respondents seemed to consider any particular access point as essential for all feature films or documentaries. A majority of respondents reported always creating added entries in records for feature films for the following information listed in descending order: director, actors, production company, related work, distributor, and narrator. The greatest percentage of respondents reported always creating added entries for documentaries for the following information listed in descending order: director, production company, writer, host, distributor, narrator, interviewers, related work, actors, and lecturers.

Table 8. Catalog information included by ARL and public libraries at least some of the time for feature films

	ARL Libraries		Public Libraries	
	No.	(%)	No.	(%)
Audience level	24	(56)	31	(89)
Photographer	39	(91)	26	(72)
Film editor	36	(84)	24	(66)
Choreographer	39	(91)	27	(75)
Illustrator of graphics	23	(54)	23	(66)
Summary	43	(100)	32	(88)
Executive producer	30	(70)	29	(81)
Award notes	30	(70)	29	(81)

Note: Includes elements where the difference between percentages of ARL and public librarians sometimes or always including them in records was ten or greater.

Table 9. Catalog information included by ARL and public libraries at least some of the time for documentaries

	ARL Libraries		Public Libraries	
	No.	(%)	No.	(%)
Audience level	27	(61)	32	(91)
Illustrator of graphics	23	(52)	25	(70)
Country of origin	34	(77)	34	(94)
Choreographer	39	(90)	27	(76)
Photographer	36	(86)	26	(73)
Film editor	36	(82)	25	(69)
Executive producer	31	(70)	29	(80)

Note: Includes elements where the difference between percentages of ARL and public librarians sometimes or always including them in records was ten or greater.

Fewer than 50 percent of respondents indicated that they always created added entries for producers or interviewees. Approximately half of respondents reported that they created added entries for interviewers all of the time. Tables 10 and 11 show the numbers and percentages of ARL and public libraries for elements that were reported as sometimes or always used to create added entries for feature films by at least 50 percent of the respondents.

Compared to information included in records, respondents indicated greater consensus regarding elements that were never used to create added entries. The majority of respondents reported never creating added entries for the following elements for either feature films or documentaries: film editor, costume designer, artist/illustrator, photographer/cameraperson, and advisor/consultant. Table 12 presents data for only those elements where at least 20 percent of respondents reported never using them to create added entries for feature films and documentaries.

Table 10. Catalog information used most often in added entries for feature films

	Never		Sometimes		Always	
	No.	(%)	No.	(%)	No.	(%)
Director	1	(1)	10	(13)	67	(86)
Actors	3	(4)	9	(12)	66	(85)
Production company	6	(8)	17	(22)	55	(71)
Related work	6	(8)	21	(27)	51	(65)
Distributor	13	(17)	19	(25)	46	(59)
Narrator	5	(7)	28	(37)	43	(57)

Note: This table includes elements that were reported as always included by at least 50 percent of respondents. Elements in this table are ranked from the ones reported most frequently to the ones reported least frequently in the "always" category.

Table 11. Catalog information used most often in added entries for documentaries

	Never		Sometimes		Always	
	No.	(%)	No.	(%)	No.	(%)
Director	2	(2)	17	(21)	62	(77)
Production company	5	(6)	21	(26)	55	(68)
Writer	3	(4)	27	(34)	49	(62)
Host	3	(4)	27	(34)	49	(62)
Distributor	12	(15)	20	(25)	49	(60)
Narrator	5	(6)	28	(35)	47	(59)
Interviewer	4	(5)	31	(39)	45	(56)
Related work	4	(5)	20	(25)	70	(55)
Actor	3	(4)	35	(44)	41	(52)
Lecturer	4	(5)	33	(43)	40	(52)

Note: This table includes elements that were reported as always included by at least 50 percent of respondents. Elements in this table are ranked from the ones reported most frequently to the ones reported least frequently in the "always" category.

The majority of ARL and public libraries created added entries for most of the elements at least some of the time (both sometimes and always). Tables 13 and 14 show the numbers and percentages for elements where the differences between percentages of ARL and public libraries creating added entries for them at least some of the time was ten or greater. A greater percentage of ARL libraries reported creating added entries for producers and choreographers for both feature films and documentaries, and for writers and distributors for feature films. Meanwhile, a greater percentage of public libraries created added entries for costume designers for both feature films and documentaries.

Rule Interpretation 21.29D Statements

ARL and public libraries were compared on the extent to which they followed the LCRI 21.29D statement: "Do not make added entries for persons (producers, directors, writers, etc.) if there is a production company, unit, etc. for which an added entry is made, unless their contributions are significant." The majority of respondents reported following this practice only some of the time. Meanwhile, approximately a quarter of respondents reported never following this practice.

Table 12. Catalog information used least often in added entries for feature films and documentaries

	Never		Sometimes		Always	
	No.	(%)	No.	(%)	No.	(%)
Feature films						
Film editor	52	(67)	18	(23)	8	(10)
Costume designer	51	(65)	24	(31)	3	(4)
Artist/illustrator	48	(61)	28	(35)	3	(4)
Photographer	46	(60)	26	(34)	5	(7)
Advisor	45	(58)	29	(38)	3	(4)
Executive producer	36	(46)	34	(44)	8	(10)
Choreographer	27	(35)	44	(56)	7	(9)
Documentaries						
Costume designer	51	(69)	9	(21)	4	(5)
Film editor	52	(64)	20	(25)	9	(11)
Photographer	45	(56)	30	(38)	5	(6)
Artist/illustrator	45	(56)	32	(40)	4	(5)
Advisor	39	(49)	38	(48)	3	(4)
Executive producer	38	(47)	33	(41)	10	(12)
Choreographer	28	(35)	44	(56)	7	(9)
Animator	24	(31)	40	(51)	14	(18)

Note: This table includes elements that were reported as "never" being used by at least 20 percent of respondents.

Table 13. Catalog information used by ARL and public libraries at least some of the time in added entries for feature films

	ARL Libraries		Public Libraries	
	No.	(%)	No.	(%)
Writer	39	(91)	24	(66)
Producer	39	(93)	26	(74)
Choreographer	32	(74)	19	(55)
Distributor	38	(91)	27	(75)
Costume designer	13	(30)	14	(40)

Note: This table includes elements for which the difference between percentages of ARL and public libraries sometimes or always using them as added entries was ten percentage points or greater.

Table 14. Catalog information used by ARL and public libraries at least some of the time in added entries for documentaries

	ARL Libraries		Public Libraries	
	No.	(%)	No.	(%)
Producer	39	(90)	25	(69)
Distributor	38	(91)	27	(75)
Choreographer	29	(70)	22	(59)
Costume designer	11	(26)	14	(37)

Note: This table includes elements for which the difference between percentages of ARL and public libraries sometimes or always using them as added entries was ten percentage points or greater.

Written comments referred to the need for exercising judgment in this situation. As one public librarian wrote, "Significant contribution is not always clear and agreed among everyone." Both academic and public librarians wrote that they did not always follow this rule interpretation because they perceived personal names as useful access points. Some librarians stated that it was appropriate to create added entries for directors, producers, and writers because these roles (especially director) were "nearly always significant." A public librarian reported following this rule interpretation on a case-by-case basis, only adding entries for persons who were "nationally prominent, well known, or [likely to get] searched [by patrons]." Librarians from both types of libraries wrote that they often did not create added entries for production companies.

ARL and public libraries were compared on the extent to which they followed the statement "In the absence of a production company, unit, etc., make added entries for those persons who are listed as producers, directors, and writers." The majority of respondents reported always following this statement, with a greater proportion of academic librarians than public librarians reporting doing so. ARL librarians wrote that they sometimes omitted producers because their contributions seemed less significant than writers and directors. Some public librarians wrote that it was their library's policy to only create added entries for directors, since this reduced the time spent cataloging.

Finally, ARL and public libraries were compared on the extent that they followed the statement "Make added entries for all corporate bodies named in the publication, distribution, etc. area." Consistent with the pattern in the previous paragraph, the majority of respondents followed it all the time, with a greater proportion of ARL librarians reporting this. ARL and public librarians who did not always follow this statement wrote that they were selective when creating added entries for production companies and distributors, especially when many were involved. ARL librarians wrote that it was necessary to exercise judgment, since not all distributors had significant roles in the creation of the video. Some public librarians commented that they only created added entries for well known companies because this helped reduce the time spent cataloging and doing authority work. Table 15 shows the numbers and percentages of respondents who followed each LCRI 21.29D statement.

Table 15. Extent libraries follow LCRI 21.29D statements

	ARL libraries		Public libraries		Total	
	No.	(%)	No.	(%)	No.	(%)
"Do not make added entries for persons (producers, directors, writers, etc.) if there is a production company, unit, etc., for which an added entry is made . . ."						
Always	10	(23)	7	(19)	17	(22)
Sometimes	23	(54)	16	(44)	39	(49)
Not at all	10	(23)	13	(36)	23	(29)
"In the absence of a production company, unit, etc., make added entries for those persons who are listed as producers, directors, and writers . . ."						
Always	36	(82)	17	(46)	53	(65)
Sometimes	7	(16)	14	(38)	21	(26)
Not at all	1	(2)	6	(16)	7	(9)
"Make added entries for all corporate bodies named in the publication, distribution, etc. area."						
Always	34	(77)	20	(54)	54	(67)
Sometimes	10	(23)	12	(32)	22	(27)
Not at all	0	(0)	5	(14)	5	(6)

Discussion

Overall, respondents from ARL and public libraries were similar regarding the extent to which they included records for videos in the online catalog, the level of cataloging applied to videos, and the extent to which they included certain credit information in records for both feature films and documentaries. They differed regarding the extent to which they treated title frames as the chief source of information and to which they provided certain access points.

All respondents fulfilled the first ACRL recommendation for bibliographic control and cataloging by including records for their entire video collections in the online catalog. This result is encouraging, compared to results from the 1993 ARL survey (not limited to libraries within the United States) that found 30 percent of libraries did not include records for their entire video collections in the catalog.[22] Slightly more than half of respondents reported using additional means to enhance access to videos, with more ARL libraries using electronic lists of titles and more public libraries using printed lists. The majority of public libraries reported shelving videos or containers in a separate public area where patrons could browse them, while ARL libraries were more likely to use closed stacks.

The majority of respondents from both types of libraries reported cataloging all videos at the full level, while few cataloged them at minimal or core levels. A greater proportion of ARL libraries reported applying full-level cataloging. Yet some respondents who cataloged at minimal or core levels only did so for a portion of their video collections. These respondents applied less than full cataloging for certain kinds of videos for which they lacked time or expertise (such as foreign language films or films with difficult subject matter).

The survey provided evidence that the ACRL recommendation to provide "playback equipment in all formats"

may not be fully met. Although this survey did not ask respondents to list types of viewing equipment available, ARL libraries reported having greater access to viewing equipment within their departments than public librarians did. A greater proportion of ARL libraries reported viewing all videos for both original and copy cataloging, and viewing both the beginning and ending credits. However, the gaps between ARL and public libraries' viewing patterns also may have been due to additional factors such as level of staffing and workload. On average, ARL libraries reported a slightly greater number of original video catalogers. With fewer staff and larger backlogs, public library respondents with access to equipment may have less time to view credits.

Interestingly, although many public library respondents may have fewer resources to examine credits, the majority still reported cataloging videos at the full level. It is unknown whether alternative sources, such as the container and cassette labels, contained a sufficient level of detail to create full-level records. A study by Katherine Hart Weimer comparing bibliographic data for videos in audiovisual sourcebooks (that were not obtained from the chief source) with data in the National Library of Medicine's Audiovisual On-Line Catalog (AVLINE) records (cataloged from the chief source) found that AVLINE records contained fuller information than records in the sourcebooks.[23] Weimer concluded that her findings did not support cataloging from eye-readable materials. Examining this issue further would be of interest.

This study examined the extent to which respondents included and created access points for certain types of information when they were available and the rules made them applicable. Few differences emerged between the academic and public librarians. Most respondents reported including most of the elements in the statement of responsibility or notes at least some of the time, with the greatest proportion always including language for both feature films and documentaries. Interestingly, respondents reported including writers more often for documentaries than for feature films. The few differences that existed between ARL and public librarians regarding what to include in records tended to be for the least popular elements among respondents as a whole (such as audience level, awards, and film editor). Findings indicating that more public librarians include audience level and award notes may reflect their emphasis on helping users select feature films for entertainment purposes. That more ARL librarians reported adding entries for cinematographers, film editors, and writers may reflect the more specialized needs of their clientele.

Few elements were reported as being used to create added entries for all videos. While LCRI 21.29D provides guidance on when to add entries for production companies, distributors, writers, and producers and directors, respondents created added entries for the director most often but did not always perceive the other roles as important. Fewer than 50 percent of respondents always created added entries for producers for feature films and documentaries. Although the majority of respondents created added entries for production companies and distributors, a quarter indicated doing this only some of the time. Respondents reported creating added entries for writers more often for documentaries than for feature films. Meanwhile, the fact that catalogers created added entries for feature film actors with the second highest rate of frequency was consistent with the LCRI 29.29D statement "Make added entries for all featured players, performers, and narrators."[24] Yet respondents made added entries for actors less often for documentaries and more than 40 percent indicated they did not always create added entries for narrators. There was evidence that respondents did not always follow the LCRI 21.29D instruction to "make added entries for persons in a production who are interviewers or interviewees, delivering lectures, addresses, etc. or discussing their lives, ideas, work, etc."[25] Approximately half reported not always creating added entries for interviewers and lecturers, and less than half reported always doing so for interviewees.

Meanwhile, respondents from ARL libraries reported creating added entries for elements more frequently than respondents from public libraries and following the three LCRI 21.29D statements to a greater extent. Greater proportions of ARL respondents reported always following the statement instructing them to create added entries for persons who are listed as producers, directors, and writers in the "absence of a production company." This result was consistent with the finding that ARL libraries created added entries for producers and feature film writers more often than public libraries. A greater percentage of ARL libraries reported creating added entries for "all corporate bodies named in the publication, distribution, etc. area." These results are consistent with the findings that ARL libraries created added entries for distributors more often than public libraries. ARL libraries were especially likely to report basing their decisions on whether they judged the contributions of such entities as significant according to the rule interpretation, while public libraries were more likely to report omitting such added entries in order to save time and to avoid the need for authority work. Finally, the majority of both types of libraries reported not creating added entries for persons in the presence of a production company only some of the time, citing the difficulty of judging whether a person had a significant role in the creation of a video.

Conclusion

This study provides a snapshot of certain issues related to video cataloging and access at a single point in time. It

found that the majority of public and ARL libraries in this survey group included records for all of their videos in the online catalog, applied full-level cataloging to videos, and included similar types of information in records. It found that ARL libraries were more likely to view the title frames of videos for cataloging purposes, catalog videos at the full level, and create access points for certain types of information, such as producers, distributors, and feature film writers. They were more likely to follow LCRI 21.29D statements, which instruct catalogers to create added entries for persons in the absence of a production company, and for all bodies in the publication, distribution, etc. area. Yet neither ARL nor public libraries followed all LCRI 21.29D statements. They did not always create added entries for interviewees, interviewers, and lecturers, and did not always omit added entries for persons not judged as having a significant creative role when making added entries for a production company.

Based on the above findings, it may be useful to reexamine the current cataloging rules for videos, particularly LCRI 21.29D, to more accurately reflect the actual practices and concerns of librarians and the needs of users. Many respondents wrote that they perceived persons (especially directors) as more useful access points and were more likely to create added entries for persons than production companies. They frequently perceived persons as playing a more significant role in the creation of a film than production companies. Respondents expressed the difficulty of judging when a person's role is considered significant. It may be helpful to revise this rule interpretation, as well as have better guidance on how to judge the significance of a contribution.

While ARL and public libraries seemed to find similar types of information useful to include in records, public libraries had less access to viewing equipment and fewer full-time original cataloging staff. Lacking resources needed for viewing all videos, they did not always obtain credit information from the title frames and were less likely to apply full-level cataloging to videos. At the same time, they were more likely to shelve videos or containers in public where users could browse them. As containers often contain information commonly included in bibliographic records, they may serve as another method of conveying information about videos to the public. Thus, public libraries tended not to rely solely on the catalog for this purpose.

Videos remain a vital part of library collections and continue to require high standards of bibliographical control and access. In the future, it may be useful to replicate this study using larger, more representative samples, as the present study's samples were not randomly selected and did not include all ARL institutions. Public libraries in the sample may reflect a bias, since they were selected for the sample based on the presence of their records in Texas A&M University Libraries' catalog. In the future, compiling a comprehensive directory of U.S. academic and public libraries that collect videos might be useful. Such a directory would include information about the size and scope of their collections and methods of bibliographic control. A resource of this nature could serve as a useful tool for future researchers to obtain samples from. Furthermore, since this study focuses on video credit information included in notes and the statement of responsibility, future studies may include other areas of the catalog record outlined by ACRL's *Guidelines for Media Resources in Academic Libraries,* including subject access, system requirements, and classification. Finally, since public libraries provided ways to let users browse videos and created fewer access points in the catalog, a future study might examine whether the needs and searching habits of users in public libraries differ from those in academic libraries.

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Appendix
Questionnaire

I. Background Information

1. Please indicate what kind of library you are affiliated with: _____Academic _____Public

2. Approximately how many titles of the following formats are currently in your collection?
   VHS: _____
   DVD: _____
   Laserdisc: _____

3. Approximately what percentage of your video collection (all formats) consists of:
   _____Feature films _____Other (Please list the types:_____
   _____Documentaries _____
   _____Instructional videos _____)

4. At your library, are catalog records for videos included in the same catalog as books?
   _____All are included _____Some are included _____None are included

5. What other means of access do you provide for videos? (Check all that apply):
   _____Separate catalog for media resources _____None _____Printed list of video titles
   _____Other (Please specify) _____Electronic list of video titles on the Web (not a catalog)

6. Is your video collection:
   _____Behind closed stacks
   _____Interfiled with book collection
   _____Shelved in separate public area

7. If you shelve videos behind closed stacks, do you shelve containers or container art in a public area so they are browseable by patrons?
   _____Yes _____No

8. Do you have an automated system? _____Yes, the vendor of my system is:_____ _____No

9. Do you belong to a bibliographic utility?
   _____Yes _____No
   If you do belong to a utility, which one? _____

10. If you belong to a bibliographic utility, do you contribute original video records to it?
    _____Yes _____No

11. How many full-time professional librarians and support staff catalog videos and approximately what percentage of their time is spent on this task?
    Original cataloging of videos:
    Number of FTE professionals: _____ % time:_____
    Number of FTE support staff: _____ % time:_____
    Copy cataloging of videos:
    Number of FTE professionals: _____ % time:_____
    Number of FTE support staff: _____ % time:_____

II. Cataloging

1. Do you catalog all your videos at the same level? _____Yes _____No (skip the next question)

2. At what level do you catalog your videos? _____Minimal _____Core _____Full _____Other (please explain):

3. If you do not catalog all videos at the same level, please explain how you decide to catalog them at different levels (for example, level may vary by video format, genre, etc.):

4. At your institution, are videos viewed in order to transcribe descriptive information from the screen information?
   When doing original cataloging of videos:
   _____Yes, we always view videos
   _____Yes, but we only view some of the videos
   _____No, we don't view videos (please explain why not):
   If videos ARE viewed for original cataloging:
   _____We view both beginning and end credits
   _____We only view the beginning credits
   When doing copy cataloging of videos:
   _____Yes, we always view videos
   _____Yes, but we only view some of the videos
   _____No, we don't view videos (please explain why not):
   If videos *are* viewed for copy cataloging:
   _____We view both beginning and end credits
   _____We only view the beginning credits

5. Do you have viewing equipment in the cataloging department?
   _____Yes _____No (If viewed elsewhere, where is the equipment located?_____)

6. If videos are viewed, who *normally* views the videos for original cataloging?
   _____The original cataloger
   _____Support staff in cataloging dept.

_____Student worker
_____Audiovisual dept./media center staff
_____Other (please specify):_____

7. Do you classify your videos (i.e., LC or Dewey)? _____Yes _____No

The following questions apply to the original cataloging of videos at your institution. Please fill out the remaining questions if your library does original cataloging of videos.

8. Generally, when applicable and available, how often do you *include* the following information in the catalog record (either as notes or in statement of responsibility) for *feature films* versus *documentaries*)?

	Feature Films			Documentaries		
	Never	Sometimes	Always	Never	Sometimes	Always
Author of work the video is based on	1	2	3	1	2	3
Actors/actresses	1	2	3	1	2	3
Interviewers	N/A	N/A	N/A	1	2	3
Interviewees	N/A	N/A	N/A	1	2	3
Director	1	2	3	1	2	3
Lecturers	N/A	N/A	N/A	1	2	3
Language (if not English)	1	2	3	1	2	3
Year produced as motion picture (if more than two years ago)	1	2	3	1	2	3
Advisor/consultant	1	2	3	1	2	3
Photographer/ cameraperson	1	2	3	1	2	3
Film editor	1	2	3	1	2	3
Animator	1	2	3	1	2	3
Narrator	1	2	3	1	2	3
Producer	1	2	3	1	2	3
Executive producer	1	2	3	1	2	3
Distributor	1	2	3	1	2	3
Production company	1	2	3	1	2	3
Composer	1	2	3	1	2	3
Screenwriter	1	2	3	1	2	3

9. Generally, when applicable and available, how often do you *include* the following information in the catalog record (either as notes or in statement of responsibility) for *feature films* versus *documentaries*)?

	Feature Films			Documentaries		
	Never	Sometimes	Always	Never	Sometimes	Always
Summary	1	2	3	1	2	3
Audience	1	2	3	1	2	3
Award note	1	2	3	1	2	3
Host/presenter	N/A	N/A	N/A	1	2	3
Choreographer	1	2	3	1	2	3
Costume designer	1	2	3	1	2	3
Artists/illustrators of graphics	1	2	3	1	2	3
Country of original release (if not U.S.)	1	2	3	1	2	3

10. Generally, when applicable and available, how often do you *include* the following information in the catalog record (either as notes or in statement of responsibility) for *feature films* versus *documentaries*)?

	Feature Films			Documentaries		
	Never	Sometimes	Always	Never	Sometimes	Always
Related work added entry	1	2	3	1	2	3
Actors/actresses	1	2	3	1	2	3
Interviewers	N/A	N/A	N/A	1	2	3
Interviewees	N/A	N/A	N/A	1	2	3
Director	1	2	3	1	2	3
Lecturers	N/A	N/A	N/A	1	2	3
Advisor/consultant	1	2	3	1	2	3
Photographer/ cameraperson	1	2	3	1	2	3
Film editor	1	2	3	1	2	3

11. Generally, when applicable and available, how often do you *include* the following information in the catalog record (either as notes or in statement of responsibility) for *feature films* versus *documentaries*)?

	Feature Films			Documentaries		
	Never	Sometimes	Always	Never	Sometimes	Always
Animator	1	2	3	1	2	3
Narrator	1	2	3	1	2	3
Producer	1	2	3	1	2	3
Executive producer	1	2	3	1	2	3
Distributor	1	2	3	1	2	3
Production company	1	2	3	1	2	3
Composer	1	2	3	1	2	3
Screenwriter	1	2	3	1	2	3
Host/presenter	N/A	N/A	N/A	1	2	3
Choreographer	1	2	3	1	2	3
Costume designer	1	2	3	1	2	3
Artists/illustrators of graphics	1	2	3	1	2	3

12. *Library of Congress Rule Interpretation* 21.29D says, "Do not make added entries for persons (producers, directors, writers, etc.) if there is a production company, unit, etc. for which an added entry is made, unless their contributions are significant." How closely do you follow this rule interpretation?

_____Always _____Sometimes _____Not at all

If you do not *always* follow this LCRI, please explain why not:_____

13. The rule interpretation also says, "In the absence of a production company, unit, etc., make added entries for those persons who are listed as producers, directors, and writers." How closely do you follow this rule interpretation?

_____Always _____Sometimes _____Not at all

If you do not *always* follow this LCRI, please explain why not:_____

In addition, LCRI 21.29 says, "make added entries for all corporate bodies named in the publication, distribution, etc. area." How closely do you follow this rule interpretation?

_____Always _____Sometimes _____Not at all

If you do not *always* follow this LCRI, please explain why not:_____

Thank you for filling out the survey.

The Contracting World of Cutter's Expansive Classification

R. Conrad Winke

At the centenary of Charles Ammi Cutter's death, his Expansive Classification (EC) is still the primary scheme used in four libraries, while twenty-three others continue to maintain some portion of their collections in EC. In this study, fifty-seven libraries in the United States, Canada, and England have been identified as past or present EC users. Dates of their adoption and, if applicable, abandonment of the scheme are provided. Of the libraries where EC is a legacy scheme, the reasons for abandonment were sought, as well as determining the type of classification to which the library had moved to and whether EC was still employed for certain materials, or whether reclassification had been completed. Librarians at the four libraries still using EC as their primary scheme were interviewed about how revisions are made to the schedules and the practicality of remaining an EC institution.

Library pioneer Charles Ammi Cutter (1837–1903) has cast a long shadow on the field of cataloging and classification.[1] Born in Boston, Massachusetts, March 14, 1837, he graduated from Harvard College in 1855 and from Harvard Divinity School in 1859. While attending the latter institution, he was appointed school librarian. During his time there, he participated in the preparation of a new manuscript catalog of the school's collection, while also undertaking the rearrangement and reclassification of the collection. After graduation, he decided not to be ordained and instead was appointed assistant librarian in the Harvard libraries, where he assisted the head cataloger from 1860 to 1868. His greatest accomplishment while at Harvard was developing a proposal for a new catalog that was to be based on cards rather than printed books. The catalog was to be divided into two sections, an author file and an alphabetically classed file. This project provided the experience for his later work with dictionary catalogs.

In 1868, Cutter was elected librarian of the Boston Athenaeum where he was again confronted with the need to prepare a new library catalog. This was issued in book form between 1874 and 1882 and represents the first major modern dictionary catalog and, as such, was the first of Cutter's major contributions to library science. In order to prepare this catalog, Cutter wrote his *Rules for a Printed Dictionary Catalogue*.[2] This publication was incorporated into the United States Bureau of Education's *Public Libraries in the United States of America: Their History, Condition, and Management* the following year.[3] It was later reissued in three revised editions, the fourth edition of which was made applicable to card as well as printed-book format. The rules include sections on the choice and form of catalog entries, descriptive cataloging, and subject entries. This code, Cutter's second major contribution, has influenced all subsequent modern codes and also served as the basis for development of two major American subject thesauri—the Library of Congress Subject Headings and the Sear's List of Subject Headings. During his time at the Boston Athenaeum,

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Cutter developed what was to become his third major contribution, his Expansive Classification (EC), the topic of this paper.

In 1893, Cutter resigned from the Athenaeum to accept a position at the newly founded Forbes Library in Northampton, Massachusetts. In this position, Cutter experimented with his own theories of public library administration and service. He endeavored to create a library that circulated, to the broadest audience possible, not only books, but music and pictures as well. While there, he also developed innovative extension and exchange programs. In addition to these accomplishments, Cutter was the author of numerous articles dealing with library science, the editor of a number of professional journals, and one of the original founders of the American Library Association in 1876. He passed away while on a trip with his wife on September 6, 1903, in Walpole, New Hampshire.

Expansive Classification

When Cutter began working at the Athenaeum, the library was using a fixed location for shelving its materials. Because it had open stacks, using a classification scheme would enable browsing of the shelves. Cutter had originally intended to use Dewey Decimal Classification (DDC), but later decided to create his own scheme using a broader notation to express the classes. As originally devised, EC was tailored for the Athenaeum's collection of 100,000 titles and utilized a numeric/alphabetic notation. This notation appeared to hinder a broader acceptance of the scheme. Cutter then devised a different, strictly alphabetic notation, which was applied to the collection of the Cary Library in Lexington, Massachusetts. This proved successful, and Cutter received many requests from librarians wishing to apply the Athenaeum classification with the Lexington notation in their libraries. Because of this, Cutter decided to create a scheme that would be suitable for a library of any size.

Thus EC consisted of seven expansions with increasing levels of specificity. The theory was that the first expansion would be used by very small libraries, while the seventh by the world's largest collections. Because each expansion was an outgrowth of the one before it, as a library's collection grew in size the library could move from one expansion to the next without needing to reclassify its older materials. This was in sharp contrast to DDC, which provides for broad classification by permitting classifiers to abridge full numbers logically and thereby create more general notations. Because of its strictly alphabetic notation—which used up to four letters per class, permitting therefore a total of 367,280 possible subject areas—it was both accommodating of new subjects and economical in notation. Within a given EC class, individual titles were distinguished from each other by alphanumeric author marks, which were arranged in tables as a part of EC. This was the first incarnation of what today are commonly referred to as Cutter numbers and Cutter tables. This is the only portion of EC that remains in general use.

Cutter published schedules for the first six expansions from 1891 through 1893. Portions of the seventh expansion were published from 1896 through 1911, but Cutter was to die before finishing work on it, including most notably the technology section. In its day, EC was generally regarded as one of the most logical and scholarly of American classification schemes. Its greatest influence, perhaps, is that although it was not adopted by the Library of Congress (LC), the LC classification was modeled after EC, and EC was used to develop LC's "Class Z: Bibliography and Library Science," which served as the outline for the remaining schedules in that system. Unfortunately, Cutter did not actively promote his classification and made no provisions for its continued revision and publication after his death. A contemporary library science pioneer, Melvil Dewey (1851–1931), aggressively marketed his DDC and established the Lake Placid Club Education Foundation to ensure its ongoing revision and publication. Today, DDC is the most widely used library classification system in the world, having gone through twenty-two editions, with translations in more than thirty languages and employment in more than 135 countries. EC, despite its early promise, remains barely a footnote in the history of modern classification.[4]

The history of descriptive cataloging rules and the evolution of the modern library catalog, as well as Cutter's influence on them, have been well documented in the literature. The story of EC, however, has been largely overlooked, leaving a gap in both the history of classification and the contributions of Cutter to the field. Certainly, the demise of a classification system as widespread as EC and the stranding of libraries with a defunct method of arranging their collections are not every day phenomena and therefore deserve documentation.

Robert L. Mowery was the last person to publish any research on EC. From 1971 to 1973, he surveyed the classification practices of sixty-seven American, Canadian, and British libraries that had been identified as potentially having once used EC to arrange their collections. At that time, he found that twelve libraries in the United States and Canada were still using EC as their primary classification, while at least three others continued to make some use of the scheme for portions of their collections.[5]

With that in mind, the goal of this current study was to present an update on the history of EC over the last quarter century. More specifically, it sought to determine if any of the libraries in Mowery's study were still using EC today,

and if so, what compelled them to remain an EC library, what methods they employed in updating the schedules, and what sort of staff and user training issues existed. For the libraries that had abandoned EC, this study sought to determine when the decision to leave EC was made and why, which scheme had been adopted in its place if the collection had been completely reclassified, and, if not, whether EC was fully a legacy scheme or still being used for some classes of materials. Additionally, this study sought to locate as many former users of EC as possible in order to determine which libraries had historically used EC, which classification schemes had been adopted when EC was abandoned, and whether any of them continued to have some portions of their collections classified in EC.

Method

Librarians from each of the twelve institutions that had been using EC at the time of Mowery's study were interviewed by telephone during 2001–2002 to determine the current situation in their libraries. Because one of these institutions, the National Museums of Canada, had ceased to exist and its functions, as well as its library collections, had been absorbed by four other bodies, fifteen interviews were conducted in total. An in-person interview with Robert Mowery was conducted on November 15, 2002. He passed along his considerable archive of Cutter-related research materials, including all his original correspondence with the sixty-seven libraries of his study. From this pool of institutions, librarians were interviewed by telephone on an as-needed basis to ascertain what classification system was currently employed at their institution, whether their institutions continued to make some use of EC or maintain some portion of their collections in EC, and, if so, whether reclassification was planned or under way. While an inquiry on AUTOCAT (an electronic cataloging discussion group accessible over the Internet) regarding current or former EC libraries failed to yield any institutions not already covered by Mowery's research, an 1893 survey conducted for the World's Library Congress did identify two further past users of the scheme.[6]

Findings

Fifty-seven libraries in the United States, Canada, and England have been identified as past or present EC users (see appendix), with fifty-four libraries having adopted EC as their primary classification at some point in their history. William Parker Cutter, Cutter's nephew and biographer, claimed that the system had been adopted in about one hundred American libraries, although he did not enumerate which ones, so it is possible that other libraries might have been eligible for inclusion in this study.[7] While the American Antiquarian Society in Worcester, Massachusetts, continues to use a classification scheme based on EC, it has been so heavily modified that it is more properly regarded as a locally devised scheme.

In his 1976 study, Mowery contacted sixty-seven libraries, not all of which were in fact users of EC. Ambiguous wording in that article has unfortunately led other authors to misinterpret this figure to mean the total number of libraries that had at some point adopted the scheme, most notably Arlene G. Taylor in *Wynar's Introduction to Cataloging and Classification*.[8] Generally speaking, libraries that had adopted EC had done so by the turn of the last century, and no libraries adopted the scheme after the 1920s. Ironically, by this time, a number of libraries had already abandoned EC! By type, EC libraries included twenty-four public libraries (42 percent), fifteen academic libraries (26 percent), eight government libraries (14 percent), eight athenaeums (14 percent), and two theological libraries (4 percent). Geographically, EC was adopted by three libraries in England (5 percent), thirteen in Canada (23 percent), and forty-one in the United States (72 percent).

Four institutions continue to make use of EC as their primary classification scheme today. Not surprisingly, all of the fifty-three libraries that abandoned EC switched to either DDC or Library of Congress Classification (LCC), the most popular schemes in the three home countries. DDC was chosen by twenty-five libraries (47 percent), of which twenty-three (92 percent) are public libraries. LCC was chosen by the remaining twenty-eight institutions (53 percent). With the exception of Smith College, which first switched to DDC and only reclassified a second time to LCC in 1971, all of the academic libraries converted to LCC. This bears out the generally held notion that public libraries prefer DDC while academic libraries prefer LCC. The three British libraries chose DDC, in line with the popularity that that scheme enjoys in Great Britain. Of the fifty-three former EC libraries, thirty (57 percent) have fully reclassified their collections to their new primary scheme, while twenty-three (43 percent) still have some portion of their collections classed in EC. As might be expected, the amount of materials remaining in EC varies widely from one library to the next. Some institutions, such as the Watertown Free Public Library in Watertown, Massachusetts, have only a few thousand titles still in EC, while others, such as the Newberry Library, Chicago, Illinois, continue to have the vast majority of their collections in EC. A number of these collections have either not been retrospectively converted or are housed apart from the general collections. Of these libraries with legacy EC collections, about half have reclassification projects either

planned or under way, while the other half have no active plans to reclassify the EC portions of their collections at the present time.

Finally, five libraries are still adding materials to some portion of their EC collections, although it is not their primary scheme any longer. Both the Canadian Museum of Nature Library and the Geological Survey of Canada Library in Ottawa, Ontario, continue to classify serials in EC, with the former using it for all titles and the latter using it only for those titles cataloged prior to the scheme's abandonment. The Newberry Library adds continuations to its EC collections while the Westfield Athenaeum in Westfield, Massachusetts, and the Berkshire Athenaeum in Pittsfield, Massachusetts, still make use of EC for local history. The Newton Free Library in Newton, Massachusetts, continues to classify biographies in EC's "E" class, although they use only the letter "E" followed by a Cutter author number for the biographee. As such, this cannot really be considered any different than libraries that use a similar technique of "B" followed by a Cutter author notation for the biographee and, in reality, is not a true use of EC.

Any time a library has collections split among different classification schemes, problems can arise in acclimating both staff and users to their differences. Nearly all the librarians interviewed who worked in a split collection reported some level of difficulty with the situation. One method that libraries, especially those with relatively few titles remaining in EC, have used to mitigate confusion is to move the EC collection into staff areas of the library, such as technical services. This is the method both the Redwood Library and Athenaeum in Newport, Rhode Island, and the Watertown Free Public Library have adopted. Other libraries, such as the Westfield Athenaeum, house their EC collection in separate rooms or, like the University of Wisconsin Memorial Library in Madison, at least identify an item's location as "Cutter Collection." At the Newberry Library, the entire collection is closed stack, thereby eliminating patron confusion, since the notation for the "address" of the book they are paging is typically of little concern to them. Librarians working in collections that opted to move to LCC also reported confusion due to the similarity of notation between the two schemes.

Librarians at eighteen institutions, either via telephone interviews or from Mowery's correspondence, were able to provide their institution's reasons for abandoning EC. These were broken down into three general categories. By far, the most frequently cited reason was the lack of coordinated revision of the schedules. None of the libraries surveyed, be they past or present users of EC, had ever worked in conjunction with another library on schedule revisions or sharing call numbers. Therefore, all updates to the scheme had to be carried out in house, a time-consuming and costly undertaking. A number of librarians mentioned the fact that the schedules themselves had long been out of print and replacement volumes could not be obtained. Thus, over time, the print schedules that the library did have became dense with marginalia and overstuffed with revised schemes being clipped in. Wear and tear, especially on such heavily used books, was also cited as a problem. Although no one specifically mentioned it, it would seem probable that as the size of catalog departments grew over time, the fixed number of printed schedules available to a larger number of staff members would have been inconvenient. Finally, one librarian cited that in some portions of the schedules all the numbers had been used up, but the topic itself was continuing to expand, leading to a crisis in devising further notation.

In addition to the above-mentioned reasons, libraries that waited until the 1970s and 1980s to convert tended to cite automation and the resource-sharing opportunities brought about by cooperative cataloging as their primary motivator. Although the MARC format can accommodate EC notation, which is placed in MARC field 084$a and identified by the source code "cutterec" in 084$2, very few records on OCLC contain this type of class number, whereas LCC and DDC numbers appear quite regularly in online copy. However, even if EC numbers did occur with some regularity, because the EC libraries did their own revisions in house and not in conjunction with each other, EC numbers in MARC records would not be able to be shared between libraries with the same facility that LCC and DDC numbers are. Automation also brought about the demise of the card catalog and with it the need to pull, remark, and refile card sets that would have been necessary for a reclassification project undertaken in a manual environment. Finally, reclassification was brought about in some institutions due to changes in governance, such as the already mentioned case of the National Museums of Canada Library, which was disbanded and divided among four other libraries. At the St. Louis Mercantile Library in St. Louis, Missouri, affiliation with the University of Missouri made switching to LCC a logical move so that all the collections would be classed in one (currently updated) system. The predecessor body of Andover-Harvard Theological Seminary Library, Cambridge, Massachusetts, switched to LCC when it merged with Harvard University.

EC in Use Today

As of 2002, EC remains the primary classification scheme in four libraries: Charleston Library Society, Charleston, South Carolina; Forbes Library, Northampton, Massachusetts; Holyoke Public Library, Holyoke, Massachusetts; and Illinois State Historical Library, Springfield, Illinois. The size of these collections ranges from 70,000 volumes

(Holyoke) to 225,000 volumes (Forbes). None has any plans to abandon the scheme in the foreseeable future. Because each of the four institutions deals with EC in house and no joint cooperation exists between them for expansion or revision of the classification, each will be treated independently.

Charleston Library Society

Assistant Librarian LeeAnn Floss has worked at the Charleston Library Society since 1988. Until that time, catalogers were still using the original EC books. Any changes made to the schedules were first discussed and then annotations were made accordingly. Around this time, a major refurbishment to the system was carried out, which included revising portions of the tables and flushing out definitions of some of the notation. There was also a minor amount of relocation of topics. The original schedules were then retyped and the original books ceased to be used. Only minor changes have been made since then. Floss believes that librarians are content with the scheme, while patrons are as confused by it as they are by any other classification notation.

Forbes Library

Cutter worked at the Forbes Library from 1894 until his death, and it was he who implemented the use of EC there. Because of this, there is a sense of pride and tradition in remaining an EC library, according to Blaise Bisaillon, the library's director. Reclassifying was seriously discussed a decade ago, but it was determined that the costs involved in reclassifying a quarter million items would be too high, and that a split collection was not desirable. Therefore, Forbes will remain an EC library for the foreseeable future. Everything is classed in EC at the library, including videorecordings. All revisions to the schedules are carried on in house, with new topics being integrated on an as-needed basis. Occasionally there is some alteration to the notation or movement of subjects as views on topics change. These decisions are made by the one cataloger on staff, who works completely autonomously. The schedules themselves are now transferred to a word processing system and updated. Prior to this, notes had been added to the old print schedules. Overall, the scheme works well for Forbes, and the librarians like the flexibility they have in altering the schedules on their own. Users are at times baffled, but no more so than with any classification scheme.

Illinois State Historical Library

The Illinois State Historical Library is run by the State of Illinois and is primarily concerned with collecting history, with a focus on Illinois history. Two catalogers are currently employed there, one for over thirty years. Because of the nature of the collection, states Jane Ehrenhart, the head of technical services, the catalogers try to approach the materials from a geographic point of view, which can typically be readily accommodated by the existing EC schedules. However, some areas of the scheme have been expanded, and the staff does update the schedules as needed, typically in consultation with each other. While some staff would prefer to use a different classification scheme, it is unlikely that funding from the state would be made for such a project. Therefore the library will continue with EC for the foreseeable future. Because the library is closed stack, there are no real problems with training patrons how to use EC.

Holyoke Public Library

Maria Pagan, director, cites a number of factors at Holyoke Public Library that account for EC's continued support. The library has had the same cataloger for more than thirty years and, as might be expected, she is extremely familiar with the scheme. As needed, she will integrate new notations to the classification, although the general policy is to classify materials into already existing numbers for the sake of simplicity. When new topics are needed, numbers are created in consultation with both the head librarian and, interestingly, the catalog of the Forbes Library. At the moment, the cataloger is still working with the original print versions of the schedules, which are now brittle and extremely fragile. Plans are under way to scan them. Although LCC is already used for the children's collection, no plans are currently in place to convert the general collection to another classification scheme, which would be very time consuming. In addition, the library automated only two years ago. In general, the staff find EC easy to use, and, because the system is not complicated, training staff and patrons how to use it is not difficult.

Conclusions

The EC soldiers on tenaciously at the centenary of Cutter's death and shows no sign of totally disappearing at any time in the near future. Although most of its original adherents have since come to abandon it, the enormous commitments of time and resources at a number of institutions with large collections essentially make total reclassification an unfeasible undertaking. And of the libraries actively using and maintaining the scheme, the Forbes Library is imbued with pride in its institutional history and has no interest in leaving the scheme, while the others appear to be committed users at least for the near future. A number of these institutions have catalogers with decades of tenure, however, and it is conceivable that as they retire, their replacements might not prove to be the EC enthusiasts that they are.

Nevertheless, it appears likely that EC will be around for many years to come in some manner.

Perhaps more important, however, is that the story of EC serves as a cautionary tale of the unfortunate consequences of librarians not working together cooperatively. Most librarians would rather utilize a classification scheme that they can be sure will remain in print and up to date. Despite the fact that in its day, EC was commonly regarded as superior to DDC, Cutter's failure to provide for the continuing revision, expansion, and publication of his work essentially assured its demise. He failed to aggressively market his classification, which, had it been implemented in more institutions (especially had the Library of Congress adopted it), might have ensured its survival. However, EC still might have been salvageable in the immediate years after Cutter's passing had the librarians using the scheme at the time banded together and worked cooperatively at maintaining the schedules, as happened with Henry Evelyn Bliss' Bibliographic Classification, now maintained by the Bliss Classification Association and still in use in a number of libraries in Great Britain. Instead, librarians at EC libraries seemingly did not pursue working together, but worked on their own until, in all but four cases, this became impractical and they abandoned it.

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8. Arlene G. Taylor, *Wynar's Introduction to Cataloging and Classification* (Englewood, Colo.: Libraries Unlimited, 2000).

Appendix
Summary of Findings

Library[1]	Type[2]	Date adopted EC	Still using EC?	New class	Date change was made	Fully re-classed?	Reclass planned or underway?	EC active or legacy?[3]
Alberta Provincial Library, Edmonton, AB[4]	G	1907	N	LCC	1959	Y		
Amesbury Public Library, Amesbury, MA	P	1903	N	DDC	1946	Y		
Andover-Harvard Theological Seminary Library, Cambridge, MA	T	ca. 1908	N	LCC	1971	Y		
Andover-Newton Theological Seminary Library, Newton Center, MA	T	ca. 1895	N	LCC	1971	N	N	L
Berkshire Athenaeum, Pittsfield, MA	A	1898	N	DDC	1936	N	N	A[5]
Bootle Public Library, Lancashire, England	P	ca. 1900	N	DDC	1929	Y		
Boston Athanaeum, Boston, MA	A	ca. 1879	N	LCC	1978	N	Y	L
Brown University Library, Providence, RI	U	1893	N	LCC	1923	N	N	L
Cambridge Public Library, Cambridge, MA	P	by 1893	N	DDC	by 1920s	Y		
Canada Science and Technology Museum Library, Ottawa, ON[6]	G	1911	N	LCC	1990	N	Y	L
Canadian Museum of Civilization Library, Ottawa, ON[7]	G	1911	N	LCC	1990	N	Y	L

Library[1]	Type[2]	Date adopted EC	Still using EC?	New class	Date change was made	Fully re-classed?	Reclass planned or underway?	EC active or legacy?
Canadian Museum of Nature Library, Ottawa, ON[8]	G	1911	N	LCC	1978	N	N	A[9]
Cary Memorial Library, Lexington, MA	P	1888	N	DDC	1962	Y		
Charleston Library Society, Charleston, SC	A	ca. 1899	Y					
Chelmsford Public Library, Essex, England	P	1906	N	DDC	1924	Y		
District of Columbia Public Library, Washington, DC	P	by 1900	N	DDC	1947	N	N	L
Forbes Library, Northampton, MA	P	1894	Y					
Fort Worth Public Library, Fort Worth, TX	P	1901	N	DDC	1938	Y		
Geological Survey of Canada Library, Ottawa, ON[10]	G	1911	N	LCC	1979	N	Y	A[11]
George Washington University, Washington, DC	U	1897/98	N	LCC	1940/41	Y		
Helena Public Library, Helena, MT [12]	P	unknown	N	DDC	1960	Y		
Holyoke Public Library, Holyoke, MA	P	ca. 1900	Y					
Illinois State Historical Library, Springfield, IL	G	ca. 1900	Y					
Lake Forest College, Lake Forest, IL	U	ca. 1901	N	LCC	1954	Y		
Manchester City Library, Manchester, NH	P	1890	N	DDC	1961	Y		
McGill University Library, Montreal, QC	U	1896	N	LCC	1967	N	N	L
Medford Public Library, Medford, MA	P	ca. 1895	N	DDC	1969[13]	N	N	L
Memphis Public Library, Memphis, TN	P	ca. 1900	N	DDC	1927	Y		
Milwaukee-Downer College Library, Milwaukee, WI[14]	U	by 1920	N	LCC	late ’30s/early ’40s	Y		
Minnesota Historical Society Library, St. Paul, MN	A	ca. 1905	N	LCC	1915	N	Y	L
Montreal City Library, Montreal, QC	P	1917	N	DDC	1930	Y		
Mount Holyoke College Library, South Hadley, MA	U	1901	N	LCC	1966[15]	N	N	L
National Gallery of Canada Library, Ottawa, ON[16]	G	1911	N	LCC	1990	Y		
Newberry Library, Chicago, IL	A	1895	N	LCC	1977	N	N	A[17]
Newton Free Library, Newton, MA	P	1901	N	DDC[18]	1958	Y		
North Abington Public Library, North Abington, MA[19]	P	1904	N	DDC	by 1977	N		
Ottawa Public Library, Ottawa, ON	P	1905	N	DDC	1964	Y		
Peabody Institute, Peabody, MA	U	1871	N	LCC	1937	Y		
Presbyterian College Library, Montreal, QC	U	unknown	N	LCC	1980s	N	N	L
Redwood Library and Athenaeum, Newport, RI	A	1889	N	LCC	1994	N	N	L
Research Council of Alberta Library, Edmonton, AB[20]	U	1921	N	LCC	1952	Y		
Rosenberg Library, Galveston, TX	P	1904	N	DDC	1956	N	Y	L
Smith College, Northampton, MA	U	ca. 1900	N	DDC[21]	1909	Y		

Library[1]	Type[2]	Date adopted EC	Still using EC?	New class	Date change was made	Fully re-classed?	Reclass planned or underway?	EC active or legacy?
Springfield City Library, Springfield, MA	P	1899	N	DDC	1902	N	Y	L
St. George-the-Martyr Library, Southwark, London, England[22]	P	1900/01	N	DDC	by 1910	Y		
St. Louis Mercantile Library, St. Louis, MO	A	1892	N	LCC	early 1990s	N	Y	L
State Historical Society of Wisconsin, Madison, WI	G	1897	N	LCC	1966	Y		
University of Alberta Library, Edmonton, AB	U	1909	N	LCC	1952	Y		
University of South Carolina Library, Columbia, SC	U	1898	N	LCC	1938	Y		
University of Wisconsin Memorial Library, Madison, WI	U	1893	N	LCC	1954	N	Y	L
Watertown Free Public Library, Watertown, MA	P	1900	N	LCC/DC	mid 1970s	N	Y	L
Wesleyan University, Middletown, CT	U	1893	N	LCC	1968	N	Y	L
Westfield Athenaeum, Westfield, MA	A	1900	N	DDC	1988	N	N	A[23]
Westmount Public Library, Westmount, QC	P	1899	N	DDC	ca. 1946	Y		
Williams College Library, Williamstown, MA	U	unknown	N	LCC	1930s	Y		
Winchester Town Library, Winchester, MA	P	1879	N	DDC	1892	Y		
Woods Memorial Library, Barre, MA	P	1895	N	DDC	1939[24]	Y		

1. Names appearing in italics are the institutions mentioned in Mowery's study.
2. A=athenaeum, G=government library, P=public library, T=theological library, U=academic library
3. A=active, L=legacy
4. Now known as the Legislature Library, Legislative Assembly of Alberta
5. Local history still in EC
6. Formerly part of the National Museums of Canada Library
7. Formerly part of the National Museums of Canada Library
8. Formerly part of the National Museums of Canada Library
9. EC still used for serials and older books
10. Operated jointly with the National Museums of Canada Library prior to 1959
11. EC still used for journals
12. Now known as the Lewis and Clark Library
13. DDC adapted for most subjects circa 1935; literature, history, and several other subjects still classed by EC until 1969
14. Now Lawrence University, Appleton, Wisconsin; was using EC at the time of the 1920/1922 ALA Survey of Libraries
15. LC adopted for the sciences circa 1937
16. Formerly part of the National Museums of Canada Library
17. Continuations still classed in EC
18. Still uses EC class "E" for biographies, with call numbers constructed as "E" + Cutter author table number for biographee
19. Now called the Abington Public Library
20. Established by the Province of Alberta in 1921; housed and administered by the University of Alberta until 1964; since 1999, a not-for-profit corporation
21. Switched to LC in 1971; at that time DDC still being used for rare books and EC for scores
22. Now part of the Borough of Southwark Library, Southwark, London, England
23. EC used for local history
24. EC used for biographies until 1967

Mapping MARC 21 Linking Entry Fields to FRBR and Tillett's Taxonomy of Bibliographic Relationships

Pat Riva

Bibliographic relationships have taken on even greater importance in the context of ongoing efforts to integrate concepts from the Functional Requirements for Bibliographic Records (FRBR) into cataloging codes and database structures. In MARC 21, the linking entry fields are a major mechanism for expressing relationships between bibliographic records. Taxonomies of bibliographic relationships have been proposed by Tillett, with an extension by Smiraglia, and in FRBR itself. The present exercise is to provide a detailed bidirectional mapping of the MARC 21 linking fields to these two schemes. The correspondence of the Tillett taxonomic divisions to the MARC categorization of the linking fields as chronological, horizontal, or vertical is examined as well. Application of the findings to MARC format development and system functionality is discussed.

The investigation of bibliographic relationships, how they can be categorized, and how they are encoded in the MARC bibliographic record has taken on even greater importance in the context of ongoing efforts to integrate concepts from the *Functional Requirements for Bibliographic Records* (FRBR) into our cataloging codes and database structures. Precise coding of data elements is needed for precision in machine manipulation of records. Efforts to reparse existing MARC data for either storage or display depend on an understanding of current and previous coding standards. The MARC data mining study by Hegna and Murtomaa investigated the extent to which FRBR entities and relationships can be drawn out of bibliographic records found in the Finnish and Norwegian national bibliographies and presented potential user displays for an author's works and their expressions and manifestations.[1] The Network Development and MARC Standards Office of the Library of Congress prepared examples to illustrate possible hierarchical displays in which manifestations of a work and of related works are grouped using expression-level "guide cards," which could be generated from existing MARC 21 coding.[2] The VIRTUA system from VTLS is an FRBR-aware library management system implementation with a tree-style display. OCLC is developing algorithms for analyzing WorldCat records according to FRBR, particularly for identifying records for manifestations of the same work.[3] Carlyle and Summerlin have investigated data elements that could be used to cre-

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ate relationship-based clusters of the records associated with large fiction works.[4] These projects use data found in existing MARC 21 records.

In MARC 21, bibliographic fields 760–787, referred to as the linking entry fields, are intended to draw out relationships between different bibliographic records. (For a list of the linking entry fields with their respective scope statements, see appendix A.) Links are usually made reciprocally on each record involved in the relationship by means of complementary pairs of fields (except that fields 775, 776, 777 and 787 are their own complements). Ideally, both a display note and a machine link would be generated from the fields.[5] Maintaining the accuracy of linking information, already challenging within a single catalog, is complicated in a shared cataloging environment where records are communicated between systems. As the MARC formats are primarily intended to be communications formats, the tensions inherent in devising methods to communicate relationship information, clearly described by Attig, continue to be relevant.[6] In spite of the difficulties, potential system functionality that could be implemented using linking entry fields has frequently been discussed, particularly for serial successive entries. Bernhardt first presented a description of desirable system functionality, which would display serial title changes intelligibly for the user.[7] Alan's empirical study of CONSER records as found in the OCLC database demonstrated the presence of appropriate data for carrying out the linking in a substantial majority (71 percent) of cases.[8] However, actual implementation is still infrequent, as Guay's recent call to action makes clear.[9]

Dunham examined the potential of various fields "for linking together all the records of a multiformat serial in which one of the manifestations is an electronic version."[10] Use of field 776 (Additional Physical Form Entry) alone resulted in an impressive match rate of 96.4 percent in a sample of record sets for currently published serials from the author's catalog. The sets mainly consisted of the original print and one electronic version.

Originally, these fields were defined for the serials format with a subset in the books format, but when field 773 (Host Item Entry) was approved in 1982, it was defined for all formats. Although all have been valid in all formats since format integration in 1995, most (apart from field 773) are still primarily applied in serials records. Current CONSER (Cooperative Online Serials) policy provides for reciprocal links among all types of continuing resources and between continuing resources and monographs, but Program for Cooperative Cataloging policy is that most linking fields are not used between monographs.[11] As of 1999, links are to be made between a serial and a monograph that precedes or succeeds the serial, such as conference proceedings that change from serial to monographic treatment; and, since 2002, between a serial and an integrating resource that continues the serial, such as a directory that changes from an annually updated print publication to a frequently updated Web database; and between updating looseleafs.[12]

Subfields in the linking entry fields have been defined to support both textual linking and linking via control numbers and standard numbers. Subfield w (Record Number) accommodates system control numbers such as the LCCN (Library of Congress Control Number) or the OCLC control number, while standard numbers are recorded in subfields x (ISSN), y (CODEN), or z (ISBN), as appropriate. Textual linking is accomplished by information recorded in one or more of subfields a (Main Entry Heading), s (Uniform Title) and t (Title), as applicable. The content of these subfields is, in structure, a uniform title heading (whether name/title or uniform title alone), constructed following chapter 25 of the *Anglo-American Cataloguing Rules 2d Revised* (AACR2R) (and appropriate Library of Congress Rule Interpretations). This is what makes it possible to carry out textual linking (that is, collocation) when including these fields in appropriately defined indexes. The uniform title is itself a linking device, whether used as a main entry heading (coded in fields 130 or 1xx/240), or used as a secondary entry (coded in fields 730 or 700/710/711 Author/Title), or as a series entry (coded in fields 440 or 8xx).[13]

Categories of Linking Entry Fields According to MARC 21

The MARC 21 bibliographic format, in its introduction to the 76x–78x linking entry fields, gives the following three-way breakdown of the types of relationships that the linking fields encode:

> Chronological relationship—the relationship in time between bibliographic items (for example, the relation of a serial to its predecessors and successors) (fields 777, 780, 785)
>
> Horizontal relationship—the relationship between versions of a bibliographic item in different languages, format, media, etc. (fields 765, 767, 775, 776)
>
> Vertical relationship—the hierarchical relationship of the whole to its parts and the parts to the whole (such as a journal article to the journal, subseries to main-entry series) (fields 760, 762, 770, 772, 773, 774)[14]

This division has a long history in MARC, first appearing in *UNIMARC* in 1977.[15] It has served as a concise introduction to bibliographic relationships, especially for serials, for many catalogers and system designers.

The only other early systematic discussion of relationship types in MARC records is the investigation by Goossens and Mazur-Rzesos of subtypes of the vertical relationship, which they named the hierarchical relationship.[16] Working from the perspective of multilevel description and the need of a national bibliography to provide a physical description of every volume, they described both simple and complex cases of hierarchical relationships and showed that several types of relationships can operate between different parts of a single work.

Taxonomies of Bibliographic Relationships

Tillett, in her comprehensive investigation of bibliographic relationships and their treatment in the cataloging rules, proposed a taxonomy of bibliographic relationships with seven major classes: equivalence, derivative, descriptive, whole-part, accompanying, sequential, and shared characteristic.[17] (See appendix B for Tillett's definitions of the classes.) Some of these classes are very broad and also very frequent in bibliographic records, while others occur infrequently.[18]

Tillett's empirical study used records in the Library of Congress database cataloged between 1968 and 1986 to look for instances of six of the relationship classes (*shared characteristic* was omitted) and easily found many instances of five of the types. However, the descriptive relationship was very rarely encountered in bibliographic records, turning up in only two records (0.109 percent) in a sample of 1,841 records in which 500 (General Note) fields were examined.[19] The empirical study uncovered no new relationship classes; thus, while the examination of a sample cannot conclusively validate a taxonomy, Tillet's study suggests that the seven classes proposed are in fact exhaustive.[20] Four of the classes (equivalence, derivative, whole-part, and sequential), are identified as using uniform titles as one mechanism to accomplish the linking.[21] The uniform title, when coded as a linking field, is an expression of this mechanism.

Of the seven classes, *derivative* is particularly broad ranging. This led Smiraglia to propose a subdivision into seven subclasses as an extension to the taxonomy: simultaneous derivations, successive derivations, translations, amplifications, extractions, adaptations, performances.[22] (See appendix C for Smiraglia's definitions of the classes.) This is itself a taxonomy of the derivative relationship. These categories were developed through an examination of the Anglo-American Cataloguing Rules for types of derivatives given specific mention.[23] Again, the classes differ greatly in their frequency of occurrence in bibliographic records, and no additional classes were discovered in quantitative studies.[24]

In a sample of records relating to 477 progenitor works drawn from OCLC WorldCat in 1993, Smiraglia and Leazar found 366 occurrences of derivative relationships. The subtype *successive derivation* accounted for 55.5 percent, while the types *adaptation*, *amplification*, *extraction,* and *performance* each accounted for less than 3 percent of the relationships found.[25] As the progenitor work for each bibliographic family was not necessarily represented by a bibliographic record, the counting procedure required the use of an eighth category, *predecessor,* defined as "a work from which a progenitor is clearly derived, e.g., a short story from which a novel is derived."[26] However, this category is not a true taxonomic class; it merely served to facilitate the statistical analysis.

The combination results in a taxonomy with seven major classes as proposed by Tillett, one of which is subdivided into seven subclasses as proposed by Smiraglia.

Vellucci's presentation to the 1997 Conference on the Principles and Future Development of AACR in Toronto gave a comprehensive overview of research studies on bibliographic relationships in the catalog.[27] The focus of Vellucci's contribution to research in this area was the study of relationships among bibliographic records for music. She was able to validate the applicability of six of Tillett's seven classes to music materials (the *shared characteristic* class is applicable to all materials by default and so was not investigated further), although the subgroups within the categories varied somewhat.[28] The quantitative aspect of Vellucci's work demonstrated the particular importance of relationships for music, as "97 percent of the scores in the sample exhibited at least one relationship, a considerably higher figure than that discovered by Tillett," who was considering bibliographic records for all types of materials.[29]

In FRBR, the section in chapter 5, "Relationships," on "other relationships between Group 1 entities" categorizes bibliographic relationships first by the level of the entities involved (work, expression, manifestation, item) then by type of relationship, each of which is named.[30] The relationships are subdivided into referential or autonomous (for the whole/part relationship, dependent or independent part is used instead). These three parameters used together provide a taxonomy of bibliographic relationships. In addition, the FRBR tables include specific examples of many of the relationships, which indicate the intended category for these conventional terms. These examples, although not meant to be exhaustive, provide informative lists of subtypes for some relationships. These can be useful in further analysis, as long as it is understood that new examples can be added whenever new forms of publication come into existence.

While organized according to different principles, the Tillett/Smiraglia and FRBR schemes are particularly of interest as they are intended to be *taxonomies* of bibliographic relationships, meaning that all possible relation-

ships are categorized in each scheme. The classes in any taxonomy should be designed to be mutually exclusive and jointly exhaustive, and divided in a logical and principled manner.

Neither of these taxonomies makes reference to specific MARC fields. In 2002, Delsey completed a study for the Network Development and MARC Standards Office of the Library of Congress with the first objective being "to clarify the relationships between the data structures embodied in the MARC formats and the FRBR and AACR models."[31] The scope of the study was the MARC 21 Bibliographic and Holdings formats. Appendix A of the study presents a mapping of MARC data elements to FRBR and AACR, while appendix B presents the reverse mapping of FRBR to MARC data elements. MARC fields, subfields, and indicator positions (but not indicator values) were considered. This was a large scale project; of the 2,300 MARC elements considered,

> approximately 1,200 MARC data elements can be mapped to the entities, attributes and relationships defined in the FRBR model. . . . However, the correspondences are not in all cases exact. Approximately ten percent of the correspondences to both FRBR and AACR have to be qualified in some form or other, usually because the MARC data element comprises a mix of values pertaining to different entities or to different attributes of the same entity.[32]

The unmatched elements and inexact correspondences point to areas where a more detailed investigation of the actual use and meaning of the MARC elements may clarify the situation.

The exercise presented in this paper is intended to provide a detailed bidirectional mapping of the MARC 21 linking entry fields to the FRBR and Tillett/Smiraglia theoretical breakdowns of bibliographic relationships. In the process, this author will explore whether the MARC 21 linking entry fields also provide a taxonomic division of relationship types and likewise examine the correspondence of the MARC three-way categorization of the linking fields to the taxonomic divisions.

Mapping MARC 21 Linking Entry Fields to FRBR and Tillett's Taxonomy

In table 1, each linking field, subdivided when applicable by second indicator values or subtypes, is mapped to an entry or entries in the FRBR relationship tables. The level of FRBR entities to which the relationships captured in that table apply, the general relationship type, and the specific subtype that applies to the data expressed by that linking field is noted. In some cases, these characterizations cover only part of the actual extent of application of the field. The final column gives the Tillett taxonomic class (and Smiraglia subclass), which most effectively captures the data coded in the field.

Tillett compared her taxonomic classes with the three MARC categories of relationship as they appeared in *UNIMARC* (2nd ed.).[33] The correspondences highlighted are:

- MARC *chronological* with Tillett's *sequential*[34]
- MARC *vertical* with Tillett's *whole-part* [35]
- MARC *horizontal* with Tillett's *derivative*[36]

From the respective definitions, MARC *horizontal* should also correspond with Tillett's *equivalence*.

Delsey summarized the results of the mapping exercise for linking entry fields as follows:

> "Certain linking entry fields (770 and 772) are defined specifically to convey *work-to-work* relationships. . . . *Expression-to-expression* relationships may appear . . . in certain linking entry fields (765, 767, and 775). *Manifestation-to-manifestation* relationships appear . . . in a number of linking entry fields (760, 762, 773, 774, and 776)."[37]

The exceptions to these expectations are instructive. In the FRBR tables, the part-in-a-series specific relationship subtype, which maps exactly to fields 760/762 (Main Series Entry/Subseries Entry), appears only in tables 5.2 and 5.5, the whole/part work-to-work and expression-to-expression tables. Yet Delsey (above) described these fields as encoding manifestation-to-manifestation level relationships, since the linking information recorded in the fields will refer to a specific manifestation. This correctly captures the fact that later editions of a monograph originally issued in a series may well be issued in other series or issued without a series, thus the relation of the series statement is to a specific manifestation of the work, not to the work as a whole or even to a specific expression of the work.

The scope statement for field 770 (Supplement/Special Issue Entry) describes two subtypes (*has supplement* and *special issue*), which are not differentiated by indicator values although the reciprocal subtypes in field 772 (Supplement Parent Entry) (*supplement to* and *parent*), are so differentiated; the two subtypes map to different relationship classes both in FRBR and Tillett, although both are at the expected work-to-work level. In the FRBR whole/part tables, the correlate of the *special issue* subtype is characterized as "dependent part," however, these fields also are applied to independent special issues. Both fields are categorized in MARC as embodying *vertical* relationships,

Table 1. Mapping MARC 21 linking entry fields to FRBR relationship categories and Tillett's taxonomy

MARC 21 Linking field (category)	FRBR table	FRBR relationship type	Referential/autonomous or dependent/independent or specific subtype	Tillett taxonomic class/*Smiraglia subclass*
760 - Main series entry (vertical)	5.2 (work-to-work) 5.5 (expression-to-expression)	Whole/part	Independent part - series	Whole-part
762 - Subseries entry (vertical)	5.2 (work-to-work) 5.5 (expression-to-expression)	Whole/part	Independent part - series	Whole-part
765 - Original language entry (horizontal)	5.3 (expression-to-expression, same work)	Translation		Derivative/*translation*
767 - Translation entry (horizontal)	5.3 (expression-to-expression, same work)	Translation		Derivative/*translation*
770 - Supplement/Special issue entry (vertical)				
Has supplement	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Supplement	Either referential or autonomous	Accompanying
Special issue	5.2 (work-to-work) 5.5 (expression-to-expression)	Whole/part	Dependent part - volume/issue of serial	Whole-part
772 - Supplement parent entry (vertical)				
Blank - supplement to	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Supplement	Either referential or autonomous	Accompanying
0 - Parent	5.2 (work-to-work) 5.5 (expression-to-expression)	Whole/part	Dependent part - volume/issue of serial	Whole-part
773 - Host item entry (vertical)	5.2 (work-to-work) 5.5 (expression-to-expression) 5.8 (manifestation-to-manifestation)	Whole/part	Dependent part - all other cases Independent part - other cases	Whole-part
	5.10 (item-to-item)	Reconfiguration	Split into, Extracted from	Whole-part
774 - Constituent unit entry (vertical)	5.2 (work-to-work) 5.5 (expression-to-expression) 5.8 (manifestation-to-manifestation)	Whole/part	Dependent part - all other cases Independent part - other cases	Whole-part
	5.10 (item-to-item)	Reconfiguration	Split into, Extracted from	Whole-part
775 - Other edition entry (horizontal)	5.3 (expression-to-expression, same work)	Revision		Derivative
Language editions	5.3 (expression-to-expression, same work)	Translation		Derivative/*translation*
Regular-print reprints	5.7 (manifestation-to-manifestation) 5.9 (manifestation-to-item)	Reproduction	Reprint, macroreproduction, photo-offset reprint	Equivalence
Other editions	5.3 (expression-to-expression, same work)	Revision	Revised edition, Enlarged edition	Derivative/*successive derivation*
	5.7 (manifestation-to-manifestation)	Alternate	Simultaneously released edition	Derivative/*simultaneous derivation*

Table 1. Mapping MARC 21 linking entry fields to FRBR relationship categories and Tillett's taxonomy (continued)

MARC 21 Linking field (category)	FRBR table	FRBR relationship type	Referential/autonomous or dependent/independent or specific subtype	Tillett taxonomic class/*Smiraglia subclass*
776 - Additional physical form entry (horizontal)	5.7 (manifestation-to-manifestation) 5.9 (manifestation-to-item)	Reproduction	Reproduction (general), microreproduction	Equivalence
	5.10 (item-to-item)	Alternate	Alternate format	Equivalence
777 - Issued with entry (chronological)	(manifestation-to-manifestation, different work)	Whole/part (siblings)	Independent part - parts of an unnamed containing manifestation	Accompanying
780 - Preceding entry (chronological)	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Successor	Autonomous - succeeding work	Sequential
0 - Continues 1 - Continues in part 2 - Supersedes 3 - Supersedes in part	4 - Formed by the union of . . . and . . . 5 - Absorbed 6 - Absorbed in part 7 - Separated from			
785 - Succeeding entry (chronological)	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Successor	Autonomous - succeeding work	Sequential
0 - Continued by 1 - Continued in part by 2 - Superseded by 3 - Superseded in part by 4 - Absorbed by	5 - Absorbed in part by 6 - Split into . . . and . . . 7 - Merged with . . . to form . . . 8 - Changed back to			
786 - Data source entry	None of them			Descriptive
787 - Nonspecific relationship entry	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Complement	Autonomous	Accompanying
	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Summarization	Autonomous	Derivative/*extraction?*
	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Adaptation	Autonomous	Derivative/*adaptation*
	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Transformation	Autonomous	Derivative/*adaptation*
	5.1 (work-to-work) 5.4 (expression-to-expression, different work) 5.6 (expression-to-different work)	Imitation	Autonomous	Derivative
	5.3 (expression-to-expression, same work)	Abridgement	Autonomous	Derivative/*extraction*

which would be expected to be *whole-part* according to Tillett's correspondences, yet the *supplement* subtype actually maps to Tillett's *accompanying* relationship (see table 1 for details). Thus the distinction made in field 772 by the indicator values is bibliographically significant; the lack of distinction in field 770 reduces the precision of the reciprocity between the fields.

However, the *whole-part* relationship always maps to fields characterized as *vertical* in MARC. It corresponds to the general 773/774 fields and also to the specific 760/762 (series) and 770/772 (*special issue* subtype only) fields. This indicates that the whole-part class can be broken down into subtypes that are sufficiently significant bibliographically to merit special coding. Relationships encoded by fields 773/774 actually hold at all four FRBR levels, although the focus for recording the linking information will be on the manifestation level.

Delsey's summary characterizes field 775 (Other Edition Entry) as essentially encoding expression-level relationships; however, its correspondence to FRBR also is noted as problematic.[38] The scope statement for field 775 describes three subtypes not differentiated by indicator values: language editions, regular-print reprints, and other editions.[39] The lack of specific coding reduces precision considerably; not only do the subtypes map to different relationship types both in FRBR and Tillett, two of the subtypes apply to multiple FRBR levels. The *regular-print reprint* is the simplest subtype. It includes facsimile and other reprint editions, and operates at the FRBR manifestation-to-manifestation level, always demonstrating an *equivalence* relationship. The *other edition* subtype is used, among other cases, for geographic editions, editions differing in scope (such as teacher/student editions), and editions differing in format (such as large print or Braille editions). When the content of the editions is essentially the same, the relationship is indeed at the expression level; however, geographic editions that share little content are better understood as having a *work-to-work* relationship.[40]

The MARC distinction between language editions (when all language versions are published simultaneously) encoded in field 775 and translated editions (when there is a clear relation between a source-language version and the translated versions) linked to the original edition using fields 765/767 (Original Language Entry/Translation Entry) is a distinction not made by either FRBR or Tillett. With language editions, there is the additional consideration that they represent either different expressions (for example, government reports issued simultaneously in each official language of the country) or different works when the content is not shared between the publications. Those language editions that are different works do not appear explicitly in any of the relationship types in the FRBR work-level tables. They could perhaps be considered specific instances of either adaptation or transformation.

The *sequential* relationship is associated only with fields 780/785 (Preceding Entry/Succeeding Entry), which are characterized as *chronological* in MARC. The second indicator values in fields 780 and 785 do not lead to any specific correspondences in either taxonomy as they do not subdivide the fields into relationship classes; rather they refine the fields at a finer level of detail than provided in either taxonomy. Leazar posits that the indicator values "demonstrate the existence of subtypes of the sequential relationship, and appear to be an exhaustive breakdown of this relationship."[41] Thus they could be seen as a taxonomy of the sequential relationship itself.

Field 777 (Issued With Entry) expresses a relationship between manifestations of different works that does not appear in any of the FRBR tables. The "issued with" relationship is an accompanying relationship that applies at the manifestation level, but between manifestations of different works. The issued-together manifestations are siblings in a whole/part relationship to a (generally unnamed) manifestation of the composite work that contains them all. The distinction between "issued with" and "bound with" is neatly captured by the respective levels of these two relationships. The first is at the manifestation level, while the latter is at the item level (and appears in FRBR table 5.10 as a case of the *reconfiguration* relationship). The MARC 21 documentation currently groups field 777 with fields 780/785 in the *chronological* class, but this is a somewhat tenuous grouping. In fact, previous iterations of this documentation listed 777 as *vertical*.[42]

Field 786 (Data Source Entry) is unlike the other linking fields. It expresses a very specific relationship—it is a work-to-work relationship but not a formal one between group 1 entities. It is most similar to a subject relationship in that the content of the two works is related by the first being based on data from the second. It could be considered either as a special type of derivative relationship, or as falling into the descriptive relationship. As a relatively new field, it does not have a place in the three traditional MARC categories of linking fields.[43]

The definition of field 787 (Nonspecific Relationship Entry) allows it to serve as a catchall, to record any important relationship that does not belong in a more specific field. A note explaining the nature of the relationship should appear in field 580 (Linking Entry Complexity Note), or subfield i (Display text). As a result, the field is not associated with any of the three categories of MARC link types. While certain relationships can be identified that would, if expressed, have to use field 787, actual use patterns may be much more varied. Cases frequent enough to be identified in the *CONSER Cataloging Manual* include companions, complements, cumulations, summaries, abstracts, and indexes to a serial when cataloged on a separate record.[44] These are primarily work-to-work relation-

ships. One also can use field 787 if two or more different relationships between the same serials are involved. For example, if a print serial and its online counterpart start as versions in alternate formats (field 776) but become successive titles (780/785) when the print edition is discontinued, field 787 is used instead of the specific fields.

Mapping FRBR Relationships to MARC 21 Linking Entry Fields and Tillett's Taxonomy

The observation that certain FRBR relationship categories appear repeatedly in table 1 while others appear to be missing leads to the reverse exercise. Tables 2–7 list, in the first column, the broad FRBR relationship types and subtypes from FRBR tables 5.1 to 5.7, 5.9, and 5.10. The second column provides a mapping to the appropriate MARC 21 linking entry field (or linking field and second indicator value or subtype). The third column maps the FRBR relationship type or subtype to a class from Tillett's taxonomy of bibliographic relationships and, in the case of mappings to the derivative relationship, to a subclass from Smiraglia's extension. Speculative or tenuous mappings are indicated by a question mark.

FRBR chapter 5 includes two more relationship tables. Table 5.8 covers whole/part manifestation-to-manifestation relationships.[45] Table 5.11 covers whole/part item-to-item relationships.[46] These are not specifically discussed here as they are subsets of the whole/part relationships covered in tables 5.2 and 5.5 (see table 3) at the work or expression level.

A number of relationship types and subtypes do not map to any linking entry field or could only tenuously be mapped to field 787 (Nonspecific Relationship Entry). (See in particular tables 2 and 4.) This could mean that in reality these relationships are rarely encountered, at least in serials that have been the main impetus behind the development of this block of fields. As the MARC formats are normally expanded only when need is demonstrated for additional coding, fields would not be created just for theoretical possibilities. Alternately, it may be that these relationships are currently being expressed by means other than linking fields when being recorded in bibliographic records. This is particularly true of item-level relationships. Linking fields are still used primarily for serials cataloging, thus any perceived need to encode types of relationships occurring mainly among non-serials would call for a mechanism other than linking fields.

The mapping from FRBR to Tillett's taxonomy finds correspondences for five of the seven classes of relationship. The *descriptive* and *shared characteristic* relationships do not map to the FRBR relationships between group 1 entities because they generally involve subject or responsibility relationships or other coincidental similarities. In the FRBR model, the relationships between entities from different groups are briefly summarized in sections 5.2.2 and 5.2.3.[47]

Some of Tillett's classes (*sequential*, *whole-part*) correspond very precisely to FRBR in that they appear in a single correspondence. The *sequential* relationship is seen only in the successor relationship in table 2; the *whole-part* relationship corresponds to table 3 (and in a minor way in table 7 to two subtypes of the reconfiguration relationship). Others having a much broader scope appear in many places (particularly *derivative*, which appears in tables 2, 4, and 5). Thus Grimaldi's observation that the Tillett taxonomy groups relationships broadly without considering the level

Table 2. Mapping FRBR relationships between different works to MARC 21 linking entry fields and Tillett's taxonomy

FRBR table 5.1, work-to-work relationships
FRBR table 5.4, expression-to-expression relationships between expressions of different works
FRBR table 5.6, expression-to-work relationships

FRBR relationship type/subtype	Expressed by linking field(s)	Tillett's taxonomy/ *Smiraglia subclass*
Successor	780/785	Sequential
Sequel		
Succeeding work	780/785	
Supplement	770 (has supplement)/ 772 (ind.1=blank)	Accompanying
Complement	787	Accompanying
Summarization	787	Derivative/*extraction?*
Adaptation	787?	Derivative/*adaptation*
Transformation	787?	Derivative/*adaptation*
Imitation	787?	Derivative/*adaptation?*

Table 3. Mapping FRBR whole/part relationships to MARC 21 linking entry fields and Tillett's taxonomy

FRBR table 5.2, whole/part work-to-work relationships
FRBR table 5.5, whole/part expression-to-expression relationships

FRBR relationship type/subtype	Expressed by linking field(s)	Tillett's taxonomy
Whole/part (general)	773/774 (or depends on subtype)	Whole-part
Dependent part		
Chapter, section, part, etc.	773	
Volume/issue of serial	770 (special issue)/ 772 (ind.1=1)	
Intellectual part of a multipart work	773/774	
Illustration for a text		
Sound aspect of a film		
Independent part		
Monograph in a series	760/762	
Journal article	773	
Intellectual part of a multipart work	773/774	

of entity involved is largely borne out by this mapping exercise.[48]

The derivative relationship is the only one that appears at the work-to-work, expression-to-expression, and manifestation-to-manifestation levels (tables 2, 4, and 5). Subdividing according to Smiraglia's subclasses improves the precision of the correspondences; however, the *adaptation* subclass turns out itself to be rather broad, corresponding to three distinct work-to-work relationship types as well as one expression-to-expression type (tables 2 and 4). Only five of Smiraglia's seven subclasses appear in the tables. The *performance* subclass would be expected to appear in FRBR table 5.3 (expression-to-expression relationships) (see table 4) where one would expect a relationship type for performances, but there is no such entry in the table. However, performances are explicitly considered to create new expressions of works in FRBR.[49] The *amplification* subclass does not appear explicitly either; Smiraglia defines it to include "only illustrated texts, musical settings, and criticisms, concordances and commentaries that include the original text."[50] In FRBR, the actual amplifications are treated either as supplements or complements to the base work; the composite or aggregate that includes both the base and the amplification is treated as a new work with a whole/part relationship to the base work alone.

FRBR table 5.7 (see table 5) summarizes the relationships that hold between members of an expression set (that is, all manifestations of the same expression of a work). In terms of Tillett's relationship classes, they fall almost exclusively into the *equivalence* relationship, which otherwise only appears in the item-level FRBR tables 5.9 and 5.10 (see tables 6 and 7). These item-level tables are subsets of table 5.7, in that a reproduction may well be based on a unique item or a specific item from a manifestation, and the reproduction process is the same whether a single or multiple copies are made. MARC 21 linking fields 775 (Other Edition Entry) and 776 (Additional Physical Form Entry) are the only two linking fields that are used to encode relationships found in FRBR table 5.7. Field 776 is applied when different physical formats are involved, while one use of 775 is for regular-print reprints, which are more likely to exist for older serials. It would be tempting to conclude that expression sets can be identified by using these two fields; however, comparison with the reverse mapping in table 1 shows that the correspondence does not go both ways. In addition to its manifestation-level use for regular-print reprints, field 775 has been used to encode expression-to-expression relationships from FRBR table 5.3 (see table 4), revision and translation, and also a work-to-work relationship in the case of some language editions. In practice there is no coding distinction of any sort between these cases, as subfield e (Language code), which could at least distinguish translations and language editions from revisions and reprints, is usually not applied. And while the language of the translation will appear in the text of the uniform title, the language element is not separately subfielded when the uniform title is cited in the linking entry field. As the mapping between these linking fields and relationships at the FRBR manifestation-level is not fully bidirectional, any attempt to use these two linking fields to identify expression sets in existing databases will, in the most general case, be too broad.

Table 4. Mapping FRBR relationships between expressions of the same work to MARC 21 linking entry fields and Tillett's taxonomy

FRBR table 5.3, expression-to-expression relationships between expressions of the same work

FRBR relationship type/subtype	Expressed by linking field(s)	Tillett's taxonomy/ *Smiraglia subclass*
Abridgement	787?	Derivative/*extraction*
Revision	775	Derivative/*successive derivation*
Revised edition	775	
Enlarged edition	775 (other edition)	
State (graphic)		
Translation	765/767 or 775 (language edition)	Derivative/*translation*
Arrangement (music)		Derivative/*adaptation*

The status of simultaneously released editions is interesting since, according to Tillett's breakdown, that relationship is to be classed with *derivative* rather than *equivalence* relationships. This point is reinforced in Smiraglia's division of the derivative relationship into seven sub-categories, of which *simultaneous derivations* is at the "least-differences" end of the spectrum. Again, a clean correspondence is not present between two systems, this time between Tillett and FRBR. Graham, in her keynote address to the Airlie House Multiple Versions Forum, proposed that the discussion of multiple versions be limited to Tillett's *equivalence* class.[51] However, the scope of the present work of the Joint Steering Committee's Format Variation Working Group, which is in an FRBR framework, is the entire expression set. The ambiguous status of simultaneous editions could lead to confusion for catalogers and may point to an area that needs very precise guidelines in AACR.

Concluding Remarks

This mapping exercise highlights the differences in scope and level of detail represented in three distinct categorizations of bibliographic relationships. Understanding how precisely MARC 21 coding maps to theoretical taxonomies of bibliographic relationships can be a consideration in future format development. For instance, the ambiguous mapping of field 775 to more than one relationship type,

Table 5. Mapping FRBR relationships between manifestations of the same expression to MARC 21 linking entry fields and Tillett's taxonomy

FRBR table 5.7, manifestation-to-manifestation relationships

FRBR relationship type/subtype	Expressed by linking field(s)	Tillett's taxonomy/ *Smiraglia subclass*
Reproduction	(Depends on subtype)	Equivalence
Reproduction	776	
Microreproduction	776	
Macroreproduction	775 (regular print reprint)	
Reprint	775 (regular print reprint)	
Photo-offset reprint	775 (regular print reprint)	
Facsimile	776	
Mirror site		
Alternate	(Depends on subtype)	(Depends on subtype)
Alternate format	776	Equivalence
Simultaneously released edition	775 (other editions)	Derivative/ *simultaneous derivation*

Table 6. Mapping FRBR manifestation-to-item relationships to MARC 21 linking entry fields and Tillett's taxonomy

FRBR table 5.9, manifestation-to-item relationships

FRBR relationship type/subtype	Expressed by linking field(s)	Tillett's taxonomy/ *Smiraglia subclass*
Reproduction	(Depends on subtype)	Equivalence
Reproduction	776	
Microreproduction	776	
Macroreproduction	775 (regular print reprint)	
Reprint	775 (regular print reprint)	
Photo-offset reprint	775 (regular print reprint)	
Facsimile	776	

Table 7. Mapping FRBR relationships between items to MARC 21 linking entry fields and Tillett's taxonomy

FRBR table 5.10, item-to-item relationships

FRBR relationship type/subtype	Expressed by linking field(s)	Tillett's taxonomy/ *Smiraglia subclass*
Reconfiguration	(Depends on subtype)	
Bound with		Accompanying
Split into	773/774	Whole-part
Extracted from	773/774	Whole-part
Reproduction	(Depends on subtype)	Equivalence
Reproduction	776	
Microreproduction	776	
Macroreproduction	775 (regular print reprint)	
Facsimile	776	

and more particularly to relationships at different FRBR levels, is undesirable; it should not be repeated in other fields and it may even be desirable to correct it. Also, the consequence of the lack of second indicator values in field 770 to correspond with the indicator values in the reciprocal field 772 is seen to affect our ability to distinguish a whole/part situation from an accompanying situation.

There is another application that can benefit from this level of detail: that of mining existing data from MARC databases to implement FRBR concepts in database structures and displays.

An understanding of the level of FRBR entity referenced (either always or almost always) by a particular linking entry field can be applied in system design. One strategy that could be interesting in implementing FRBR-aware systems is to provide a detailed "show like" feature, which would bring up bibliographic records for other manifestations of the same expression as the record being viewed. Once the user has identified one record of interest (via whatever access path, such as an added entry, subject, or classification), this function would provide horizontal access to those records most like it, namely, other manifestations of that expression. Explicit links coded in MARC 21 linking fields 776 (which always operates between manifestations of one expression) and 775 (which does in one case) could be one mechanism behind such functionality.

This would be an extension to functionality already present in some current systems that allows direct links between closely related works, such as serial succeeding works, using fields 780 and 785. The PCC (Program for Cooperative Cataloging) Standing Committee on Automation has created the Task Group on Linking Entries with the charge of investigating how library systems make use of linking entry fields and suggesting possible improvements, with a report expected in 2004. This demonstrates that there is active interest in the application of linking entries to OPAC navigation. The mapping of MARC 21 fields to FRBR entities does, however, demonstrate that all linking entry fields are not alike, and that users may not be well served by functionality that retrieves a complete set of linked records in an entirely undifferentiated fashion.

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Appendix A
Definitions of Linking Entry Fields in MARC 21

Linking Entries: Definition and Scope

Fields 760–78X contain information that identifies other related bibliographic items. Each of the linking entry fields specifies a different relationship between the target item described in the record and a related item. These relationships fall into three categories: (1) related items that assist the user in continuing to search but are not physically required to obtain the target item (such as former entries for serials, translations of the target item); (2) related items that have to be obtained physically in order to use the target item (such as the host item for a component part—a journal issue containing a specific article); (3) related items that are constituent units of a larger whole (such as the individual photographs contained in a visual material collection). The linking entry fields are intended to generate a note in the display of the record in which they appear; provide machine linkage between the bibliographic record for the target item and the bibliographic record for the related item, if the related item is covered by a separate record; and/or facilitate indexing.

760 – Main Series Entry

Information concerning the related main series when the target item is a subseries (vertical relationship). This field is recorded *in addition to* any other series information in the record. When a note is generated from this field, the introductory phrase *Main series:* or *Subseries of:* may be generated based on the field tag for display.

762 – Subseries Entry

Information concerning a related subseries when the target item is a main series or a parent subseries (vertical relationship). This field is recorded *in addition to* any other series information in the record. When a note is generated from this field, the introductory phrase *Has subseries:* may be generated based on the field tag for display.

765 – Original Language Entry

Information concerning the publication in its original language when the target item is a translation (horizontal relationship). When a note is generated from this field, the introductory phrase *Translation of:* may be generated based on the field tag for display.

767 – Translation Entry

Information concerning the publication in some other language other than the original when the target item is in the original language or is another translation (horizontal relationship). When a note is generated from this field, the introductory phrase *Translated as:* may be generated based on the field tag for display.

770 – Supplement/Special Issue Entry

Information concerning the supplement or special issue associated with the target item but cataloged and/or input as a separate record (vertical relationship). When a note is generated from this field, the introductory phrase *Has supplement:* may be generated based on the field tag for display.

772 – Supplement Parent Entry

Information concerning the related parent record when the target item is a single issue, supplement or special issue (vertical relationship) of the parent item. When a note is

generated from this field, the introductory phrase *Supplement to:* may be generated based on the field tag for display.

773 – Host Item Entry

Information concerning the host item for the constituent unit described in the record (vertical relationship). This field is provided to enable the user to locate the physical piece that contains the component part or subunit being described. Thus, only those data elements required to assist in the identification of the host item need to be included in the field, such as links to the bibliographic record describing the item and/or descriptive data that identifies the host item. When a note is generated from this field, the introductory term *In:* may be generated based on the field tag for display.

774 – Constituent Unit Entry

Information concerning a constituent unit associated with a larger bibliographic unit (vertical relationship). The constituent unit may be part of a single bibliographic item, a multipart item, or a collection. The constituent item may or may not be described in a separate bibliographic record. When a note is generated from this field, the introductory term *Constituent unit:* may be generated based on the field tag for display.

775 – Other Edition Entry

The entry for another available edition of the target item (horizontal relationship). The following types of editions are recorded in this field:

– *Language editions.* When a serial is issued simultaneously in more than one language (usually by the same publisher, as opposed to a translation that is usually issued by another publisher).

– *Regular-print reprints.* When the serial being cataloged is a regular-print reprint, field 775 is used for the original entry.

– *Other editions.* Other editions of the target item. These will generally bear the same title as the target item but have edition information that distinguishes them.

When a note is generated from this field, the introductory phrase *Other editions available:* may be generated based on the field tag for display.

776 – Additional Physical Form Entry

Information concerning another available physical form of the target item (horizontal relationship). It is used to link multiple physical format records for the same title. When a note is generated from this field, the introductory phrase *Available in other form:* may be generated based on the field tag for display.

777 – Issued With Entry

Information concerning publications that are separately cataloged but that are issued with or included in the target item (horizontal relationship). This field is not used for *bound with* notes that refer to local binding practices or for component parts (analytical relationships). When a note is generated from this field, the introductory phrase *Issued with:* may be generated based on the field tag for display.

780 – Preceding Entry

Information concerning the immediate predecessor of the target item (chronological relationship). When a note is generated from this field, the introductory term or phrase may be generated based on the value in the second indicator position for display.

785 – Succeeding Entry

Information concerning the immediate successor to the target item (chronological relationship). When a note is generated from this field, the introductory phrase may be generated based on the value in the second indicator position for display.

786 – Data Source Entry

Information pertaining to a data source to which the described item is related. It may contain information about other files, printed sources, or collection procedures.

787 – Nonspecific Relationship Entry

Information concerning the work related to the target item when the relationship does not fit any of those defined in fields 760–786. In most cases, a note is recorded in field 580 that defines the specific relationship.

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Appendix B
Definitions of Classes in Tillett's Taxonomy of Bibliographic Relationships

1. *Equivalence* relationships hold between exact copies of the same manifestation of a work or between an original item and its reproductions, as long as the intellectual and artistic content and authorship are preserved. Included here are copies, issues, facsimiles and reprints, photocopies, microforms, and other similar reproductions.
2. *Derivative* relationships, called horizontal relationships in UNIMARC, hold between a bibliographic item and a modification based on that same item. These include (a) variations or versions of another work, such as editions, revisions, translations, summaries, abstracts, and digests; (b) adaptations or modifications that become new works but are based on earlier works; (c) changes of genre, as with dramatizations and novelizations; and (d) new works based on the style or thematic content of other works, as with free translations, paraphrases, imitations, and parodies.
3. *Descriptive* relationships hold between a bibliographic item or work and a description, criticism, evaluation, or review of that work, such as that between an item and a book review describing it; also included are annotated editions, casebooks, commentaries, critiques, etc.
4. *Whole-part* (or part-whole) relationships, called vertical relationships in UNIMARC or hierarchical relationships by Goossens and Mazur-Rzesos, hold between a component part of a bibliographic item or work and its whole, as with an individual selection from the whole anthology, collection, or series.
5. *Accompanying* relationships hold between a bibliographic item and the bibliographic item it accompanies such that the two items complement each other equally or one item augments the other principal or predominant item. Examples are relationships between items and their accompanying materials where one item is predominant and the other subordinate, as is the case with concordances, indexes, and catalogs of libraries, or where the items are of equal status but have no specific chronological arrangement, as is the case with the parts of a kit.
6. *Sequential* relationships, called chronological relationships in UNIMARC, hold between bibliographic items that continue or precede one another, as between the successive titles of a serial, sequels of a monograph, or among the various parts of a numbered series.
7. *Shared characteristic* relationships hold between a bibliographic item and other bibliographic items that are not otherwise related but coincidentally have a common author, title, subject, or other characteristic used as an access point in a catalog, such as a shared language, date of publication, or country of publication.

Source

Barbara B. Tillet, "A Taxonomy of Bibliographic Relationships." *Library Resources & Technical Services* 35, no. 2 (1991): 156.

Appendix C
Definitions of Classes in Smiraglia's Taxonomy of the Derivative Relationship

1. *Simultaneous derivations*. Works that are published in two editions simultaneously, or nearly simultaneously, such as a British and a North American edition of the same work. Often such simultaneous derivations will exhibit slightly different inherent bibliographic characteristics.
2. *Successive derivations*. Works that are revised one or more times and issued with statements such as "second, [third, etc.] edition," "new, revised edition"; works that are issued successively with new authors; and works that are issued successively without statements identifying the derivation.
3. *Translations.* Include those works that also include the original text.
4. *Amplifications*. Include only illustrated texts; musical settings; and criticisms, concordances and commentaries that include the original text.
5. *Extractions*. Include abridgements, condensations, and excerpts.
6. *Adaptations*. Include simplifications, screenplays, librettos, arrangements of musical works, and other modifications.
7. *Performances.* Including sound or visual (that is, film or video) recordings.

Source

Richard P. Smiraglia, "Derivative Bibliographic Relationships: Linkages in the Bibliographic Universe," in *Navigating the Networks: Proceedings of the ASIS Mid-year meeting, Portland, Oregon, May 21–25, 1994.* Eds. Deborah Lines Andersen, Thomas J. Galvin, and Mark D. Giguere. Medford, N.J.: ASIS, 1994, 177.

Notes on Operations

Art in a Medium-Sized University Library

Acquisition, Cataloging, and Access Issues: Challenges and Opportunities

Susannah Benedetti, Annie Wu, and Sherman Hayes

In 2001, the William Madison Randall Library at the University of North Carolina at Wilmington found itself with a substantial collection of art, acquired over time through gifts and purchases to augment existing collections of faculty scholarship and regional materials. What had been tracked in a simple administrative database had become a collection deserving improved access. This paper outlines the acquisition, cataloging, and access issues that shaped the evolution of the art works from their status first as decoration on the library walls, then as fully cataloged library materials in the online catalog, then as digitized images available in a searchable Web tour. Explored are the reasons behind the collection development push and the methods of acquisition, how and why the collection outgrew its original inventory database, and why the university librarian turned to catalog librarians for solutions to improve access by utilizing and linking data existing in separate databases. The paper offers implications and lessons learned that could assist other libraries that may face such a challenge, as well as a literature review of the issues faced in art documentation. Randall Library's experience illustrates how a decision to invest in cataloging an unusual medium can go beyond the basics of author and subject access to create an unusually valuable foundation for promotional, curricular, and Web-based ventures.

By the late 1990s, the William Madison Randall Library at the University of North Carolina at Wilmington (UNCW) had acquired a small collection of original art for display throughout the building. Mainly paintings and drawings, with a few sculptures, the pieces were owned by the library and permanently in place, but they were not perceived as library materials or represented in the online catalog. If anyone expressed an interest, they were directed to the office of the university librarian, who maintained the Randall Treasures Access Database, which contained basic inventory information about each piece, such as date and source of acquisition, artist contact information, and general description or title.

The university librarian decided to expand the collection in large part to recognize and utilize the art works not simply as decorations, but as library materials with as much value for scholarship and intellectual advancement as traditional books or journals. This perspective supports the library's mission statement to "effectively support the University's teaching, scholarship, artistic achievement, and service functions by providing dynamic collections of informational resources in all formats."[1]

The decision to expand the art collection caused rapid growth beginning in 2000. This paper explores the reasons behind the collection development push and the methods of acquisition, how the collection outgrew the original database system, and how and why the university librarian turned to the cataloging department for answers. Catalog librarians are typically the intellectual organizers of materials and collections upon arrival, and such was the case for the organization and processing of the

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art collection. The two catalog librarians at Randall Library (the cataloging supervisor librarian and the special formats catalog librarian) were active participants in shaping critical decisions including which art works would be cataloged, what level of cataloging would be conducted, and how the cataloging could be performed in order to create a bibliographic foundation for related digital and Web-based projects based on the collection. The catalog librarians embraced this opportunity, again echoing the library's mission by "implementing innovative and creative methods centered on the needs of its users to inspire and support intellectual curiosity, imagination, rational thinking and thoughtful expression."[2] In 2003, the art collection numbered more than 450 pieces. Each piece is accounted for and is either individually cataloged in the online catalog and updated in the OCLC Worldcat database, recorded in the Randall Treasures database, or listed as part of a finding guide in the Special Collections department. Randall Library's experience illustrates how a decision to invest in cataloging an unusual medium can go beyond the basics of author and subject access to create an unusually valuable foundation for promotional, curricular, and Web-based ventures.

Literature Review

A number of articles have been published about cataloging and the documentation of art both before and after the rise of digital and online technology. Articles prior to the mid-1990s focus on overarching issues of standardization and controlled vocabulary in describing and providing access to art works, with an eye toward unknown but anticipated technologies of the future. Most of this literature originates within the museum or art history communities. However, an entire issue of the journal *Library Trends* was published in 1988 with the subtitle "Linking Art Objects to Art Information." The effort "joins the concerns of traditional art librarianship both to topics found in information science . . . and to topics found in recent art historical writing."[3] A major theme is the propensity within the museum and art history communities to create and utilize local solutions for the documentation of art objects; whether successful or not, experiences are rarely shared with or recognized by the larger field. Thus countless institutions have implemented idiosyncratic systems to describe and provide some level of access to their own unique collections, while the larger issues continue to perplex the entire community. Such issues covered in the *Library Trends* articles include subject access, controlled vocabulary, and the possible roles of automation. One appendix outlines key differences between libraries and museums.[4] Overall, the academic library is viewed as a separate community, whose tools are acknowledged but not deemed appropriate or useful in the world of museums and art history. Patricia Ann Reed and Jane Sledge make this point by opening their article with the salvo, "Imagine cataloging *without* AACR2 (Anglo-American Cataloguing Rules, 2nd ed.), Library of Congress Name Authority, and Library of Congress Subject Headings. Welcome to the world of museum cataloging."[5]

Esther G. Bierbaum raises issues about the cataloging of non-book items from a library perspective.[6] She points to a trend of unconventional materials proliferating in academic library collections, chiefly by chance or circumstance. Three-dimensional (3D) materials are defined as encompassing art objects (presumably sculpture), games, models, natural history specimens, globes, and the like. Although such materials do not routinely warrant formal collection development, the rules in AACR2 allow them to be "routinely cataloged in conformity [with other library materials]; the result was bibliographical equality."[7] In addition, Bierbaum puts forth the strategy to "participate in research in the instructional use of 3D, and publicize the results" and to "locate, identify and centrally catalog objects of multidisciplinary value and publicize the program."[8] This study does not relate to art works such as paintings and cannot address as yet undeveloped digitization or Web factors. However, its larger message of handling unconventional items as library materials worthy of cataloging and multidisciplinary publicity meshes with Randall Library's experiences with its art collection.

Library literature since the mid-1990s has addressed art cataloging within the context of the Internet, the Web, and increasingly advanced database systems. *ArtMARC Sourcebook* is a collection of institutional experiences utilizing the MAchine Readable Cataloging (MARC) format to catalog art and architecture collections.[9] This monograph champions MARC, pointing to its flexibility and ability to integrate "visual document and object records within a central catalog of other materials such as books, maps, moving pictures and sound recordings, thereby making it possible to conduct a search on a single subject across collections."[10] However, the editors acknowledge the limitations of MARC for working with art objects, due to vocabulary and subject access issues, the question of collection-level versus item-level cataloging, and concepts that are often more ambiguous for art objects than for library materials, such as date and place of publication and physical description.[11] The chapters include detailed explanations of MARC tag and field usage for collections of widely varying materials and access requirements. Naturally, the collections detailed in this book are of large scale and prominent

provenance. The art and architecture collection at Florida International University numbers 65,000 slides, while the California Historical Society has more than 500,000 photographs, and the collections in the Prints and Photographs Division of the Library of Congress total more than thirteen million pictorial materials. While Randall Library's art project can hardly compare in terms of size or broad cultural relevance, it can benefit from the guidance put forth in the *ArtMARC Sourcebook* and from Elizabeth O'Keefe's conclusion therein that "MARC can be used for just about anything."[12]

The ability to digitize images for display on the Web has become a critical factor in providing access to visual materials. This new generation of access calls for some kind of cataloging, whether in the traditional library sense or in the form of the most basic data elements, such as artist and date in non-standard form. Although there is more and more library literature studying the explosion of digitization projects involving library and archival materials (even within academic libraries), few involve cataloging individual images in the library catalog. This is due in part to the fact that most digitization projects involve collections of materials, which are typically not cataloged on an item-level basis. While individual images are typically digitized within a separate Web site or database, they are rarely included in the library catalog.

Karen Reilly and Jolene de Verges offer an example of an academic library that made the decision to utilize the MARC format and catalog individual images in an unusual and fruitful collaboration. In 1997, after an agreement of cooperation between the College of the Holy Cross and the nearby Worcester Art Museum, the college applied for and received a grant to fund the Virtual Worcester Art Museum, a "megasource of complementary databases: the Holy Cross bibliographic database, the Holy Cross slide database, the Art Museum bibliographic database, and a newly created Art Museum database of digitized images and associated curatorial records."[13] The scope of the project was large. Worcester is the second largest art museum in New England, with 35,000 paintings, sculptures, photography, prints, and drawings; its museum library holds almost 45,000 volumes. A key to the success of the database project was the decision to utilize the MARC format, rather than a Web-based tool such as SGML (Standard Generalized Markup Language) or XML (Extensible Markup Language). One reason given was "the capacity to search across databases, allowing unique resources that are physically separated to appear as a single entity."[14] Such a scenario would insure that a patron's search for an artist would retrieve records not only for books about the artist held at the college library, but also records for works of art created by the same artist, held at the neighboring museum. This argument underscores an increasing desire for online access to *all* available materials, including conventional library books as well as visual, graphic, digital, electronic, multi-dimensional, or yet unforeseen types of materials. The article acknowledges the traditions cited in the earlier art history and museum literature, that "historically, museum and visual resource professionals had no incentive to standardize the description of works of art. Artworks, unlike books, are unique objects; uniform cataloging methods were not needed."[15] However, by this time advances in technology had improved the ability to share data over automated networks. Although work is ongoing to develop descriptive standards (at places like the Visual Resources Association and the Getty Information Institute), within the academic library environment the established usability of and familiarity with the MARC format made it the best choice for this project. The article describes decision making in terms of scanning, retrospective conversion, bibliographic processing, cataloging issues including MARC tag use and subject access, staff and student involvement and workload, and an overview of different types of use that the database has enjoyed to date. The authors cite the project's success in terms of the resulting universal access to digitized images, as well as benefits of cooperation between the college library and the museum.[16] Now known as Bridges to Art, the database offers the ability to search across the databases of the Worcester Art Library, Worcester Art Images, and the Holy Cross Libraries.[17] Although this project is hardly a mirror image of the Randall Library art project, due to its multiple collections, their size, and the collaboration with an outside museum, the decision to utilize the MARC format and to catalog on an item-level basis reflects a similar willingness to view works of art as library materials.

An overview of the literature in the museum, art history, and library communities illustrates a longstanding struggle to document art objects in order to convey an adequate verbal description of unique and non-textual materials such as paintings, sculptures, slides, and photographs and provide some kind of access to them. The utilization of library terms, techniques, and standards to these ends has gained a measure of acceptance in the years following the advent of automated networks, digital imaging, and the opportunities of the Internet and the Web. These breakthroughs have allowed online library catalogs and databases to offer the possibility of integration with outside databases, increasing access opportunities in large part through the MARC format. The object of this paper is to illustrate

how a mid-sized university library's decision to catalog its small but growing art collection can have larger consequences not only for increased multidisciplinary use of the materials, but for overlap and integration with a separate Web-based database that provides images and description.

Collection Building Phase

It is not uncommon for library collections to begin organically, long before an official collection development policy is in place. Some of the first pieces in Randall Library's art collection related to the origins of the university, such as formal portraits of former chancellors and presidents. Through the 1990s, Randall Library acquired pieces here and there, mainly through gifts by regional artists, forming a small collection to display on the walls. The art formed a free-standing decorative collection, without direct input from or ties to the university's art department (offering degrees in art history and studio art). There was no consistent effort to document the incoming art until the university librarian and the university archivist (a member of the library staff) launched an effort to record rudimentary information, capture digital images, and create a simple administrative database (later named the Randall Treasures Access Database). The university librarian foresaw the eventual possibility of a Web-based tour showcasing the library's art collection, but the database served no curricular, scholarly, or otherwise academic purpose and was simply an administrative record retention inventory.

At this point, the university librarian made the decision to expand the art collection. Several factors were involved, one of which was the library's existing faculty scholarship collection, wherein the archivist actively acquires and catalogs publications by current, former, and retired university faculty.[18] The collection includes article reprints, newspaper columns, book chapters, book reviews, and the like. The art department faculty were underrepresented in the traditional paper publications, since their scholarly output was the production of art works. The university librarian and the archivist realized that these faculty members represented a rich resource and including a sample of their work as part of the faculty scholarship collection seemed logical. This decision simultaneously added nearly twenty pieces to the burgeoning art collection. The art department faculty offered some of their most representative and significant works within the library's price range. They were pleased to have their work permanently on display at the library and some came to donate additional pieces as they began to see the library's collection of art as a teaching tool.

As the art collection grew due to these faculty acquisitions, it also saw growth from donations. The university librarian placed great value on the aesthetic appeal of the library and sought to bolster it with an emphasis on decoration that could be educational and inspirational. The library competed for and received a small grant to buy local art as part of this project. In addition, a faculty friend and donor committed several pieces of art to the library, and others donated gift funds for the project. Through networking and informal promotion, Randall Library's newfound interest in art began to generate community interest and significant gifts. The driving force at this stage was donor satisfaction. The collection remained decorative and was not geared toward the acquisition of art at the level of a separate university or community art museum. Throughout, the goal has remained "art in the library." This approach has been successful, garnering pieces by area artists with a connection to the university, as well as works valued at thousands of dollars by nationally known artists, such as Dale Chihuly. Prints from the estate of an emeritus faculty member and library patron greatly expanded the scope and size of the collection. These included original works by Francisco Goya, Fritz Eichenberg, Käthe Kollwitz, and William Hogarth. The library's collection of art quickly became impressive, but has remained manageable in size and scope.

Randall Library has identified a goal wherein "special efforts are made to collect, preserve and make available information resources relating to the coastal region in which the library is located."[19] The result is the Southeast North Carolina Collection (SENC).[20] The guiding policy of SENC has built on the Special Collections department's original mission to collect original historic material about southeast North Carolina. Beyond traditional acquisition materials such as books, gray literature, and manuscript collections, SENC has expanded to include music of the region. Just as the art collection is a natural corollary to the faculty scholarship collection, it follows that works by regional artists (or art work representing the region) would also be a natural fit for SENC. Thus most purchased art works and gift items are sought from regional artists.

The gift collection of prints mentioned earlier represents a separate branch of Randall Library's art acquisition. In this case, numerous gifts of art were coming in without a regional component, but of significant quality. An unframed art collection was created in the Special Collections department for such pieces, primarily for student, faculty, and research use. This material has been utilized in a printmaking course and student exhibition, and it is not anticipated that it will be framed or displayed on a permanent basis.

As these varied efforts began, the art collection grew rapidly. Before

reaching the ultimate goal of an online art tour, the focus shifted to immediate questions concerning promotion and cataloging of and access to the collection. At this point, the university librarian looked to the library's two catalog librarians for input into the process. Together they examined the history and possibilities of the art collection and made the decision to catalog a significant number of the art works individually and at the fullest level.

Cataloging Phase

Access was a key factor in the decision to perform full-level cataloging for the art works. Simply displaying original art on the walls of the library served an aesthetic function but offered no opportunity to learn more about the pieces, to use them in support of research or scholarship, to identify them as library materials, or to locate them via the library catalog. Creating an individual bibliographic record for each of the art works makes them searchable by artist, medium, topical subjects, and other bibliographical data. This type of access is especially important for faculty and students in the art department, due to the library's continuous efforts to improve access to library materials, promote new collections, and create dynamic connections with academic departments. Since the catalog is Web-based, it also offers community members and artists improved access to resources that might otherwise have been unknown. Updating the records to the OCLC Worldcat database opens that access to the entire world.

The decision to proceed with full-level cataloging was made in full agreement. However, the next question involved what would or would not be cataloged. Volume of work was a factor, so the university librarian and the two catalog librarians decided to give priority to cataloging items that support specific existing collections. This included the following types of art:

- Pieces that are historic in their importance to the Special Collections department; this included significant originals or prints collected prior to this decision
- Pieces that have subject coverage in the imagery of the region (SENC)
- Pieces that are created by regional artists (SENC)
- Pieces that are part of the faculty scholarship collection
- Pieces that are part of the original archives collection (such as paintings of former presidents and chancellors)
- Any other pieces that do not fit one of these categories but are an original art work

Reproductions (prints) were not initially chosen for cataloging. These pieces continue to be tracked, recorded, and inventoried in the Randall Treasures Access Database in the administrative office. Due entirely to limited resources, this element of the collection has taken secondary status. It is not being ignored from an educational standpoint; the university librarian hopes to include it in the catalog when sufficient resources are available.

Cataloging Challenges and Issues

Libraries (both public and academic) increasingly offer a rich variety of media besides monographs to serve the information needs of their patrons. These include video recordings, sound recordings, microforms, serials, electronic resources, manuscripts, maps, and occasionally even works of art. Ideally, librarians look past the format to the material and its value for scholarship. Adhering to this perspective allows a book, a journal, a map, and a painting to enjoy equal bibliographic footing, relative to other circumstances, in terms of cataloging. The catalog librarians at Randall Library embraced the opportunity to work with an unfamiliar format. They perform original and copy cataloging on all formats for general and special collections, including video recordings and sound recordings, films, cartographic materials, kits, slides, and electronic resources. Paintings, prints, and sculptures were altogether something new, but the catalog librarians approached them first as library materials, and second as unusual formats that would undoubtedly require effort, flexibility, and patience.

As noted, the library's administrative office maintained the Randall Treasures Access Database to keep track of inventory. The following elements had been captured for each item:

- location number/local system number
- artist's name
- artist's geographic location
- title or provided description
- regional (yes or no)
- original (yes or no)
- local interest
- how acquired
- value
- comments
- ID

These elements about the art and its provenance allowed the catalog librarians to enter the project with some basic data in hand. They began by performing preliminary research. Catalog librarians develop a wide range of knowledge as they provide description and subject access for library materials on every conceivable subject. This is especially true for original cataloging. As neither librarian had a fine arts background, the first

step was to review appropriate reference sources in order to identify media and materials and become familiar with appropriate art terminology.[21]

In addition, they studied key cataloging resources for guidance in working with a largely unfamiliar format. They first reviewed chapter eight in AACR2, which provides descriptive rules for graphic materials and defines them as "two-dimensional art originals and reproductions, charts, photographs, [and] technical drawings."[22] They also consulted *Bibliographic Formats and Standards* (BFAS) for guidance on inputting bibliographical data for fixed and variable fields in MARC records for such materials.[23]

As noted, the decision to catalog the art came after its acquisition through the university librarian's administrative office and its subsequent placement on display throughout the library. Thus the catalog librarians worked with the materials in public areas and without removing them from the walls. They measured the art works and gathered descriptive information, then created catalog records using Cataloging Micro Enhancer for Windows (CatMe). Additional data from the Randall Treasures Access Database were added to the bibliographic records, such as each work's unique identification number and donor information.

Randall Library materials are classified using Library of Congress classification numbers or local accession numbers. Was either type of classification appropriate for works of art that would never be shelved or housed together physically? After consulting with the head of Technical Services, the catalog librarians decided to utilize local accession numbers that matched the sequential numbers assigned to the art works in the Randall Treasures Access Database. This system became more meaningful after the catalog librarians created the online Randall Library Artworks Location Maps, in which the accession numbers were added to existing online library floor maps to reflect the exact wall location of each work of art. A uniform resource locator (URL) was added to each bibliographic record using the 856 field, providing access to the online map for the first or second floor. A unified message was also included in the 856 field to display hyperlinked text in each art work's online public access catalog (OPAC) record: "Find the numbered location of the artwork on the 1st [or 2nd] floor library map." With a click, users can retrieve the map and match the local accession number in the art work's record with the corresponding number on the online map.[24] The art collection is evolving and fluid, with new works acquired often and existing works temporarily relocated or removed. The accession number system simplifies the inevitable editing and data maintenance required to correlate physical changes impacting map locations with corresponding accession numbers.

Subject access is an important aspect of cataloging and, in this case, the priorities were to represent both the media of the art works and the topics represented. Using genre/form headings in the 655 field was the ideal solution for indicating the form of the art work, since they come from specialized vocabularies such as the *Thesaurus for Graphic Materials* (TGM).[25] However, the 655 field is not indexed in Randall Library's system, so the catalog librarians assigned media subject headings in the topical 650 field. Although these subject headings designate topics rather than forms, this approach provided some level of subject access. These headings include "Painting," "Drawing," and "Portrait." In addition, the geographic subdivision "North Carolina" and appropriate county names were added to all art media headings to reflect the source of these original art works. The decision to utilize this level of geographic subdivision illustrates the library's commitment to collect and fully catalog materials representing regional culture, as described earlier with regard to SENC.

In addition, topical subject headings were assigned in the bibliographic records in order to represent the subject matter. Form subdivision "Pictorial works" is used after each topical heading where appropriate. Examples of topical subject headings include "Beaches $v Pictorial works" and "Mexicans in art." Finally, the university librarian wanted to have a method to easily retrieve all the bibliographic records in the online catalog for original works of art. The solution was to create and include the local subject heading "Randall original artworks," using the 690 field in the bibliographical record.

Digital Issues, Opportunities, and Challenges

Once most of the art was cataloged, the university librarian revisited the idea for a Web-based tour of the collection. In 2002, Randall Library had received a grant to create a Web site centered on materials relating to World War II.[26] For that project, Randall Library had acquired PastPerfect, a software package geared toward small- and medium-sized museums and art galleries.[27] Because the software includes digital imaging and Web interface capabilities, the university librarian realized that the significant investment in full-level cataloging for the art collection could now yield a digital Web collection with relative ease.

The data existed in two separate forms: the Randall Treasures Access Database, which was inventory and valuation driven, and the library catalog database, which was access and research driven. As noted, the catalog records presented expanded elements

of description, sizes, and subject access. Unfortunately, the bibliographic records in Randall Library's catalog database were not readily transferable into the PastPerfect database. Nevertheless, the expanded information existed in an easily accessible form and a student was trained to perform data entry from the two existing databases into PastPerfect. The resulting Randall Library Art and Treasures Tour combines data from both resources, along with the critical visual component of digital images of the art itself.[28]

Inclusion of an art work in the Web tour is determined using several criteria. The first factor is to include it only if it is an original work of art. Secondly, the work needs to be unrestricted by copyright protection, or the university librarian must have gained permission from the artist to place the work on the site. Indeed, the issue of copyright is unavoidable. In order to place the images in the public catalog and on a public Web site, the university librarian seeks copyright permission from the artists. Most are willing to give permission, but others have never responded or have been impossible to locate. If permission is not acquired, the record is maintained in the public catalog, but no image is linked to the bibliographic record or added to the tour. The copyright issue adds an unusual factor to the cataloging process. This matter is not the norm for library catalogs, which are not concerned with digital imaging; it does, however, illustrate a growing area of contention and concern and represents an emerging gray area of the copyright law as it pertains to Web-based online catalogs. If an institution owns an item and wants to add a digital image of the item to an existing database, is permission required? As catalogers deal more frequently with new formats and are called on to add images, music segments and video clips to online catalogs and databases, is it their responsibility to monitor copyright compliance? If not, whose responsibility is it in the library?

Once chosen, the art works are photographed. Since the collection is primarily visual, the effort to present quality images of the art is paramount. A photographer was commissioned, and care was taken to photograph the work in two ways: first, a full representation of the image including its frame, and second, a photograph of the visible image itself, without showing the frame. Both choices are available within the Web tour.[29]

After the data entry and Web site construction were complete, the catalog librarians took the next step of linking each Web tour image URL back into the individual bibliographic record for the art work in the library catalog. A standard message was also included in the 856 field to display hyperlinked text in each art work's OPAC record: "View the online image of this art work." Each bibliographic record is thus supplemented with one link to the image within the Web tour and another link to the online map showing the art work location within the library. These links are also present in the OCLC WorldCat database records, allowing true global access to the art works.

Workflow issues constitute another area for review, specifically the Web site construction and the cooperation of the associate university librarian for computing services. As noted, a student performed data entry, entering existing catalog data into the PastPerfect software records. Some libraries might prefer to use catalog librarians or paraprofessional cataloging staff to construct the Web site information, depending on resource availability. As the library takes cataloging products and creates new added-value products, should the responsibility for quality control, authority work, data entry, and such remain the purview of catalogers, since they created the base data? At Randall Library, a team was established to create the new digital Web product; it was made up of the university librarian, the cataloging supervisor librarian, the special formats catalog librarian, the coordinator of special collections and archives, and the associate university librarian for computing services. The power of such a team and its individual members will obviously vary at each institution, depending on internal resources. An argument can be made that catalog librarians should naturally be central to any such effort, due to their expertise in providing guidance and assistance with key elements of data control and authority work. However, with more libraries designating positions to Web and systems librarians, no profession-wide consensus exists that signifies the realm of cataloging is the logical choice to manage every aspect of a digital library project.

To better understand the difficulty in starting and constructing a data set that is functional for all anticipated and unanticipated needs, see the appendix for figures showing a single record sample of the databases that were used and continue to be maintained to keep track of the many works of art.

Because the art collection is an ongoing project, the library faces continuing issues of maintenance and expansion related to the public catalog records and the Web tour. As new works of art are acquired, they are entered into the Randall Treasures Access Database and are cataloged as described previously. The university librarian, the coordinator of special collections and archives, and the associate university librarian for computing services have made the decision to update the Art and Treasures Tour Web site on an annual basis. In preparation for the annual update, they identify new works using both the Access Database and the public catalog. They capture digital images (now

performed in-house by library staff rather than a hired photographer) and seek copyright permissions. If copyright permission is granted, the PastPerfect database is updated internally and the new images are linked in the database. Finally, when all updates for the time period in question are ready, the PastPerfect software is used to reconfigure and expand the Web site. The catalog librarians then harvest the new art works' Web tour URLs and insert them back into the public catalog bibliographic records.

Implications for Other Libraries

1. *Cataloging a collection of original art or implementing a Web-based digital collection is not just an issue for "giant libraries."* The cataloging staff at this mid-sized university library has been innovative and demonstrated leadership in working on the art project. The opportunity arose because an art collection quickly developed into something too critical to ignore and because so little had been done with this type of material in the traditional cataloging world. The relatively small scope of the collection did not dissuade the catalog librarians from embarking on an ambitious project that resulted in greatly enhanced access to the original art via the library catalog and the World Wide Web.

2. *Catalogers can utilize core lessons from introductory cataloging courses in library school while working with different media and new technologies.* This blending of traditional teachings and new technology was interesting and challenging. There was no local precedent for cataloging original art, but Randall Library catalog librarians were able to build on a foundation of existing skills, review rules for unfamiliar special formats, and apply emerging standards and guidelines regarding Web technologies. By doing so they became part of a larger library initiative—using digital technologies to promote and enhance access to collections of all types.

3. *Cataloging nonprint materials in the library's online catalog can give them a new life by making them intellectually accessible.* Most of Randall Library's art works and artists were not found in the OCLC WorldCat database. Apart from literature focusing on world-renowned masters, there is little "library" representation of practicing artists. To date, Randall Library has contributed more than 150 original art records to WorldCat, providing a global opportunity both to immortalize and to codify these intellectual products. The foundation of the catalog work further allows enhanced visibility through a Web site, making the materials readily available to a wider worldwide audience outside the scholarly domain.

4. *The acquisition, cataloging, and promotion of an art collection, especially the works of local artists, can increase the university's visibility in the community.* In addition to generating general goodwill for Randall Library's attention to regional culture, these efforts have opened doors to new donor relationships, helped the library develop a network of regional artists, and led to new opportunities for acquiring related and regional manuscript, music, and other cultural materials. These efforts have demonstrated the library's commitment to look beyond traditional print materials in order to represent fully the intellectual makeup of its community.

5. *Faculty members can utilize original art in teaching at a level that is unlikely without the benefits of cataloging.* For example, a faculty member in the UNCW art department was preparing a course on the history of printmaking. The university librarian recommended that she investigate the many original art prints housed in the Special Collections department and took the step of e-mailing her a list of links for each of the art works' catalog record. Only after having the opportunity to easily review the details in the catalog records did her enthusiasm grow about the potential use of the art. The faculty member created an innovative class assignment involving student research of the provenance and history of the art prints.

6. *Choosing to enhance a catalog with records for other formats increases costs.* Extensive original cataloging of a new or special format takes time to review rules, guidelines, and techniques seldom used in a print environment and to conduct research on unfamiliar terms, vocabulary, and specialized descriptions. The university librarian made the decision to give the catalog librarians the opportunity to commit considerable time and effort toward the art project, and this dedication of resources provided rich results. A commitment of time and money is necessary to undertake a project requiring this level of detail and preparation.

7. *Cataloging such a project may cause a shift in the workflow dynamic through collaboration with other library departments and staff members.* Randall Library catalog librarians became members of a team effort with librarians in the Systems, Special Collections, and Web Resources departments. Whether such a team is officially designated with a title and defined responsibilities, or whether it remains informal and fluid, as in the case at Randall Library, it will still combine different elements of the library staff. Collaborations often result in team members gaining greater understanding about other departmental processes. This is an especially rich opportunity for catalog librarians to illustrate the value of the catalog process within the team project as well as the larger library venue.

Conclusions

Special materials that come to a library may serve different audiences and purposes in ways that traditional materials such as books do not. The effort to catalog materials such as works of art takes on a greater degree of complexity and creativity, especially when a library sets expanded goals of incorporating the images into a separate Web-based database as well as the online catalog. Cataloging is not about format, but rather about the opportunity and mission to do everything possible to give added value and life to library materials.

The art collection project at Randall Library reinforces what should be the core vision of any cataloging unit. Cataloging is not about the format, but rather the opportunity and mission of doing whatever is necessary to give added value and life to important materials that the library owns or has access to. Without cataloging, the material may have little, if any, use potential and, indeed, might as well not exist in the library. Minimal cataloging can improve access, but full-level cataloging to the extent the library can afford improves access proportionally. Just because a material type is not standard should not diminish its importance in the cataloging process. The Randall Library art project demonstrates that cataloging adds intellectual value to all library materials, however atypical they may appear at first glance.

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22. *Anglo-American Cataloguing Rules*, 2nd ed., 1998 rev. (Ottawa: Canadian Library Assn.; London: Library Assn. Publishing; Chicago: ALA, 1998): 201.
23. *Bibliographic Formats and Standards*, 3rd ed. (Dublin, Ohio: OCLC Online Computer Library Center, 2003). Accessed Nov. 21, 2003, www.oclc.org/bibformats.
24. William Madison Randall Library, University of North Carolina Wilmington, "William Randall Library Artworks Location Map (1st floor)." Accessed Nov. 21, 2003, http://library.uncwil.edu/techserv/artworks_location.htm; "William Randall Library Artworks Location Map (2nd floor)." Accessed Nov. 21, 2003, http://library.uncwil.edu/techserv/artworks_location2.htm.
25. Prints and Photographs Division, Library of Congress, *Thesaurus for Graphic Materials*, 2nd ed. (Washington D.C.: Library of Congress Cataloging Distribution Service, 1995).
26. William Madison Randall Library, University of North Carolina Wilmington, and the Cape Fear Museum, "World War II through the Eyes of the Cape Fear." Accessed Nov. 21, 2003, http://capefearww2.uncwil.edu/.
27. Information about PastPerfect Museum Software is available at its Web site. Accessed Nov. 21, 2003, www.museumsoftware.com.
28. The Web tour title was chosen to incorporate "treasures" from the existing UNCW Museum of World Cultures, a sub-unit of Randall Library. The inclusion of such items as oriental rugs and decorative maps calls for another paper to discuss how to catalog those oddities.
29. William Madison Randall Library, University of North Carolina Wilmington, "Randall Library Art and Treasure Tour." Accessed Nov. 21, 2003, http://coast2.lib.uncwil.edu/arttour/tourpage.html.

Appendix
Figures Representing a Single Sample Record in Randall Library Databases

Artist	Title
Bissette, Samuel	WILMINGTON HARBOR-1975

ID #	Location, Local System	Regional	Local Int	Orig	Class 1
022125	002-020	R	L	O	C-SC

Comments
original watercolor, No. 51999

Artist/Place	Acquired	Value	SF	Cat
Wilmington, NC	Purchase	$750.00	SC	x

Figure 1. Randall Treasures Microsoft Access database record

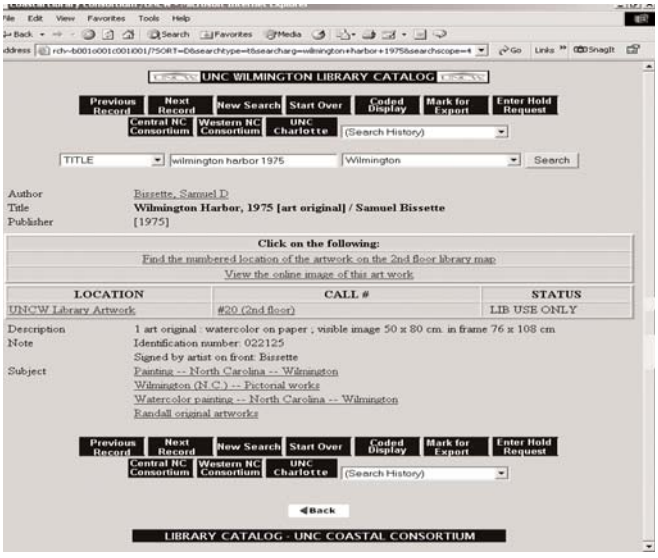

Figure 2. Online public catalog record

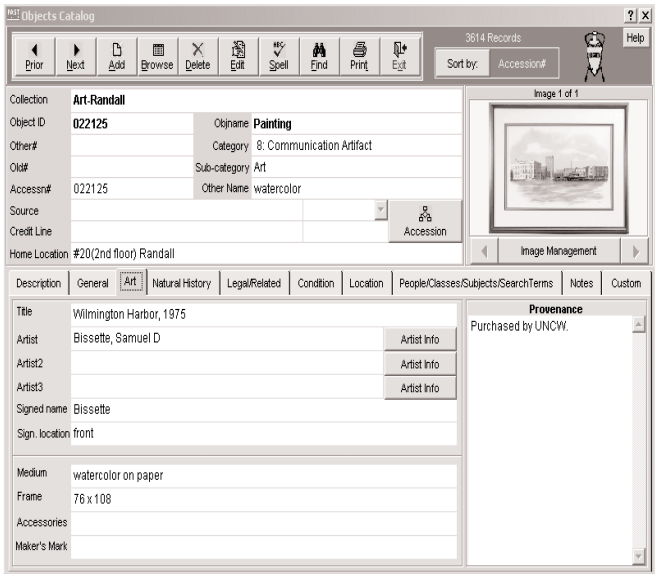

Figure 3. PastPerfect internal record

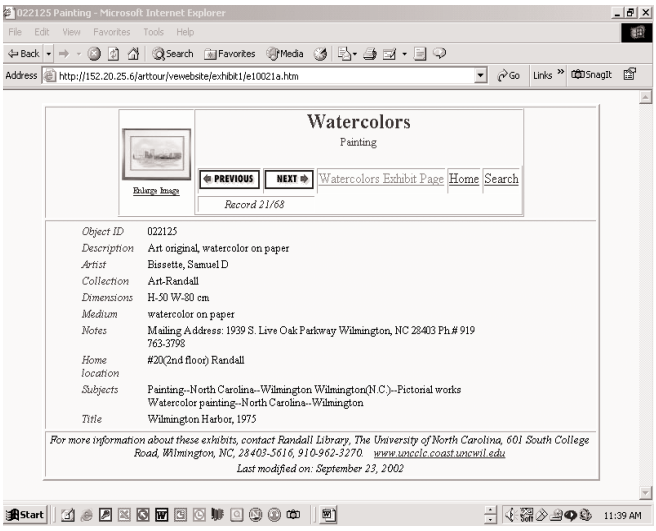

Figure 4. PastPerfect Web tour record

Figure 5. PastPerfect Web tour enlarged image

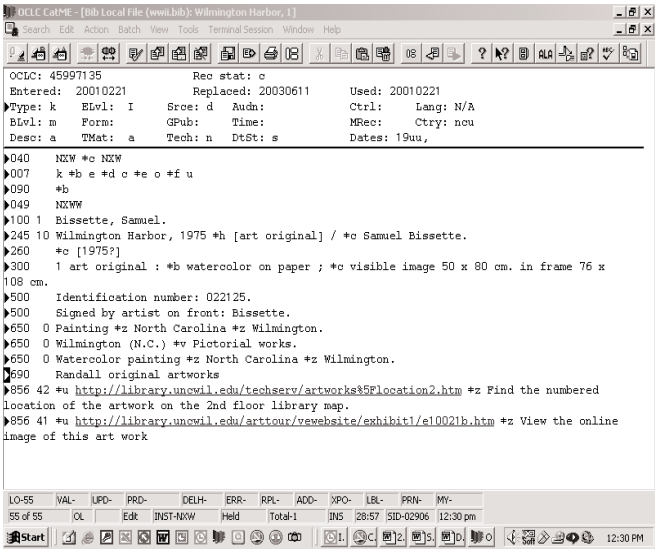

Figure 6. OCLC MARC record in Cataloging Micro Enhancer for Windows

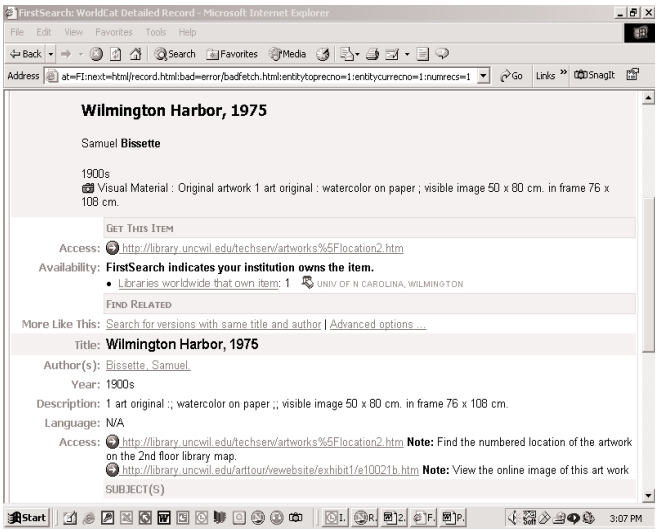

Figure 7. OCLC WorldCat record

Index to Advertisers

Book Reviews

Edward Swanson, Editor

Making Waves: New Serials Landscapes in a Sea of Change—Proceedings of the North American Serials Interest Group. Ed. by Joseph C. Harmon, P. Michelle Fiander, and Lynne F. Griffin. New York: Haworth Information Pr., 2001. 472p. $74.95 cloth (ISBN 0-7890-1399-1); $44.95 paper (ISBN 0-7890-1400-9). Published simultaneously as *The Serials Librarian* 40, nos. 1/2.

NASIG 2001: A Serials Odyssey. Ed. by Susan L. Scheiberg and Shelley Neville. New York: Haworth Information Pr., 2002. 344p. $49.95 cloth (ISBN 0-7890-1928-0); $34.95 paper (ISBN 0-7890-1929-9) . Published simultaneously as *The Serials Librarian* 42, nos. 1/2.

Transforming Serials: The Revolution Continues: The 2002 North American Serials Interest Group Conference. Ed. by Susan L. Scheiberg and Shelley Neville. New York: Haworth Information Pr., 2003. 365p. $49.95 cloth (ISBN 0-7890-2281-8; $34.95 paper (0-7890-2282-6). Published simultaneously as *The Serials Librarian* 44, nos. 3/4.

The North American Serials Interest Group (NASIG) conferences have been held annually since 1986 and bring together librarians, publishers, serial and system vendors, and other interested parties to discuss, debate, and share information on a variety of serial-related issues. The focus of conference programs has been expanded over the years to include a broad range of topics that will be of interest to a larger audience. As the stature of NASIG has grown, so has the popularity and importance of the organization's annual conferences. Haworth Press has published each of the NASIG conference proceedings since the first NASIG conference as a separate monograph and also as a combined issue of *The Serials Librarian*. The NASIG proceedings are an important record of each conference, and the proceedings provide a snapshot of the important serial-related issues for a given year.

Serials are by definition publication patterns that are subject to change, and therefore it seems appropriate that the theme of the 2000, 2001, and 2002 NASIG conferences was change. The rapid growth in importance of electronic resources has resulted in significant changes to scholarly publishing and delivery systems that have affected libraries, publishers, vendors, and users. Many of the presentations documented in these proceedings address some aspect of electronic resources. Serial pricing models, electronic resource management, archiving, changes to cataloging standards, linking, and aggregators are only a few of the topics covered. Conference planners were able to successfully plan conferences that provided a balanced mix of presentations on very timely topics such as electronic resources management, while not forgetting the need to offer programming on the more traditional print environment. Yes, libraries continue to bind and preserve print collections, check-in print serials (or not, as one presenter proposed), claim print serials, acquire print serials, catalog print serials, and manage personnel and workflows.

The conference proceedings editors effectively compiled and edited the numerous contributions submitted by presenters and session reporters. Logical in arrangement and patterned after earlier proceedings, each volume is divided into sections based on the type of presentation. Each volume begins with a list of NASIG officers, planning committee members, a list of NASIG scholarship and award recipients, and table of contents. The editors follow with an introduction to the conference proceedings. Preliminary material is followed by preconference reports, plenary sessions, concurrent sessions, workshop reports, and brief reports on poster sessions. Each volume concludes with a list of conference registrants and an index to the proceeding's papers and reports.

Plenary sessions tend to be more general in nature. Concurrent sessions are more focused and vary from theoretical to more practical applications. Workshops and poster sessions focus on specific topics such as presentations on projects, reports on surveys, status reports on evolving standards or new initiatives, and practical applications of proven methods. The contributions vary in length and completeness but most provide at least a good overview of the presentation, while some papers provide more in-depth coverage. Many of the contributions include links to useful resources or bibliographies.

The editors of the 2000 NASIG conference state in the introduction that the conference theme "Making Waves: New Serials Landscapes in a

Sea of Change" reflects a program "in which serialists are not only riding waves but also making a few along the way" (1). This volume includes papers and reports from three preconference workshops, three plenary sessions, nine concurrent sessions, and twenty-nine workshops. One of the strengths of the volume is the preconference reports. Frieda Rosenberg and Mary Ann Van Cura's workshop on the MARC Format for Holdings Data (MFHD) clearly explains the basics of the format and provides readers with links to essential documentation and other useful resources. Julie Page's workshop on salvaging library collections following an emergency was of similar quality and provided a bibliography of resources.

The plenary sessions feature thought-provoking presentations that addressed the effect of technological change on scholarly publishing. Eugenie Prime reviews the affect the Internet has had on the traditional business model for delivery of information. Prime proposes a new model called the "Info ATM" that would dispense information in the same sense the traditional ATM dispenses cash. Prime states in her 2000 presentation that article linking holds promise for the future, but then it was only in its infancy in terms of development. It is interesting to note how quickly technology moves forward as linking to the article level is now supported by multiple library vendors. Bob Cringley, noted Silicon Valley observer and commentator, suggests that librarians will soon become less involved with collecting and need to become more involved with providing access.

The concurrent sessions feature John Cox's paper that analyzes the affect changes in international serials publishing have had on the dissemination of scholarly information. Cox's paper provides background on issues that affect the economics of publishing such as the merging of publishers, a trend that continues in 2004. Other concurrent sessions address alternative scholarly publishing models such as SPARC (Scholarly Publishing and Academic Resources Coalition) and BioOne (a cooperative publishing venture). Trisha Davis's paper on the Digital Millennium Copyright Act reviewed the five myths of copyright. For serials catalogers, Deborah Sey's concurrent presentation titled "Speaking a Serials Cataloging Tongue: Lingua Franca for the Web" offers a theoretical view of the evolution of serials cataloging from adding value to static resources to predicting future changes in content of Web resources.

Workshops cover a wide range of topics including serials pricing (a hot topic at each conference), several sessions on serials cataloging, binding, archiving, acquiring serials, collection development, and cataloging of government documents. The workshops included a session by Jean Hirons on changes to AACR2, a topic that is again addressed by Hirons at the 2002 conference following approval of the proposed changes.

The 2001 conference "NASIG 2001: A Serials Odyssey" continues with the theme of change and again addresses a wide variety of topics. This volume includes coverage of two preconferences, three plenary sessions, eight concurrent sessions, and twenty-four workshops. The preconference reports offer value to newer librarians, especially the workshop on how to get published, as the presenters convey many useful hints to novice authors.

Plenary sessions present an academic's view of publishing. Stephen Bachrach promotes a re-evaluation of the "publish or perish" syndrome, while Stanley Chodrow's paper provides an in-depth discussion of the Tempe Principles that grew out of recognition by provosts at major academic institutions that there were significant problems with the current scholarly publishing model. Stephen Merritt's paper on the future effect of Generation Y on higher education is interesting and informative.

The papers and reports from the concurrent sessions address many topics related to electronic resources such as the changing role of subscription agents in the electronic environment, new models for licensing and serial pricing, UCITA (Uniform Computer Information Transactions Act), an overview of XML, retention of print, and serials aggregators. Deborah Seys expands on her 2000 NASIG conference presentation by describing how serials cataloging concepts applied in the print world can also be applied to Web publications. Jesus Lau's paper provides an in-depth discussion on the value and acquisition of Mexican serials.

Workshops include presentations on topics as varied as the art of serials claiming, implementation of MARC holdings, further discussion on licensing, creating a technical services Web page, and serial data migration. They also address how to deal with difficult people and how to give effective presentations that provide many useful hints.

The 2002 conference "Transforming Serials: The Revolution Continues" again addresses change, and many of the presentations at this conference continue discussions from the 2000 and 2001 conferences. This volume includes two preconference reports, three plenary sessions, eight concurrent sessions, and twenty-six workshops. The plenary sessions offer different perspectives on the future of digital resources. Howard Strauss's presentation on Web portals is informative, as Strauss first defines a portal as being a user-centric, customized, personalized, adaptive desktop. Fortunately for the reader, Strauss then goes on to expand on his definition by explaining each component and concludes with ideas to consider when designing a Web portal. Emily Mobley discusses current serial

challenges and her view of the future from the perspective of a library director. David Seamon concludes the plenary sessions with his take on the future of digitized materials as director of the Digital Library Federation.

Concurrent sessions exclusively address issues related to electronic resources. The intent of the first two papers is to generate debate about scholarly publishing models. Steve Black, representing the library point of view, states that due to more and more journal literature now being available on the Web, scholarly journals should be considered to be public goods. Keith Seitter, representing the publisher's perspective, counters that journals should not be considered public goods; authors and readers will benefit more if publishers are able to invest in providing online journals in their most value-added form but at an additional cost to the user. Other concurrent papers feature an excellent introduction to OpenURL linking by Nettie Legace.

Workshop reports include discussion on serials-cataloging-related topics including changes to the rules in AACR2 chapters 9 and 12, cataloging of reproductions, and the changing role of serials catalogers as metadata experts. Rick Anderson's workshop on the University of Nevada–Reno's decision to no longer check-in serials has since generated much discussion on the SERIALIST electronic discussion forum and at other conferences. Stephanie Schmidt's workshop on censorship is also interesting. Disaster planning was presented as a case study based on the experience at California State University–Northridge following the 1994 Northridge earthquake.

The proceedings of these three NASIG conferences are a valuable addition to the library literature. Conference programs are balanced between the theoretical and practical, and coverage of serial-related issues has increased over the years to include topics on all areas of serials management. Programs are also balanced in the sense that different points of view and approaches are considered. Overall, the quality of editing and contributions is excellent, making the NASIG proceedings a very good read and important resource on serial-related issues.—*Robert Alan (roa1@psulias.psu.edu), Pennsylvania State University, University Park*

ISBD(CR): International Standard Bibliographic Description for Serials and Other Continuing Resources. München: K.G. Saur, 2002. 112p. 68 cloth (ISBN 3-598-11599-7). Free download available at www.ifla.org/VII/s13/pubs/isbdcr-final.pdf.

ISSN Manual—Cataloguing Part. Paris: ISSN International Centre, 2003. 110p. $25 paper (ISBN 92-9114-004-X). www.issn.org:8080/English/pub/tools/manual.

These two publications form a duet in the new music for cataloging serials (or as we should now think of them, continuing resources). The introductions to both the *ISBD(CR)* and the *ISSN Manual* speak much about harmonization—with each other and with the Anglo-American Cataloguing Rules (AACR) community. The *ISBD(CR)* is a revision of the *ISBD(S): International Standard Bibliographic Description for Serials*, first published by the International Federation of Library Associations and Institutions (IFLA) in 1977, with the second edition of the standard dating from 1988. For those interested in history, the two introductions provide a short and useful summary of how ISBDs, and ISBD(S) in particular, came about. Times change, and it has been important that standards and instructions for creating bibliographic descriptions change with them.

There are several noteworthy revisions included in *ISBD(CR)*, foremost among them the expansion of the standard's scope. In addition to addressing the more familiar serial publications, new publications deemed integrating resources are also covered. Integrating resources are publications (in any medium) that are added to or changed by updates that are incorporated into the whole publication. This means the standard covers loose-leaf publication updates and Web sites to which information is continually added. What a welcome relief this is to catalogers who had been waiting for a decision on how those materials were to be handled in bibliographic descriptions. Although the terminology struck a minor chord for me at first, the clear definitions found in the glossary and the regular use of the words "continuing resources" and "integrating resources," they now have a better sound. It will take time, but probably not much time, for catalogers to become familiar with the terms.

Another major and welcome change in *ISBD(CR)* is the list of instructions regarding when a title change has occurred. What serial cataloging meeting hasn't included laments about title changes? It is the bane of our existence (or perhaps the reason we have existence). However, the former disharmony between the cataloging rules and ISSN assignment and record creation instructions caused problems within common databases, and it is of no small benefit that the communities have come to agreement on these instructions. Fewer title changes have been the desire of many serials catalogers, and the clear instructions for when or when not to create a new description because of major changes in either the title or other cases are very much appreciated.

Finally of importance to the harmony of the standards is the consistency in *ISBD(CR)* with the "optionality" features as described in IFLA's *Functional Requirements for Bibliographic Records (FRBR).* As an increasingly important conceptual framework for record creation, it was important that the *FRBR* relationship be explicitly stated.

The *ISSN Manual—Cataloguing Part* is a replacement for the *ISDS Manual,* which was originally published in 1983 and had a series of amendments and changes practically from the time of its first publication. When the international ISSN standard (ISO 3297) was revised in 1998, the Directors of the ISSN Centres agreed to revise their own working manual. While much of this manual may be of less interest to serials catalogers, given the reliance on the ISSN Centres for serial identification in systems of all types, readers will find instructions about ISSN assignment and record creation potentially helpful in using the ISSN in local applications.

In *ISBD(CR)* Section 0.3, "Comparative outline of the ISBD(G) and of the ISBD(CR) and ISSN," serves almost as a score for the harmony between ISBD and ISSN. In a similar but simpler way, Section 1.1 of the *ISSN Manual* designates the common descriptive data elements used for ISSN records. It includes in it the glossary developed for *ISBD(CR)*, which is a valuable resource for terminology, and the model for bibliographic resources developed for the revision of AACR2 that shows the connection between finite and continuing resources as well as their relationships to successively issued and integrating resources.

The *ISSN Manual* is also more than cataloging rules, for it includes instructions on assigning ISSN and key titles, rules for abbreviating key titles, and ISSN MARC field tagging information. Section 2.3 of the *ISSN Manual* is the ISSN musical line for providing guidance about major and minor title changes and when new ISSN and key titles are to be assigned. Not as many examples appear as in *ISBD(CR)*, but the ones provided do clearly illustrate if the change is major or minor.

The biggest challenge in reading standards and manuals is not so much has everything been covered correctly, but rather has anything been missed? While one reader might view some examples in ISBD(CR) as unnecessary and desire the addition of examples for other elements, another reader likely would have different views.

That there are so many examples, both interspersed in the standard as well as thoughtfully provided in the appendixes, will ensure that we all hear the music in tune even if we are looking at different parts. The international aspect of the standard is easily seen as the examples come from many countries and appear in multiple languages and scripts (see especially appendix B: Bidirectional Records). A few examples are split from one page to the next, but formatting this kind of document can be a challenge, and it is not complicated to figure out the split examples.

It can be worrisome when the introduction to a document thanks a working group of individuals representing fourteen countries for being responsible for its creation. Anything written by committee sometimes can be difficult to read, but it is clear that thorough reviews by many people and deft editing have created a cohesive score for *ISBD(CR)* from which descriptive elements can be assembled. I especially liked the logical arrangement of each section and the listing of contents for each area. Each area also includes a changes section, which identifies how changes are handled for serials and separately for integrating resources. The Standing Committees of the IFLA Section on Cataloguing and the IFLA Section on Serial Publications also liked what they read since they have approved *ISBD(CR)*, ensuring that other international sets of eyes have agreed that this standard reflects our collective best thinking as of today.

The *ISSN Manual* was also drafted by committee—revised by a working group of eight and edited by a group of four. They had the advantage of the work previously done for the revisions of *ISBD(S)* and *AACR2,* chapter 12, and the resulting instructions are unambiguous and the look is clear. It nicely complements the *ISBD(CR)* and provides a different method of presentation that may be useful for some catalogers.

There is one slight discordant note and it has to do with the sequencing of the publishing of the two documents. The *ISBD(CR)* refers in some places to the *ISSN Manual* or the *ISSN Manual*, *Part 2.* No additional bibliographic information is provided. The ISSN International Centre published its title in 2003 as *ISSN Manual—Cataloguing Part*. Within that document, section 2 (p.20) covers the assignment of the ISSN, and readers should note that instructions on ISSN assignment, particularly those covering ISSN and key title changes, begin with section 2.

No self-respecting serialists should be without these two publications in their personal cataloging collection. *ISBD(CR)* and the *ISSN Manual—Cataloging Part* are essential for understanding how to clearly describe and create sharable bibliographic records for serials. Many catalogers will also need to have AACR2, chapters 9 and 12 and any updates on hand as basic resources for constructing bibliographic records for serials and other continuing resources. Documentation from the CONSER (Cooperative ONline SERials) program is also necessary in order to create associated MARC records. Serial catalogers also will want to take advantage of the Serials Cataloging Cooperative Training Program (SCCTP) to learn about the changes represented by *ISBD(CR)*. The combined set of resources and training programs now do work in harmony and provide a full score for those who will be tackling the challenges of providing clear descriptions of serials and continuing resources for library users.—*Julia C. Blixrud (jblix@arl.org), Association of Research Libraries, Washington, D.C.*

Expectations of Librarians in the 21st Century. Ed. by Karl Bridges. Westport, Conn.: Greenwood, 2003. 235p. $67.95 (ISBN 0-313-32294-5).

This book, part of the Greenwood Library Management Collection series, consists of fifty-three essays on the characteristics and qualities of today's librarian. The contributors are practitioners in the field, some relatively new and some more seasoned, who provide their personal reflections on what it means—and what it takes—to be a librarian. The intended audiences are primarily those entering the profession as well as those hiring them, but there are observations that are useful even for those of us who have been around a while.

In her foreword, Leigh Estabrook characterizes the collection as being about "the knowledge, skills, and attitude required of new librarians" (x). While some of the knowledge and skills are subject-oriented, many are general (e.g., knowledge of human behavior and skills in working in today's organizations). Most of the essays are brief, and many are refreshingly informal. The overwhelming majority of the contributors come from the academic environment (there are three from public libraries), but at least there is a wide range in the types of academic institutions represented.

The most frequently mentioned skill is flexibility. This quality appears in nearly one-third of the essays. Given the fast-changing library world today, this is not surprising. The next most frequently mentioned skill is technological ability—not so much particular technologies as knowledge of how technology is and can be used and willingness and ability to continually update one's skills. Customer service is a close third, followed by teamwork orientation and communication skills. There is relatively little emphasis on specific knowledge (with the exception of essays dealing with information literacy or instruction), and there is an interesting focus on general personal characteristics such as empathy, curiosity, courage, integrity, and (especially) a sense of humor. As Virginia E. Young puts it, "Instead of seeking a specialized professional, we might admire a talented person with a new degree who is eager to try on the whole profession . . . a personality that reaches out to people to make connection . . . I want to hire someone who will hot link our library" (66–67).

I found several of the essays particularly interesting because of their unique presentations. Karen Fischer describes well-known people, their accomplishments, and the strengths they would bring to a library staff: for example, Susan B. Anthony (visionary), Barbara Jordan (spokesperson), and Eleanor Roosevelt (diplomat). Necia Parker-Gibson includes in her list of qualities of a twenty-first-century librarian a stubborn pragmatism and a genial willingness to ask for and spend other people's money. Shelley Ross gives a brief course in how to be arrogant about our expertise. Nancy Kuhl writes about the use of metaphor in imagining the future of librarianship and the library.

A few essays address the concept of the library as a business. Librarians need the ability to market library resources or services; to market themselves; to exercise strategic thinking; to use business and management tools and strategies. David M. Bynog points out that libraries face increasing competition from the business sector in serving patrons' needs and must learn how to compete effectively. I would have liked to see even more in this area, as I think marketing (our resources, our services, ourselves) and business approaches are critical in libraries today. This is still an emerging concept for academic libraries, but three out of the four major professional competencies for information professionals of the twenty-first century as defined by the Special Libraries Association have "managing" as their primary skill: A. Managing Information Organizations; B. Managing Information Resources; C. Managing Information Services; D. Applying Information Tools and Technologies.[1]

I must sadly point out to *Library Resources and Technical Services* readers that much of this collection is about reference work, while technical services librarians are almost completely overlooked. Bridgette Scott points out that an entry-level cataloger can acquire knowledge of automated systems, MARC, and classification; it is more important to possess personal characteristics such as problem-solving skills, flexibility, and a strong service orientation. Gwen M. Gregory states that technical services jobs require innovation, flexibility, effective use of technology, and an understanding of the affect of technical services on library users. Scott and Gregory have highlighted the same skills and characteristics for technical services librarians as do the other essays, but unfortunately I think this fact gets lost in the overall public service orientation of the authors in this collection.

Technical services are mentioned as part of five other essays. Jetta Carol Culpepper cites cataloging rules and classification schedules as areas of professional learning that change continually. Virginia E. Young, the director of a small college, has four professional positions and hires librarians who are comfortable multitasking and working in all areas of the library. Susan Herzog describes 1996 and 1997 reorganizations at California Lutheran University. Before 1996 there were reference librarians, a collection development librarian, and a cataloger. There are now information specialists with experience or training in reference, collection development, bibliographic instruction, computer software, and Internet applications.

Herzog does not indicate where cataloging went. David M. Bynog urges libraries to remain competitive by seeking out partnerships, for example, outsourcing of traditional functions such as cataloging. Craighton Hippenhammer believes that twenty-first-century librarians must be "militant segregationists, control freaks, and techno-believers" (191). Contrary to Young's approach, Hippenhammer advocates a return to separate public and technical services "camps" so that the necessary time is available for both. I'm not sure whether he is serious or deliberately provocative, but it's a lively essay.

Expectations of Librarians in the 21st Century is organized in an unusual way. Although the editor selected Mary Anne Hansen's essay to be first, the remaining essays appear in the order in which he received them. While theoretically it would be a more useful book if it were organized by subject area, many of the essays address similar work environments (academic reference) so there are not many different areas. I think it is more readable with the practical interspersed with the theoretical, and the reoccurrence of skills and qualities throughout reinforces their importance far more than a single article on "flexibility" would have done. It should be read or browsed straight through. Readers looking to focus on particular areas will be disappointed by the inadequate index.

Although it would have been better with a broader representation of library types, in general I recommend *Expectations of Librarians in the 21st Century* as an interesting read. Technical services librarians should think critically about how the skills described mostly in a public services context apply to us, too. Consider a job ad for a technical services position that asks for general characteristics instead of expertise with a specific ILS! The times they are a-changin' for all of us, and this book is a good start in thinking about where we're going.

—Betty Landesman (bettyindc@yahoo.com), University of the District of Columbia

Reference

1. Special Libraries Association, "Competencies for Information Professionals of the 21st Century," revised ed., June 2003. Accessed Mar. 2, 2004, www.sla.org/content/learn/comp2003/index.cfm.