

Building Connections

A Review of the Serials Literature 2004 through 2005

By Cecilia Genereux

This review of 2004 and 2005 serials literature covers the themes of cost, management, and access. Interwoven through the serials literature of these two years are the importance of collaboration, communication, and linkages between scholars, publishers, subscription agents and other intermediaries, and librarians. The emphasis in the literature is on electronic serials and their impact on publishing, libraries, and vendors. In response to the crisis of escalating journal prices and libraries' dissatisfaction with the Big Deal licensing agreements, Open Access journals and publishing models were promoted. Libraries subscribed to or licensed increasing numbers of electronic serials. As a result, libraries sought ways to better manage licensing and subscription data (not handled by traditional integrated library systems) by implementing electronic resources management systems. In order to provide users with better, faster, and more current information on and access to electronic serials, libraries implemented tools and services to provide A to Z title lists, title by title coverage data, MARC records, and OpenURL link resolvers.

As in past years, electronic journals pervaded all aspects of the serials literature in 2004 and 2005. Electronic journals were changing pricing models as well as management of and access to serials. Support and satisfaction with large, bundled collections of online journals diminished as librarians questioned their benefits and affect on collections. Librarians began looking at other pricing models, such as tiered pricing and open access. Managing and providing access to serials became more complicated, especially as the number of e-journals available to libraries grew. Typical print workflows did not work with online serials. Additional information, such as tracking subscriptions, licenses, URL changes, and title level coverage information, needs to be monitored. In response to those challenges, new serials management services and tools were developed and implemented by libraries. Some of those services assist in tracking coverage information, generating A to Z title lists, and providing MARC records. These services are changing the way serials are cataloged. Loading records has led to libraries changing their cataloging policies and is changing the responsibilities of serials catalogers.

Although e-serials touch all aspects of serials literature, another topic frequently mentioned directly and indirectly is the relationship between libraries, publishers, and vendors. The importance of communication and collaboration among all parties in the scholarly communication circle is illustrated by events and endeavors captured in the literature during 2004 and 2005. Examples of collaboration include those between publishers and libraries in dealing with the demise of *divine, Inc.* and the RoweCom bankruptcy; between an integrated library system vendor and libraries in creating a new serials management tool; and among all three groups in establishing standards for communicating serials metadata. Dialogue between libraries and scholars, who create, edit, and review journal

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content, has created greater awareness among scholars of journal pricing and open access issues.

Recent Literature Reviews

In looking back at the serials literature of 2004 and 2005, examining past literature reviews to get an idea of where the profession was prior to 2004 and where it might be heading is valuable. Two serials literature reviews have been published in recent years. In 2004, Silva reviewed the serials literature of 2002.¹ Noting that a review of literature had not been written since Riddick's in 1992, Silva did not attempt to fill in the gap between 1992 and 2002.² Instead Silva focused on serials literature of 2002 while briefly comparing 2002 topics of cataloging, electronic publishing, collection management, serials pricing, and serials management with the major themes identified previously in 1992. Silva found that, in 2002, networked information and electronic publishing—which were only just being introduced in 1992—inspired “nearly as much discussion in the serials literature as cataloging issues do.”³ The issue of electronic serials was no longer limited to networked information and electronic publishing; it pervaded all of the themes identified by Silva.

In the second and most recent serials literature review, covering the period of 2000 through 2003, Corbett found that electronic serials dominated the literature.⁴ Addressing a broader time period than Silva, Corbett took a slightly different approach to the review and limited it to the major themes of cost, management, and archiving. Instead of trying to capture all of the articles published within those themes, Corbett identified articles of significance, or that best represented a group of articles on a topic. However, not all major events and research were captured in the refereed literature, and Corbett looked beyond peer-reviewed publications for those.

Picking up where Corbett left off, this review covers the serials literature of 2004 through 2005. The author has chosen to focus on the subjects of cost, management, and access in the literature. This review also looks at how the connections between parties in the scholarly communication process have shaped the literature in those three areas. Like Corbett, this author found it necessary, at times, to look beyond peer-reviewed literature in order to cover major events or research. Not included in this review are issues related to collection development, such as statistics, transitioning from print to electronic collections, and archiving.

Cost

In 2004 and 2005, periodical prices rose at about the same rates as in the past several years. According to Dingley's

study of United States periodical prices, inflation rates continued to climb between 2003 and 2004, going from 7.5 to 8.2 percent, but dropped slightly to 6.5 percent in 2005.⁵ As serials prices increased, so too did the serials percentage of libraries' materials expenditures. In 2003 and 2004, serials expenditures made up 67 percent of materials expenditures at Association of Research Libraries (ARL) institutions.⁶ The cumulative increase in serials expenditures from 1986 to 2004 was 273 percent, an increase of 13 percent from 2003.

In late 2004, Oxford University Press released findings from a study it commissioned on journal price increases among twelve publishers of scholarly journals.⁷ Both commercial and not-for-profit publishers were included in the study, which found that overall price increases, from 2000 through 2004, varied from as low as 27 percent at Cambridge University Press (CUP) to as high as 94 percent at Sage Publications.⁸ Elsevier had the highest median journal prices for its titles, while CUP and Johns Hopkins University Press were in the bottom three median prices for every subject in which they publish.

In an article that evolved from a presentation at the 2004 North American Serials Interest Group (NASIG) annual conference, Siar, Schaffner, and Hahn examined, from the perspective of a librarian and a not-for-profit publisher, three types of current pricing models: variations of the traditional subscription, tiered pricing, and consortial pricing.⁹ Traditional subscriptions have been for individual print titles, while variations on the traditional subscription now include subscriptions for individual online titles, and either print or online with the other format for free (or at an additional, although reduced, fee).

Consortial pricing allows a group of libraries to leverage their collective bargaining power to obtain a reduction in subscription rates. Consortial prices generally provide groups of libraries with access to a larger number of titles than could be achieved individually. In the tiered-pricing model, differential prices are based on the size of the subscribing institution. This model has been common for electronic resources, but it has recently crept into practice for individual print and electronic journals. In a survey of tiered-pricing models in 2004, Hahn found that several scholarly society publishers adopted tiered pricing for thirty-one journals.¹⁰ To understand the consequences of tiered pricing, Hahn conducted sensitivity analysis of tiered-pricing models and found that, for journals with a subscriber base predominantly in lower tiers, subscribers in the highest tiers would face significant price increases, even when the differentials between the lowest and highest tiers are low.¹¹

Another pricing model featured in the serials literature during 2004 and 2005 was the Big Deal. The Big Deal is a license subscribing to a package or bundle of electronic journal titles over multiple years. As publishers have

merged, there are fewer journal bundles available with larger numbers of titles. Typical licensing terms for bundles have caps on annual inflation rates and cancellation limitations. Depending on negotiations, licenses may contain terms on archiving and nondisclosure. The journal bundles often contain titles that a library may not necessarily want and would not have selected if selecting on a title by title basis, and cancellation terms protect these titles during journal cancellation projects. A 2005 survey of ARL members on the topic of bundled journals found that although bundles were common, with respondents having, on average, three bundles with the five largest journal publishers, librarians' satisfaction with pricing and licensing terms were decreasing as Big Deals were renegotiated.¹²

Addressing the Big Deal from another perspective, a Stanford University survey of members from twenty life sciences societies looked at how scholars have reacted to journal pricing models, including the bundling of e-journals.¹³ The survey authors indicated that profit maximizing by publishers through Big Deals has resulted in cancellation of individual subscriptions and driven scholars to rely on library or other institutional subscriptions. With reduced personal subscriptions, publishers increase journal prices in order to maintain profits and rely more heavily on institutional subscriptions. The survey authors recommended that publishers keep in mind that "libraries are aggregate consumers (for individuals) and if individuals are not willing to pay for journal access at a given price, neither are libraries."¹⁴ The authors also recommended that libraries might be able to increase their bargaining power by collaborating with users. By communicating and building awareness among scholars of publishers' pricing practices, libraries may be able to influence where scholars submit and publish their articles.

Support for bundled electronic journals began to diminish in late 2003 and into early 2004, as academic libraries did just what the Stanford survey recommended. Efforts by libraries to increase faculty awareness of the ever-rising journal subscription rates (also known as the serials crisis), the role of the Big Deal in the crisis, and alternative publishing models paid off. In December 2003 and early 2004, faculty senates at several institutions passed resolutions demonstrating support for their libraries' decisions to refuse the Big Deal.¹⁵

The Big Deal continued to be discussed at conferences and written about in 2004. Speaking at the 2004 NASIG conference, Frazier addressed what he considered to be the biggest problem with Big Deals: the eventual inability of libraries to support journal package cost increases.¹⁶ Following Frazier with another take on the Big Deal, Ebert presented the benefits that the Big Deal can bring to smaller library collections.¹⁷ For smaller libraries, the Big Deal can represent significant increases in their collections. Beyond

the discussion of the positive and negative aspects of the Big Deal, an article by Gatten and Sanville in *D-Lib Magazine* examined how a consortium might go about backing out of the Big Deal, title by title.¹⁸ Armed with usage data for titles across the OhioLINK consortium, the authors identified low-use titles across the consortium and determined that usage data could be used in the future to drop titles from Big Deal collections.

Open Access

With the growing faculty awareness of the serials crisis that withdrawing from the Big Deal fostered, libraries and their institutions increasingly promoted open access (OA) as a way to provide access to scholarly output and attempt to halt or slow journal price increases. Although OA journals have been around for some time (Regazzi noted that as of early 2004, 81 percent of the titles listed in the *Directory of Open Access Journals* were founded in 2001 or earlier), momentum for OA as an alternate publishing model built in late 2003 and continued in 2004 and 2005.¹⁹ As interest in OA picked up, many articles on the subject appeared in the literature, including a special issue on the topic in *Serials Review*.²⁰ The articles in that issue, in addition to articles and reports published elsewhere, focused on the various types of OA publishing; the acceptance of OA with publishers, librarians, and authors; the sustainability of it as a business model for scholarly communication; and analysis of OA costs.

Interest in OA as a publishing model arises from two concerns: rising journal subscription prices and restrictions placed on the use of journal content.²¹ Two basic types of OA publishing models have developed to address the two problems. The first model addresses, or seeks to address, escalating journal prices by switching support for publishing costs from the subscriber to the author, the author's institution, scholarly society, or funding agency. BioMed Central and the Public Library of Science are two examples of the author or institutional fee-supported publishing model. Many variations of OA are in use: some publications offer selected OA articles, leaving the choice up to the author; other publications offer open access to articles in a set number of months after the article's initial publication.

The second type of OA model uses repositories and addresses the issue of restrictions on use. Repositories often are hosted at academic institutions and offer authors a place to self-archive pre-prints or post-prints, or both. They can be subject-based, such as arXiv, or limited to the intellectual output of a specific institution. While arXiv—originally a pre-print database for physics—has successfully expanded to include mathematics, nonlinear sciences, computer sciences, and quantitative biology, not all subject repositories

that have been created or proposed have succeeded. Weller noted both the success of arXiv and failed attempts in chemistry, psychology, and medicine, and concluded that, “The acceptance and use of preprint databases appears to be discipline specific.”²²

Mark Ware Consulting provided an environmental scan on institutional repositories (IR).²³ The report examines forty-five IRs, looking at the reasons for them, their uses, issues facing them, and publisher attitudes toward them. The report found that IRs are generally small and in the early stages of development. The report cautioned that while e-prints make up about 22 percent of the content in IRs, evidence suggests that they may have little impact on scholarly communication reform, and the number of e-prints could reflect the early stages of IRs.²⁴ The report concluded:

What is far less clear is whether IRs will develop large, interoperable collections of published literature, as hope the advocates of open access. IRs are currently at an embryonic stage with only small, experimental collections of documents, but a clear message from the IRs is that one major hurdle—possibly the major hurdle—is overcoming faculty’s inertia or indifference to self-archiving. It seems possible at present that IRs *per se* will fulfill a real and valuable function in supporting scholarly communication, research and teaching but that this function will be complementary to scholarly publishing rather in conflict with it. The impact of the wider open access movement is of course another matter.²⁵

In 2004 and 2005, various authors and libraries sought to determine the true cost of OA for institutions, but this did not prove easy. As Holmström noted, “It is difficult for institutions to compare the costs and benefits of subscription-based and open-access-based journals since they charge for their services in totally different ways.”²⁶ One measure used to determine cost for print journals is through cost-per-use data. Adapting the cost-per-use measure, Holmström proposed a method of measuring cost for OA journals by looking at the cost-per-article reading of OA articles. Once the cost-per-use (or cost-per-reading) has been determined for OA journals, then institutions have a method to compare traditional subscription-based journals to OA journals.

Cornell University Library (CUL) also tried to determine the true cost of OA publishing on an institutional level. CUL convened the Task Force on Open Access Publishing in January 2004, and the task force submitted its initial report in August 2004.²⁷ In the preliminary findings, the task force addressed the possible impact on CUL if OA were adopted broadly by Cornell authors. The task force deter-

mined that, if Cornell were to move completely to paying author fees in refereed OA journals instead of buying journal subscriptions, OA peer-reviewed journals “would not bring about cost savings for Cornell. In fact, taking into account the number of articles published by Cornell researchers each year and the average cost to publish a single refereed article, CUL would likely see its serial expenditures *rise significantly* if the library used its current subscription funds to pay for author fees instead.”²⁸ Responding to the CUL report, Gass found the results invalid as the report failed to take into account the role of third-party funding agencies in paying author-side charges.²⁹ “In the United States,” Gass noted, “many research funders like the National Institutes of Health already pay, directly or indirectly, for the publication of primary scientific articles.”³⁰

Addressing the sustainability of the current model of scholarly communication, Bosch outlined seven basic components needed for a sustainable business model for scholarly communication, and examined the OA model in terms of those components.³¹ Bosch concluded that OA is promising, but added that “no business model exists for scholarly journal publishing that makes sense and is going to be sustainable for all participants.”³² Bosch’s conclusion is reinforced by the findings of a report commissioned by the Joint Information Systems Committee (JISC).³³ As part of the report, librarians and publishers in the United Kingdom were surveyed on their preferences in OA business models when given a choice between seven different types. The findings indicated that, while everyone was dissatisfied with the current situation, no one model appealed to both publishers and librarians. A variety of models likely will continue to coexist.

Serials Management

During 2004 and 2005, issues around serials management generated a significant number of articles. Some of the issues related to the topic were shifting collections policies from print to electronic journals, managing licensing and subscription information, and providing and maintaining access. Threaded throughout the serials management theme was the relationship between publishers, libraries, subscription agents, and vendors.

Publishers, subscription agents, and libraries have built a collaborative system, one in which libraries place orders and pre-pay subscriptions to a subscription agent, subscription agents place the orders with publishers and pay the subscription fees, and publishers supply libraries with the ordered materials. This has been a trusted system, but occasionally the system is tested when one member of the system does not live up to expectations. Such was the case with the 2003 bankruptcy of subscription agent RoweCom

and its parent company, *divine*. “This is such a small community, and we are all so dependent on others to complete our respective missions,” commented Geller as she traced RoweCom’s history and troubles to its roots in the F. W. Faxon Company.³⁴ RoweCom had received almost \$73 million in prepaid orders from libraries. Instead of placing the orders and paying publishers, the money paid to RoweCom was taken by *divine*. When the two companies went bankrupt, publishers and libraries were left to deal with the resulting chaos of trying to determine which subscriptions had been placed and paid by RoweCom.

Documenting the efforts of publishers and librarians to resolve the financial mess, Wiegand also offered ideas on how libraries might protect themselves in the future.³⁵ In the end, publishers agreed to fulfill a majority of orders. According to Panos, the lawyer representing RoweCom creditors, “Because publishers agreed to fulfill a majority of orders and thus assumed those claims against RoweCom, currently there are nearly \$29 million in library claims and \$45 million in publisher claims against *divine*.”³⁶

In the aftermath of RoweCom, one of the strategies employed by smaller libraries was to bypass subscription agents and order from publishers directly. Doubt about the need for subscription agents was acknowledged by the Association of Subscription Agents (ASA) in a statement made by Rollo Turner, ASA secretary general: “The ASA recognizes that the situation has put considerable strain on the trust that still exists between libraries, agents and publishers.”³⁷ Eventually the strain placed on the relationship among libraries, agents, and publishers eased, for, as Geller noted, “the reality is that this intermediary is vital to the many-to-many relationship of libraries and publishers for all but the smallest library that can handle its own few subscriptions and the largest publisher that can afford to do its own customer service.”³⁸

With libraries licensing e-serials packages directly (or via consortia) through publishers and the aftershocks of RoweCom’s bankruptcy, libraries were questioning the need for subscription agents. Not wanting to be squeezed out, subscription agents were trying to define their role in handling electronic serials. Few articles were published on this subject. One of the few, by Wang and Schroeder, examined the evolving role of subscription agents and outlined how agents could expand their services to provide a service hub offering publishers and libraries support in distributing and managing online serials.³⁹ Several presentations at the 2003 and 2004 NASIG conferences on this topic included “Creatively Coping with Your Subscription Agent’s Bankruptcy” and the two-part session “Helping Manage the E-Journal Forest: Do You Need an Agent Any More?”⁴⁰

Subscription agents were not the only group to come under scrutiny. Davis documented Emerald’s (formerly MCB University Press) republishing of articles without

notification from 1975 through 2003.⁴¹ After searching articles in the Emerald database, Davis found evidence of republishing in more than seventy journals and, for some journals, entire issues consisted of republished articles. Republishing without notification goes against publishing guidelines outlined by the Committee on Publication Ethics and accepted by the Association of Learned and Professional Society Publishers. Publishers also have guidelines in place to ensure that original content is being published. Republishing without notification creates confusion in citations and it comes at a cost to libraries that may end up paying for the same content more than once.

In a letter to the editor in response to the article and to a letter by Davis, Howard reported that Emerald conducted a follow-up study of republishing in their journals and found 560 instances of original papers being republished, representing 1.1 percent of the total Emerald database.⁴² Howard noted that, “87 percent of republishing took place in or prior to 1999” and that any republishing after MCB’s name change to Emerald in 2001 was due to author or administrative error.⁴³ Emerald has adjusted its publishing practice, Howard acknowledged, to prevent further republishing errors, and articles republished now are fully attributed.

Electronic Journal Management

The number of electronic journals that libraries have access to through subscriptions, licensed collections, and databases has ballooned. Kyrillidou reported that 30 percent of materials budget expenditures at ARL libraries went to electronic resources.⁴⁴ In addition to increased spending on electronic resources, libraries have been shifting collecting priorities from print to electronic serials. One of the most clearly documented collection shifts in 2004 and 2005 was the description of the University of Nevada, Las Vegas Libraries’ experience by Zhang and Haslam.⁴⁵ There are a number of reasons why libraries, like the University of Nevada, are focusing on the electronic format. User demand and preference for quick access is one of the main reasons for the change. Other reasons include potential library cost savings: e-journals do not have to be checked in, claimed, tattle-taped, marked, or bound, and they do not require physical storage space.

A research report by Schonfeld and colleagues examining the nonsubscription costs between print and electronic serials found that most libraries realize cost savings if journal collections are switched from print to electronic format.⁴⁶ The amount of the savings was dependent on how swiftly the changeover occurred, and how quickly technical services staff became proficient at the new workflows that e-journals create. The report, however, does not attempt to address the potential long-term cost of archiving electronic content by the library or through an outside organization.

Other factors may need to be taken into consideration before changing over to electronic-only access. Covi and Cragin found unintentional results from shifting collections to electronic serials that they termed intermittent holes and unintentionally masked information.⁴⁷ Intermittent holes, or gaps in electronic holdings, can occur when journal titles are removed from aggregations or change publishers. Libraries may lose access to the content that once was available to them, leaving a gap in coverage. With unintentional masked information, the electronic content is readily available, but not findable because of user interface difficulties, typographical errors, or inadequate search capabilities.⁴⁸ Due to these two problems, the authors find that “increasing electronic access to information could result in less intellectual access to knowledge” in the long run.⁴⁹

The growth in electronic collections has left libraries struggling with how to manage online serials and provide access. As Ives explained, “The explosion in the availability of electronic titles, the dynamic nature of availability and access, and the ‘overnight’ popularity of electronic access have challenged our ability to deliver services and content at the level our users are demanding. Manual systems proved inadequate in keeping up with the workload.”⁵⁰

Vendors responded to libraries’ electronic serials management needs by creating new products and services to provide A to Z e-journal title lists, coverage information, and better URL maintenance as well as to simplify user access to electronic content. A number of articles during 2004 and 2005 were devoted to libraries’ experiences with implementing such publication access management services (PAMS) as Serials Solutions and TDNet, or linking resolution services such as Ex Libris’ SFX. The vast number of articles in this area prohibits the author from mentioning all of them. A few representative examples are the description of Colorado State University Libraries’ implementation of SFX, the use of Serials Solutions by Texas A&M University, and the University of Denver, Colorado’s use of Gold Rush.⁵¹

As libraries come to rely on outside services to manage e-journal titles and coverage information, libraries expect the data to be current and accurate. As a result, the vendor products are updated regularly. However, as Chen noted:

Just because full-text finding tool vendors update their products regularly does not mean that the lists are actually up-to-date, because full-text finding tool vendors get updates from content providers who have various updating schedules and practices, and thus are of varying quality. This has a significant impact on the quality of serials management systems, OpenURL link resolvers, and imported MARC records.⁵²

Chen is not the only author to see the interdependence between libraries, serials management vendors, and content

providers. Ives noted that Texas A&M University Libraries had “issues with the quality of the Serials Solutions datafeed. Serials Solutions is dependant [sic] in the first instance on getting good information from publishers.”⁵³ Cochenour, Jaramillo, and Wilde mentioned similar issues with Ex Libris’ SFX, finding SFX only as good as its knowledge base and its dependence on complete and accurate data from content providers.⁵⁴

As a result of the need to communicate accurate and timely serials metadata between libraries, subscription agents, publishers, and PAMS, ONIX (ONline Information eXchange) for Serials is being developed and piloted by the National Information Standards Organization (NISO) and EDItEUR (the international group coordinating development of electronic commerce standards in the book and serials sectors). ONIX is a family of three standards: Serials Release Notification (SRN), Serials Online Holdings (SOH), and Serials Products and Subscriptions (SPS). Some of the anticipated uses of the ONIX formats are:

communication of information about subscription packages available for a publisher or agent, information about journals contained in those packages, automated serials check-in, automated updates of online catalogs, population and updating of link resolver knowledge bases, automatic assignment of identifiers like digital object identifiers (DOIs), as well as other applications not yet envisioned.⁵⁵

PAMS and link resolution services assist libraries in providing and managing access to their electronic serials. Libraries are looking to electronic resource management systems to track other, more administrative data, such as subscription and licensing information. Electronic resources management requires different workflows from print resources. Exploring other disciplines for newer ways of describing electronic resources management processes, Emery outlined five major areas of work: acquisitions, access provision, administration, support provision, and evaluation or monitoring of the access.⁵⁶ The data that libraries need to track is not part of the traditional integrated library system (ILS). For that reason, libraries have struggled with management as their electronic resources collections have expanded. Emery explained the difficulty in incorporating electronic resources management into existing integrated library systems:

Part of the reason why there has been such a struggle to develop an electronic resource management tool is because what is needed is a tool that provides us with the ability to perform transaction processing, house-needed knowledge management elements, and provide room for decision support mechanisms. The merger of these three information systems requires a complete redesign or

reconceptualization of what an integrated library system was originally intended for and there are developments underway by all of the major integrated library system vendors to develop tools that make attempts to fulfill all of these needs.⁵⁷

One ILS that was completing development on an electronic resource management system during this period was Innovative Interfaces, Inc. Innovative partnered with several of its customers to develop and test their system, Electronic Resource Management. The partnership was an opportunity for both the vendor and libraries to create a management tool to fill a need in the library community. Reporting on the development partnership process, Grover and Fons offered both vendor and library perspectives on the relationship.⁵⁸ Harvell outlined the activities and responsibilities of the University of California, San Diego, as a beta test site for the Innovative product, and the implementation of it by Ohio State University and the Oregon Health and Science University—two other Innovative partners—was described by Tull and colleagues.⁵⁹

By mid-2005, integrated library system vendors were not alone in developing and providing electronic resource management systems. Expanding on an earlier article by Duranceau in *Against the Grain* that compared ERM systems available through ILS vendors, Collins compared the ERM systems available and in development from ILS vendors, PAMS, subscription agents, and non-profit organizations.⁶⁰ The author offered advantages and disadvantages of going with integrated and stand-alone systems. In addition, Collins suggested ways that libraries can prepare for the implementation of an ERM.

ERM systems have not developed quickly enough to meet the needs of some libraries. A few libraries, such as the University of Florida Libraries and the University of Illinois at Chicago Libraries, have created their own electronic serials management system or tools. To better manage and provide access to licenses for electronic resources, the University of Florida Libraries scan licenses, save the scanned documents as portable document format (PDF) files, and make them available through links in the OPAC.⁶¹ The University of Illinois at Chicago Library created a relational database, Database of Library Licensed Electronic Resources (DOLLeR), using Filemaker Pro to manage electronic resource subscriptions and licensing activities.⁶² Lastly, Alan documented Pennsylvania State University Libraries' use of an in-house database, Electronic Resources Licensing Information Center (ERLIC), and their transition to using their system in conjunction with commercial products.⁶³

Access

During 2004 and 2005, an increasing interest in how serials relate to the *Functional Requirements for Bibliographic*

Records (FRBR)—a conceptual model for framing bibliographic relationships—and how *FRBR* concepts could be incorporated in cataloging practices, was apparent. *FRBR* is an entity-relationship model that describes an entity and its relationships to other entities. Within *FRBR*, four basic levels of abstraction apply to bibliographic resources. The four levels of abstraction, as defined in *FRBR* are: *work*, a distinct intellectual or artistic creation; *expression*, the intellectual or artistic realization of a work; *manifestation*, the physical embodiment of an expression of a work; and *item*, a single exemplar of a manifestation.⁶⁴

Serials are rarely used to illustrate the *FRBR* model because they are aggregate works. They are comprised of smaller works that can exist independently, a situation leading to fundamental questions: “What is a serial work?” and “Does *FRBR* apply to serials?” Three very thoughtful studies of serials and *FRBR* were published in 2004 and 2005. Jones examined the *FRBR* model as it applies to continuing resources and found four problematic areas.⁶⁵ The four areas mentioned by Jones are: “(1) the nature of the *work* in *FRBR* and Anglo-American cataloging; (2) the hierarchies used for expressing bibliographic resources; (3) the level of abstraction at which bibliographic resources are described; and (4) the varying techniques for expressing relationships among bibliographic resources.”⁶⁶

In another article, Riva mapped MARC 21 bibliographic format linking entry fields (fields 760-787) to *FRBR* and to Tillett's taxonomy of bibliographic relationships, including the Smiraglia extension to it.⁶⁷ Riva's mapping suggests that future enhancements to MARC coding might be needed to better distinguish bibliographic relationships. In addition, such an exercise is useful when mining existing MARC data for use in *FRBR*-aware databases. In the third article, Antelman provided a thorough look at the title main entry currently used to identify a serial work, the problems inherent with using the title as the identifier, and how *FRBR* or other entity-relationship models might be used to identify a serial at a more abstract level.⁶⁸ These three articles will surely begin an ongoing discourse on *FRBR* and the application of *FRBR* principles in relation to serials.

Moving from the theoretical to the practical, articles published during 2004 and 2005 about serials cataloging mark a period of change and adjustment to new cataloging rules, cataloging practices and workflows, and serials cataloger responsibilities. Two events had an impact on the serials cataloging literature. The first was the late 2002 update to the *Anglo-American Cataloging Rules*, 2nd ed. (AACR2), especially the rules regarding major and minor title changes.⁶⁹ Assisting others in navigating serials major and minor title changes, Garner, Collins, and Shadle provided explanations and examples to illustrate the application of the rule changes that were part of the 2002 update.⁷⁰ The authors also explored the reasons behind the title change revisions, goals of the revision, and the impact of the revisions on libraries.

The second event was the adoption of the aggregator-neutral record established by the Cooperative Online Serials Cataloging Program (CONSER) in 2003. As in other areas of the literature, electronic serials were having an impact on serials cataloging and cataloging workflow. Cataloging treatment options for online serials, single or separate records, were outlined by Leathem.⁷¹ The single record option allowed online access to be added to the print record and was a quick way to add e-journals to the catalog. Prior to July 2003, using the separate record cataloging option meant creating records for each online manifestation of a serial. A single title could be available from several online providers, each with its own record.

The proliferation of records for online serials in library catalogs and in the bibliographic utilities, as well as patron confusion, prompted the adoption of the aggregator-neutral record by CONSER in July 2003. The aggregator-neutral, also referred to as Option B+ prior to adoption, calls for a single record to represent all electronic versions of a title. Young, one of the initial creators of the aggregator-neutral record proposal, provided background on the aggregator-neutral record and outlined CONSER practice for constructing an aggregator-neutral record.⁷² Illustrating the differences between past practice and the aggregator-neutral record, Shadle presented MARC records for separate records based on provider and for the aggregator-neutral record.⁷³

The adoption of the aggregator-neutral record was eagerly anticipated by catalogers. Results of the CONSER Aggregator Survey indicated almost unanimous support among survey respondents for the aggregator-neutral record.⁷⁴ Results of another survey, one addressing serials cataloging practices at academic and research libraries and reported by Chen and colleagues, indicated that some libraries were “monitoring CONSER, impatiently awaiting the implementation of the CONSER B+ skeletal record.”⁷⁵

Cataloging policy changes were not the only changes resulting from access to increasing numbers of e-journals. The number of e-journals available to libraries and continual maintenance needed to keep coverage information and URLs current pushed manual cataloging and maintenance of bibliographic records beyond what many libraries were capable of handling quickly and efficiently. The results of the spring 2003 survey of serials cataloging practices reported by Chen and colleagues noted growing use of access services, such as Serials Solutions and SFX, and the use of vendor-supplied catalog records. The trends identified by Chen and colleagues were echoed by Collins in interviews with serials catalogers in 2005.⁷⁶ Collins interviewed ten serials catalogers from eight academic libraries and provided accounts of how the eight libraries have changed their cataloging policies and practices to streamline the e-journal cataloging process.

Collins identified three areas of change in serials cataloging at the end of 2005: changes to “the MARC record, record maintenance, and the job responsibilities of the serial cataloger.”⁷⁷ As with Chen and colleagues, Collins found that the academic libraries represented in the interviews had changed their manual cataloging practices because of e-journals. At least one library, Clemson University, changed its cataloging policy from single records to separate records for print and online serials in order to facilitate loading vendor records. Automating record creation and maintenance, these libraries found, “has provided a cost-effective means for streamlining the cataloging workflow and keeping pace with constant record changes.”⁷⁸ Some of the methods employed were the use of record sets from vendors, bibliographic record services, and local scripts to create records based on ERM data and data from e-serials management services. In another example of automating e-serials cataloging, the article “Rehabilitating Killer Serials” gives an account of Cornell University Library’s automated process for creating and maintaining abbreviated e-journal records based on title and holdings data from Serials Solutions.⁷⁹

Another trend noted by Collins was the changing roles and duties of serials catalogers.⁸⁰ As more online journals are being cataloged by automated means, serials catalogers are involved with record loads, writing local scripts, and maintaining e-journal title information with access management services. Traditional cataloging skills are still being used by serials catalogers, but online journals are driving serials catalogers to develop skills in other areas in order to effectively meet the needs of library users.

While others were trying to figure out how to catalog more standard online serials (i.e., those e-serials closely resembling print serials), others were looking at providing access to less mainstream serials, such as zines, e-zines, and blogs. Stoddart and Kiser identified zines as publications that act as the “unfiltered voice of the common person,” which are published and distributed independently.⁸¹ Stoddart and Kiser acknowledged that defining zines is difficult to do. However, the authors warned that zines should not be confused with e-zines. E-zines are similar, but different, and equally difficult to define. Stevens, while examining the long-term stability of literary e-zines, noted that “there is little agreement as to what an e-zine is—is it the online version of a zine, or can it be any online publication at all, including newsletters, self-help/advice sites, or even *The New York Times*?”⁸² Despite the difficulty in formulating definitions of zines and e-zines, Stoddart and Kiser, and Stevens indicated that zines and e-zines have value as information resources and should be included in library collections. Stoddart and Kiser also offered suggestions on how to obtain zines and how to provide access to them.

Zines and e-zines can be irregular in their publication and may cease publication at any time. When zines stop

being published, past issues are still available because of their physical nature. Access to e-zines after they cease publications, however, is uncertain. In order to reduce resources spent on selecting and cataloging unstable e-zines, Stevens identified a list of factors that might indicate an e-zine's longevity and identified a set of e-zines to use in a study.⁸³ In a follow-up article, Stevens and McCord provided analysis of the data from the study and provided a predictive model for determining e-zine longevity.⁸⁴ The Stevens and McCord model was able to select 100 of the 116 e-zines considered stable and correctly screen out all e-zines that had ceased or were considered unstable. Five questions can help identify e-zines that are likely to be stable and can be used by libraries when selecting e-zines for inclusion in their collections. The questions range from whether or not an e-zine is available at its stated URL to questions about frequency of publication and where the e-zine resides on the Web.

With "TalkLeft, Boing Boing, and Scappleface," by Moeller and Rupp, the issue of collecting and providing access to blogs via the catalog made its debut in 2005.⁸⁵ Previous writings about blogs have been about blog use by libraries and librarians. The authors provided examples of how blogs are used as information resources, reasons why libraries might want to include them in their collections, and how to catalog blogs. Blogs fit the definition of a continuing resource, but whether a blog is a serial or an integrating resource requires careful examination of the blog being cataloged.

In addition to the bibliographic record, serials holdings records also received attention in the literature. The holdings record is governed by two standards, the ANSI/NISO Z39.71-1999 Holdings Statements for Bibliographic Items (Z39.71) and the MARC 21 Format for Holdings Data (MFHD). Z39.71 governs content and display, and MFHD governs the encoding and communication of holdings records. Wanting to find out how libraries were recording serials holdings and why libraries were choosing to record holdings in a particular manner, Moeller and Lu conducted a survey on the implementation and use of MFHD.⁸⁶ The authors found that almost 91 percent of the respondents used holdings records to display serials holdings, and that detailed holdings (Z39.71-1999) were the most commonly used expressions for the holdings. Just more than half of survey respondents, 61 of 117, indicated that paired coded MARC fields were in use at their libraries. When asked why the paired coded fields were being used, the predominant reason was to ease future ILS conversions—not a surprising answer, as the survey was taken at a period when many libraries had converted or were about to convert to a new ILS. Interestingly, several of the other top reasons for using paired coded fields had to do with possible future benefits.

Moving beyond local holdings records, Ashman studied the use of serials union listing records in OCLC Online

Computer Library Center's WorldCat database.⁸⁷ Although union lists have been used primarily to facilitate resource sharing, they also can be used to provide reference services and serve as a tool for collection management. Prior to enhancements made to WorldCat in 2002, users of the database could only tell if an institution held a serial. The only information that displayed was the library's name and OCLC symbol, considered Level 2 holdings according to MFHD. With the enhancements, WorldCat users now are able to see volume-specific holdings (Level 3 holdings) if libraries have elected to create the union listing records. Ashman's study examined how often libraries enhanced their Level 2 holdings with volume-specific information and found that "academic libraries had union listing records for 77.6 percent of the serial titles that they had cataloged, but the examined ARL libraries had union listing statements for only 46.85 percent of their cataloged serial titles."⁸⁸ Ashman concluded that more libraries may upgrade their holdings in WorldCat due to another OCLC development, the ability to batch load serial holdings.

Conclusion

Electronic journals permeated the major themes of cost, management, and access outlined in this review. The impact of online serials on publishing, libraries, and intermediaries has been tremendous. As libraries began turning away from the Big Deal, the dialogue around OA increased. Repositories and open access journals were promoted as ways to provide an alternative to traditional publishing and, hopefully, as a way to slow journal price increases. The serials literature of 2004 and 2005 shows libraries struggling to cope with providing access to and managing electronic journals. Libraries were implementing new products and services, such as link resolvers, A to Z lists, and ERMs, aimed at providing that control and access. These services and products are provided by e-serials management intermediaries, a new group in the scholarly communication circle. In addition to the new e-serials management intermediaries, traditional subscription agents were redefining their work to include electronic journals and offering libraries services for managing e-journal subscriptions.

A fourth theme interwoven throughout the literature is the connections among all groups in the scholarly communication circle—authors, publishers, libraries, and vendors. The literature review found evidence of those connections at work in the communication and collaborations between libraries and scholars; libraries, subscription agents, and publishers; libraries and ILS vendors; and libraries, e-serials management service providers, and content providers. Libraries communicated with faculty, who are authors and editors, about journal pricing issues, open access, and

repositories. Successful communication allowed a number of academic libraries to walk away from the Big Deal, with the full support of their faculty senates. It also generated further discussion and promotion of alternative publishing models.

An integrated library system vendor partnered with libraries to develop a new product to respond to the growing need for a system to manage electronic resources administrative data. Libraries and publishers worked together to find the best resolution to the divine/RoweCom financial crisis. Efforts are underway, with involvement from all parties, to create standards for communicating serials metadata. Hopefully, those efforts will pay off in improved communication between content providers, libraries, and e-journal management services as they work to provide users with timely and accurate information about the title availability and full-text coverage information for those titles.

A few subjects were not well-represented in the serials literature, mainly in the areas of serials acquisitions, and the relationships and communication between libraries and third-party service providers, and between those intermediaries and content providers. The author was surprised that more was not written about serials acquisitions work. With libraries changing collections from print to electronic formats, little was written about how print serials acquisitions work has been affected, how staffing was altered, and whether any activities were discontinued or added to acquisitions work.

Another topic receiving surprisingly little attention in the peer-reviewed literature was the relationship and communication between libraries and subscription agents. A number of conference presentations and a few articles addressed the subject; perhaps more will make their way into the literature soon.

Finally, accurate and timely communication of serials metadata among libraries, e-serials management service providers, and content providers is crucial to supplying library users with the information they need. Little, however, has been written on how often title lists and coverage data are published by content providers, the accuracy of the data when it is provided, and how frequently the information is updated. The need for improved and standardized communication of serials data to various interested parties is evident and will be more important as new tools are developed that rely on the same coverage information.

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