

# From Innovation to Transformation

## A Review of the 2006–7 Serials Literature

By Patrick L. Carr

*This paper reviews the leading trends in and contributions to the peer-reviewed and professional literature of serials librarianship published in 2006 and 2007. The review shows that a central topic in the literature is the nature and effect of libraries' ongoing transition from acquiring serials in print to providing access electronically. Propelled forward by user preferences, this transition is reflected in publications that reconceptualize collections and describe innovative initiatives and strategies for acquisition, access, and management. Throughout the literature, the review traces a prevailing sentiment that libraries are advancing well beyond the confines of print-centered models and are assuming new roles, imagining new possibilities, and developing new solutions.*

The literature of serials librarianship published in 2006 and 2007 reveals a field in rapid transition. The changes occurring range from the shifting nature of serial collections to evolving models, initiatives, and management strategies used to acquire and administer access to these collections. According to Plutchak, serials librarianship and scholarly communication as a whole are currently in a period of innovation in which emerging technologies are ceasing their emulation of the past and revealing extraordinary new possibilities.<sup>1</sup> Plutchak believes that this period will culminate in the transformation of scholarly communication so that technology “overturns the capabilities that were previously thought to be the pinnacle, and brand new ways of doing things become possible.”<sup>2</sup> From this perspective, the 2006–7 serials literature might be said to offer a first, nascent glimpse of the landscape stretching before libraries as they pioneer their way from a period of innovation to one of transformation. Indeed, there is a prevailing sentiment in the literature that libraries have advanced well beyond the confines of print-centered models in their strategies for acquiring and administering serial access. The literature shows libraries assuming new roles, imagining new possibilities, and developing new solutions.

This paper, the latest entry in *LRTS*' ongoing series reviewing the serials literature, starts where Genereux's review of the 2004–5 literature left off.<sup>3</sup> It examines the peer-reviewed and professional literature of serials librarianship published in 2006 and 2007. The primary resource for identifying publications to include in the review was *Library Literature and Information Science*. In addition, citations in publication reference lists, postings on electronic discussion lists, and serendipitous discovery all contributed to forming the body of literature that was examined. Within this body of literature, the criteria for selecting publications to review was based on the author's judgment of which publications most fully exemplify the leading trends in and contributions to serials librarianship's literature.

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Submitted May 26, 2008; tentatively accepted and returned to author for revision June 15, 2008; revision submitted August 10, 2008, and accepted for publication.

The first section of the review, "Collections and Concepts," takes a broad perspective, surveying the forces that the literature indicates are reshaping the nature of serials in libraries. Specifically, it reviews changes in the use, formats, and cost of serials and analyzes the effect of these changes on how serials are defined. The next section, "Acquisition," considers the literature's discussion of the evolving means through which serial access is acquired. In addition to assessing the current state of publisher packages, it gives particular attention to the effect of the open access (OA) movement and acquisition models that shift emphasis from ownership to access. The third section, "Access," examines publications describing libraries' three primary serial access points: online catalogs, link resolvers, and metasearch engines. The fourth section, "Management," reviews the literature's discussion of how the managers of serial collections are responding to new challenges and opportunities. It focuses on how these managers can successfully communicate, achieve change, and improve workflows and organizational structures. The final section of the review, "Initiatives," describes what the literature indicates to be the leading efforts to develop initiatives resulting in the enhanced acquisition, administration, evaluation, and archiving of serials.

Given the far-reaching scope of the serials literature, this review cannot be comprehensive. Among the excluded topics are citation analyses, publishing costs, marketing, the storage and retention of print serials, institutional repositories, and the OA movement's effect on the publishing industry and scholarly communication. In addition, this review is restricted to literature written in English and places an emphasis on publications geared toward librarians in the United States, Canada, and the United Kingdom.

## Collections and Concepts

A central topic in the 2006–7 literature is the nature and effect of libraries' ongoing transition from acquiring serials in print to providing access electronically. This transition is being propelled forward by user preferences and is manifesting itself in evolving collection formats, costs, and concepts of seriality.

### Use Studies

As Johnson and Luther conclude from their interviews with twenty-four librarians and publishers, user preferences are among the primary forces reshaping serial collections.<sup>4</sup> Use studies published in 2006 and 2007 show preferences for e-serials among a variety of communities. A representative study is Brady, McCord, and Galbraith's analysis of the 2003 print and e-serial use of researchers at Washington

State University's Owen Science and Engineering Library.<sup>5</sup> Comparing the results of their analysis with a previous study conducted at the same site, the authors discovered that use of the library's serial collection in electronic formats increased from 71 percent of total use in 2001 to 94 percent of total use in 2003. The authors believe their findings show a "cultural shift" in user preferences.<sup>6</sup> Rowlands's review of e-serial use studies published in the professional literature offers further evidence for users' preferences for accessing serials electronically.<sup>7</sup> One of the author's key findings is, "Where implemented, electronic versions of journals have displaced print use dramatically and at a much faster rate than many anticipated."<sup>8</sup>

Voorbij and Ongering discuss reasons for users' preferences for e-serials in their survey of Danish faculty conducted in 2003 and 2004.<sup>9</sup> The authors found that the most cited reasons for using e-serials over their print counterparts are e-serials' enhanced functionalities (e.g., the ability to perform full-text searches and use hyperlinks within articles) and increased accessibility. In their survey of the academic staff within the Consortium of Academic Libraries of Catalonia, Borrego and colleagues provide a picture of e-serial use as it relates to users' discipline and age.<sup>10</sup> Use was highest among researchers in biomedicine, engineering, and the exact and natural sciences, who use e-serials either primarily or entirely, and lowest among researchers in the social sciences and humanities, who primarily use print serials. The authors also learned that e-serial use is prevalent among researchers under the age of forty, while most researchers over the age of fifty-one persist in accessing serials in print.

### Format

Libraries have responded to users' preferences by transitioning to e-serials. Prabha documents this in an analysis of the formats in which members of the Association of Research Libraries (ARL) subscribe to a sample of 515 serials.<sup>11</sup> From 2002 to 2006, ARL libraries' print subscriptions to the sample serials dwindled by 32 percent while electronic subscriptions grew by 34 percent. Prabha's research also shows that the period from 2005 to 2006 was a watershed in which, for the first time, electronic subscriptions to the sample serials surpassed print subscriptions. Hahn gives further evidence for the shift to e-serials in a 2005 survey assessing the participation of eighty-nine ARL libraries in serial packages offered by five large publishers: Blackwell, Elsevier, Springer, Taylor and Francis, and Wiley.<sup>12</sup> Of the packages that respondents indicated they were participating in for 2006, 58 percent involved the cancellation of print versions of the serials within the packages. This fact leads Hahn to conclude that libraries are swiftly moving to electronic-only formats for serials within publisher packages. Drawing

on their interviews with librarians and publishers, Johnson and Luther predict that this trend will continue: “Although the pace and likely ultimate extent of the transition differs from institution to institution, all are moving along a continuum from print-only to dual-media to e-only journals.”<sup>13</sup> In the near future, they speculate, it is possible that all but 5 percent of many libraries’ serial collections will only be accessible electronically.

### **Redefining Serials**

Changes in the formats of serial collections have introduced deeper questions regarding the nature of seriality. In Soule’s review of the evolving definitions that libraries have applied to serials over the past fifty years, the author comments that a challenge libraries will face in their future efforts to define a serial is the “increasing fragmentation of information” in a digital world.<sup>14</sup> Soule contemplates whether this fragmentation might someday manifest itself in a decision by publishers to abandon efforts to organize serials into units such as volumes and issues and instead make articles accessible electronically as they are ready for publication. Van Orsdel foresees a similar disaggregation, commenting that libraries are experiencing “a seeming shift of interest to the piece rather than the container, the article rather than the journal, the definition rather than the dictionary.”<sup>15</sup> In Plutchak’s view, the outcome of this shift is that “the serial as defined by the librarian is an anachronism in the digital age, and will not survive for long.”<sup>16</sup> The author argues that, in the current period of transition, the attempt to clearly define a serial is futile. While acknowledging that, at present, the article remains prevalent, Plutchak anticipates that data sets and social networking tools have a revolutionary potential.

### **Cost**

The evolving nature of serials has resulted in complex changes in the size and average unit cost of library collections. An ARL report shows that, following fifteen years of stagnation, the number of serials purchased by member libraries skyrocketed by approximately 64 percent from 2001 to 2005.<sup>17</sup> The report further indicates that the average unit cost of a subscription has decreased by approximately 23 percent from 2000 to 2005. Explaining the factors behind these trends, Kyrillidou points to libraries’ dual-format subscriptions (e.g., a print plus online subscription), which, according to ARL guidelines, should be counted twice.<sup>18</sup> Other contributing factors cited by the author include consortial arrangements and libraries’ transitions to online-only subscriptions, which are sometimes less costly than subscriptions in other formats.

Libraries’ expenditures further reflect the transition to

e-serials. ARL statistics suggest that, for the period from 1994–95 to 2004–5, member libraries’ e-serials expenditures have ballooned by over 1,600 percent.<sup>19</sup> Libraries’ overall serials expenditures have also experienced rapid increases. Since 1986, for example, ARL libraries’ serials expenditures have increased by 302 percent, a rate of growth that significantly exceeds increases in the annual consumer price index over the same period.

Rising subscription costs is one of the primary factors affecting these complex changes in collection sizes, average unit costs, and expenditures. Reviewing the costs of serials listed in three databases produced by the Institute for Scientific Information as well as EBSCO’s Academic Search Premier database, Van Orsdel and Born estimate that academic libraries in the United States experienced 2007 subscription cost increases of 9 percent for domestic serials and 7.3 percent for foreign serials.<sup>20</sup> The authors predict that 2008 subscription costs will increase by an additional 7–9 percent. White and Creaser provide added documentation of the inflating costs of subscriptions.<sup>21</sup> Examining data that Swets Information Services provided for the subscription costs of eight commercial publishers and three university presses, the authors calculate overall price inflation of approximately 39 percent between 2000 and 2006. Moghaddan further contributes to the literature’s discussion of pricing through a comparison of the 2003 subscription costs of serials from five commercial publishers and five nonprofit publishers.<sup>22</sup> Among the author’s findings is that the average subscription cost of the commercial publishers’ serials exceeded the average subscription cost of the nonprofit publishers’ serials by approximately 280 percent.

### **Acquisition**

As a result of rising subscription costs, predictions regarding the sustainability of established acquisition models can be dire. Van Orsdel, for example, warns that “library budgets are, and will continue to be, no match for journal price inflation or for the cost of new journals as they appear.”<sup>23</sup> The author suggests that a key component to overcoming this crisis is developments in the marketplace that foster competition and elasticity. The 2006–7 literature discusses both established acquisition models and their alternatives.

### **Publisher Packages**

The literature shows that the bundling of serials into publisher packages continues to be a prevalent acquisition model. Hahn documents this prevalence in a 2005 survey assessing the participation of eighty-nine ARL libraries in serial packages offered by five large publishers: Blackwell, Elsevier, Springer, Taylor and Francis, and Wiley.<sup>24</sup> Most

respondents (93 percent) subscribed to at least one of the publishers' packages, and, on average, respondents subscribed to packages offered by three of the publishers. The two most cited reasons for participation in packages were that "content and access offered were a good return on the investment" and "alternative non-bundled forms of access to the content were prohibitively expensive."<sup>25</sup> Together, these responses lead Hahn to speculate that libraries' participation in packages indicates that they "may be making the best of a bad situation."<sup>26</sup> The survey further shows that fifty respondents have had one or more cancellation projects for the subscription years 2004–6, and 66 percent of these fifty respondents have protected packages from cancellation. Hahn notes that the implication of this is that other portions of the respondents' collections have suffered more significant cuts. Ultimately, the author argues that the survey's results demonstrate that publishers should offer packages with terms and pricing structures that are more accommodating to the needs of libraries.

### The OA Movement

The OA movement, which aims to make research freely available online, constitutes a central effort to transform scholarly communication. Although the body of literature discussing and debating the OA movement extends outside the boundaries of serials librarianship, several noteworthy publications examine a topic directly affecting libraries' serial acquisitions: the correlation between the growth of the OA movement and library subscriptions.

From the results of a survey of 340 librarians, Ware concludes that, for the time being, libraries do not generally consider the availability of OA content to warrant the cancellation of subscriptions.<sup>27</sup> Among the factors leading to this conclusion are that librarians do not see OA content as an acceptable or reliable substitute for a subscription. Likewise, librarians possess neither an awareness of nor plans to analyze the overlap between subscribed and OA content. However, Ware also found that 81 percent of respondents believe the availability of OA content would be "very important" or "important" in forming cancellation decisions.<sup>25</sup> Moreover, while 32 percent of respondents assured publishers that they should not be worried about cancellations, 54 percent felt that it was too soon to make such a determination. Beckett and Inger's subsequent survey of 424 librarians portrays the OA movement as a greater threat to the continuation of libraries' subscriptions.<sup>29</sup> Approximately 40 percent of the survey's respondents indicated that they feel it is wasteful for a library to subscribe to serials with content that is freely accessible online. Citing findings such as these, Beckett and Inger conclude that "a significant number of librarians are likely to substitute OA materials for subscribed resources, given certain levels of reliability, peer review, and currency

of the information available."<sup>30</sup>

In an editorial appearing in *Learned Publishing*, Anderson echoes the sentiments expressed in the findings of Beckett and Inger.<sup>31</sup> He comments that "it is highly likely that rational individuals and libraries will cancel subscriptions to journals whose content is immediately, freely, easily, and reliably available at no charge."<sup>32</sup> Some commentators, however, foresee the coexistence of subscriptions and the availability of OA content. Pinfield, for example, examines four possible scenarios for the future of scholarly communication and concludes that subscriptions and the OA movement can be viewed as complimentary models rather than competitors.<sup>33</sup> For coexistence to occur, Pinefield believes that a number of major changes need to be instituted by both OA repository administrators and publishers. These changes include

widespread deployment of repository infrastructure, development of version identification standards, development of value-added features, new business models, [and] new approaches to quality control and adoption of digital preservation as a repository function.<sup>34</sup>

### Acquisition and Ownership

The OA movement is not the only threat to established acquisition models. As Anderson states, "The arguments for traditional collection development are losing their strength with every passing day."<sup>35</sup> Competing with these traditional arguments are models focused on acquisition of access without ownership. Carroll and Brink describe a project at the University of New Hampshire (UNH) Library that exemplifies this trend.<sup>36</sup> Beginning in August 2003, UNH opted to meet users' growing access needs through a document delivery service rather than the initiation of new subscriptions. The authors deem the project a successful strategy for reducing expenditures and comment that UNH hopes to cancel little-used and high-cost subscriptions and instead provide access to these serials through a document delivery service.

Offering further evidence of libraries' exploration of nontraditional acquisition models are articles that have been written to assess the full-text access that aggregated databases provide to serials in specific disciplines.<sup>37</sup> Together, these articles suggest a growing interest in leasing content through aggregated databases (which typically do not ensure perpetual access) rather than owning the content through a subscription with perpetual access provisions. Stemper and Barribeau document the trend toward acquiring access without ownership in an article that received the 2007 Best of *LRTS* Award.<sup>35</sup> The authors' literature review and informal survey suggests that more than 80 percent of

research libraries will enter into an agreement regardless of whether the agreement ensures that the access acquired is perpetual.

In an article that received the 2007 Blackwell Scholarship Award, Atkinson asserts that this willingness to acquire access without ownership represents “the greatest single failure of research libraries in the past decade.”<sup>39</sup> Several publications advocating that libraries secure perpetual access rights reflect this perspective. In their analysis of fifty serial and aggregator license agreements entered into by the University of Minnesota, Stemper and Barribeau found that a majority of these agreements (64 percent) include provisions for perpetual access.<sup>40</sup> Although these provisions often included loopholes, vague wording, and specifications of additional fees, the authors nevertheless deem their findings heartening. However, they temper their optimism by emphasizing that publishers’ willingness to grant perpetual access rights is only of value if libraries pursue these rights.

Kenny and colleagues further stress the importance of securing perpetual access.<sup>41</sup> Drawing on interviews in which they assess archiving concerns voiced by fifteen library directors, the authors analyze twelve archiving programs. The conclusions derived from this analysis convey a sense of urgency. Kenny and colleagues state that

current license agreements are inadequate to protect a library’s long-term interest in electronic journals, that individual libraries cannot address the preservation needs of e-journals on their own, that much scholarly e-literature is not covered by archiving arrangements, and that while e-journal archiving programs are becoming available, no comprehensive solution has emerged and large parts of the e-literature go unprotected.<sup>42</sup>

In light of this finding, they recommend that libraries, publishers, and archiving programs strive to enhance communication, coordinate efforts, advocate change, and make meaningful commitments to participating in initiatives. Publications describing these initiatives are reviewed in the “Initiatives” section of this paper.

## Access

Issues related to access were a focal point in the 2006–7 serials literature. Perhaps the broadest contribution on this topic is O’Hara’s analysis of the results of a 2005 survey assessing how 145 academic libraries make their e-serials accessible.<sup>43</sup> The survey’s findings suggest that libraries are generally relying on three access points: online catalogs, link resolvers (included Web-based lists powered by link resolvers), and metasearch engines.

## Online Catalogs

One important conclusion derived from O’Hara’s survey is that libraries have not reached a consensus as to the best strategies for providing access to serials within the online catalog.<sup>44</sup> Perhaps more than anywhere else, this is apparent in libraries’ varying decisions regarding whether different versions of a serial (e.g., electronic, print, and microform) should be represented by separate catalog records or a single record. In O’Hara’s survey, the decisions of respondents varied considerably, with approximately the same number of libraries moving from a single record approach to a separate record approach as were doing the opposite. According to Allgood, “This multiple versions (MulVer) problem represents a defining challenge of the automated catalog era.”<sup>45</sup> In the author’s in-depth investigation of the problem, three closely related possibilities for resolution are discussed: the replacement of *Anglo-American Cataloging Rules*, 2nd ed., with *Resource Description and Access*; adoption of the International Federation of Library Associations and Institutions’ *Functional Requirements for Bibliographic Records (FRBR)* model; and utilization of Machine-Readable Cataloging (MARC) 21 authority, bibliographic, and holdings formats.

Of these three possible resolutions identified by Allgood, *FRBR* constitutes the core theoretical groundwork for addressing the MulVer problem. As described by Shadle, *FRBR* is a model that “can be used to support the ability of users to find, identify, select, and obtain bibliographic resources.”<sup>46</sup> Shadle explains that the model represents bibliographic resources within a hierarchy consisting of four levels:

- Work: A distinct intellectual or artistic creation
- Expression: The intellectual or artistic realization of a work
- Manifestation: The physical embodiment of an expression
- Item: A single exemplar of a manifestation<sup>47</sup>

Within this model, multiple versions of a serial can be conceptualized as multiple manifestations of a single expression. For example, Allgood shows that the *New York Times* can be viewed as a single expression with electronic, microform, and print manifestations. As a result, integrated library system (ILS) developers have a framework for structuring information within online catalog displays that facilitates user navigation between multiple versions of a serial. Indeed, Allgood believes that an online catalog offering users a “tree-like display for works with multiple expressions or manifestations represents one of the most intriguing potential features of the *FRBR* model for library OPACs.”<sup>48</sup> This statement, in turn, is representative of Allgood’s overall

contention that the greatest promise for a short-term resolution of the MulVer problem rests in enhancements that ILS developers can make to user interfaces. While the realities of current bibliographic control dictate that catalogers continue “to store and exchange data as cohesive manifestation-level description,” Allgood asserts that librarians should advocate the development of interfaces addressing the MulVer problem through enhanced capabilities for record indexing and display.<sup>49</sup>

Collins and colleagues offer an example of an effort to address the MulVer problem through an enhanced online catalog interface.<sup>50</sup> They discuss a project in which North Carolina State University (NCSU) Libraries and Endeca Technologies collaborated to develop and implement Endeca as the user interface of the libraries’ online catalog. Collins and colleagues explain that the Endeca interface has the potential to automatically “connect or ‘FRBRize on the front end’” different manifestations of the same serial expression.<sup>51</sup> They add, however, that, while the interface could show connections between records, the absence of an identifier in the MARC record for a work prevents the interface from “display[ing] a hierarchical view of the serial work.”<sup>52</sup>

An additional barrier to effective serial access within the online catalog is discussed in a special section of the *Serials Librarian* featuring four articles examining the relative advantages and disadvantages of latest and successive entry cataloging.<sup>53</sup> These articles discuss whether cataloging codes should retain the convention of cataloging serials according to latest entry, which can force users to search through several records to find the one that is needed. As with the MulVer problem, these articles look to *FRBR* and enhanced interfaces as possible resolutions.<sup>54</sup>

### Link Resolvers

O’Hara’s 2005 survey of 145 academic libraries revealed that link resolvers were used as an e-serial access point by 74 percent of respondents.<sup>55</sup> This finding leads O’Hara to conclude that the technology, which can be used to generate Web-based serial lists, is “becoming a second library catalogue for serials.”<sup>56</sup> Apps and MacIntyre discuss how a link resolver works, explaining that the technology supports context-sensitive linking by enabling a library’s authenticated users to seamlessly link from a citation in a database to options that the library offers for accessing the cited content.<sup>57</sup> Beyond this core function, articles have explored additional roles that a link resolver can play.<sup>58</sup> These additional roles include providing data for analyzing users’ search patterns and generating links from citations in the online catalog and free online resources (e.g., Google Scholar, Windows Live Academic, and Open WorldCat, now WorldCat.org).

The widespread implementation of link resolvers has

resulted in articles that compare and assess specific products. For example, Livingston, Sanford, and Bretthauer describe a project to determine the best link resolver for the University of Connecticut Libraries (UCL) through an investigation of other libraries’ experiences using link resolvers.<sup>59</sup> Drawing on the results of a literature review, surveys, and on-site visits, the authors were able to make in-depth comparisons between three products: Ex Libris SFX, Endeavor LinkFinderPlus, and Serials Solutions Article Linker. SFX was ultimately selected as being the best fit for the needs of UCL. Among the factors leading to this decision were SFX’s accuracy, flexibility, low maintenance requirements, large market share, and detailed reports and use statistics.

Wakimoto, Walker, and Dabbour assess users’ and librarians’ experiences with the SFX link resolver.<sup>60</sup> Working in the San Marcos and Northridge campuses of the California State University System, the authors conducted online surveys of users, focus groups of librarians, analyses of use statistics, and test searches. In the case of users’ experiences, they found that, by a small margin, expectations regarding SFX exceeded users’ level of satisfaction. Librarians were generally satisfied but expressed unease with inaccurate information that SFX sometimes provided concerning accessible content. The authors note that, in general, complaints were not due to deficiencies of SFX itself but instead involved the databases that SFX links to and from.

The enhancement of link resolvers is the subject of a report by Culling, who recommends means of improving coordination and communication of information in the knowledge bases powering link resolvers.<sup>61</sup> Drawing primarily on the results of interviews with representatives of the various parties involved in managing link resolver knowledge bases, the author describes the nature of the knowledge base supply chain and the relationship of the various stakeholders in this chain. Culling finds misunderstandings and poor coordination throughout the chain and recommends the development of an organization that “would seek to bring stakeholders together to define a visible code of practice for effective participation in the knowledge base supply chain.”<sup>62</sup> Furthermore, the author advocates that stakeholders increase their partnerships with subscription agents while taking a proactive stance in applying tools for the automated exchange of knowledge base information.

### Metasearch Engines

In O’Hara’s 2005 survey of 145 academic libraries, 30 percent of respondents reported that they make e-serials accessible through a metasearch engine, which enables a user to search multiple databases simultaneously.<sup>63</sup> The nature and effect of metasearch engines as access points is the subject of a special section of a 2006 issue of *Serials Review*.<sup>64</sup> A central focus of a number of the articles in this

section are the development and features of specific metasearch engines on the marketplace, including SwetsWise Searcher, Endeavor Discovery: Finder, WebFeat Express, and Muse Metasearch Engine.<sup>65</sup> In addition, this section provides guidelines for the selection and implementation of a metasearch engine. For example, Highsmith and Ponsford discuss Texas A&M University Libraries' implementation of Ex Libris' metasearch engine, MetaLib.<sup>66</sup> Tracing a process that extended from fall 2004 through January 2006, Highsmith and Ponsford describe the stages of implementation, including database testing and configuration, interface customization, prerelease user testing, beta testing, and staff and user training.

Lindahl contributes another perspective on the implementation of a metasearch engine.<sup>67</sup> The author contends that most commercial products' out-of-the-box interfaces make the metasearch process more complex and time-consuming than necessary. Drawing on the University of Rochester River Campus Libraries' development and enhancement of its metasearch engine, Find Articles, Lindahl offers a case study of how a library can collaborate with stakeholders to customize its metasearching capabilities so that they more effectively meet users' needs and expectations. Walker adds to the literature's discussion of innovations to metasearch engines by extending focus from locally implemented enhancements to industrywide standards being developed by the National Information Standards Organization (NISO).<sup>68</sup> The author explains that the goals of the NISO Metasearch Initiative are threefold. These goals are to empower

- metasearch service providers to offer more effective and responsive services;
- content providers to deliver enhanced content and protect their intellectual property; and
- libraries to deliver services that are distinguished from those offered by Google and other free Web services.<sup>69</sup>

## Management

As serial collections, acquisitions, and access points are evolving, so too are management strategies. The 2006–7 literature features an abundance of publications describing how the transition to e-serials is leading managers to achieve change by enhancing workflows and communication channels.

### Achieving Change

At the core of managers' efforts at enhancement is an ability to achieve change. White explores this topic in a discussion of the University of Memphis's implementation of staffing

changes at the libraries' periodicals desk.<sup>70</sup> Following an analysis of different change models, White states that the libraries' plan included five steps: "defining the changing, creating a common goal, involving the staff, providing an opportunity for feedback, and providing an opportunity to learn and grow."<sup>71</sup> Ohler contributes an additional perspective.<sup>72</sup> Drawing heavily on the professional literature, she discusses four components to achieving change that any manager must grasp: "(1) The information and serials environment, (2) organizational structure and culture, (3) workflow analysis and staff resources, and (4) the implementation and use of technology."<sup>73</sup> A key concept emphasized throughout Ohler's analysis is the importance of cultivating an attitude of openness in adapting to users' expectations, in fostering communication within an organization, and in implementing the tools and technologies needed to manage e-serials.

### Workflow Analysis and Reorganization

Managers cannot apply their knowledge of how to achieve change without first being aware of when change is needed. Yue and Anderson describe how the University of Nevada, Reno Libraries increased their awareness on this account through the development of a flowchart depicting the libraries' workflows for managing e-serials.<sup>74</sup> They explain that, through its illustration of procedures, the flowchart has enabled the libraries to identify ways to clarify responsibilities, streamline operations, and eliminate inefficiencies. Graves and Arthur give another example of the benefits of analyzing serial workflows.<sup>75</sup> They discuss a project that the Serials Unit of Old Dominion University Libraries conducted to assess workflows and resource allocations during the libraries' transition from print to e-serials. The most influential outcomes of this analysis were the establishment of a Serials and Electronic Resources Unit and the transformation of the titles and responsibilities of two librarian positions so that these positions can better coordinate e-serial management.

As libraries have updated their workflows to address the challenges of e-serials, the need for traditional, print-centered procedures has been called into question. Anderson argues that libraries should adopt practices that are more representative of users' preferences for accessing serials electronically.<sup>76</sup> In doing so, Anderson cites four examples of tasks that are not always a prudent allocation of time and resources: claiming, binding, subject authority control, and unessential customization of records. Borchert describes one library's effort to discontinue a fundamental procedure in print serial management: check-in.<sup>77</sup> During the University of South Florida Tampa Library's migration to a new ILS, managers opted to stop routine serial check-in. Due to such factors as the arrangement of the library's

collection according to the Library of Congress classification system and the library's commitment to continue binding serials, Borchert reports that the experiment led the library to conclude that check-in is still necessary.

Frost and Woo discuss a similar workflow change, this one consisting of the elimination of binding at Hong Kong Baptist University Library.<sup>78</sup> Low use of print serials combined with increasing subscription and binding costs resulted in the authors' recommendation that the library discontinue binding all currently received serials that are either (1) accessible perpetually online, (2) accessible online (regardless of perpetual access provisions) and used less than five times per year, or (3) un scholarly newsletters. Instead of binding these materials, which constitute over 85 percent of the library's currently received serial collection, the authors advocate that noncurrent issues be stored in boxes.

### Communication

E-serials are also changing managers' communication channels. Feather explores these changes in a discussion of Ohio State University Libraries' analysis of e-resource management communications.<sup>79</sup> The analysis aimed to develop an awareness of the nature, structure, and role of the varying types of e-resource communication occurring at the libraries. Feather reports that this awareness enabled the libraries to enhance communication by

updating and improving online request forms, reducing the number of individuals involved in certain workflow communications, reducing the number of inappropriate messages sent to an e-resources unit group e-mail account, spreading awareness among other staff about the e-mail clutter caused by notifying too many individuals of a problem, and encouraging library-wide staff viewing of ERMS records.<sup>80</sup>

Other publications shift the focus from internal communications to communications between libraries and their external partners. For example, Robertson reports that Strader, Roth, and Boissy presented at the 2005 North American Serials Interest Group Annual Conference on how libraries can better collaborate with publishers and subscription agents.<sup>81</sup> The presenters proposed a checklist outlining the responsibilities that each party has in ensuring a libraries' e-serial access is activated and retained.

### Initiatives

The challenges libraries face in the management of their serial collections have led to the development of innovative

partnerships among libraries, publishers, subscription agents, and other stakeholders. The initiatives resulting from these partnerships are a major topic of discussion in the 2006–7 literature.

### Acquisition and Administration

With the transition to e-serials, acquisition increasingly necessitates the negotiation of a license agreement, which is a complex task involving a significant investment of time and expertise. Hahn describes one effort to simplify this undertaking: NISO's Shared E-resources Understanding (SERU) Working Group.<sup>82</sup> Through its development of a best practices document that both a library and publisher can honor, the SERU Working Group offers a pragmatic alternative to license negotiations. Hahn explains that by accepting the terms of the document, both parties can forgo negotiations, thereby streamlining the acquisition process.

Beyond license negotiations, acquisition and administration require that libraries, publishers, and subscription agents exchange metadata regarding serial access and availability. Miller and Klemperer discuss how the NISO/EDItEUR Joint Working Party for the Exchange of Serials Subscription Information has enhanced this process through its development of three Online Information Exchange (ONIX) formats: Serials Products and Subscriptions, Serials Online Holdings, and Serials Release Notice.<sup>83</sup> Among the positive outcomes that libraries can achieve through these standards are a reduction in unneeded claims for print issues, the automation of URL changes in a library's access portals, and the reconciliation of holdings in preparation for package deals.

Following the acquisition of an e-serial, a library must effectively record, track, and communicate the business and licensing terms. The central tool that libraries rely on to complete this task is an electronic resource management system (ERMS). While the literature of previous years centered on the introduction of ERMS, the 2006–7 literature places increased focus on efforts to enhance these systems. Fons and Jewell, for example, discuss the second phase of the Digital Library Federation's Electronic Resources Management Initiative (ERMI).<sup>84</sup> The authors characterize the 2004 report resulting from the initial phase of ERMI as a "key document for the development of ERMS" and explain the ways in which the second phase of ERMI will further enhance e-resource management.<sup>85</sup> Among the enhancements they cite are a review and update of the first phase's Data Dictionary and the facilitation of opportunities through which librarians can use this document to map licensing terms to ERMS fields. Other focal points include the integration of ERMS with ILS, link resolvers, and standards for evaluating e-resource use.

While many of the ERMS available to libraries are



commercial products, other systems have been developed by libraries themselves. For example, Meyer describes E-Matrix, an ERMS developed by NCSU Libraries, and Stranack describes CUFTS, an open-source serial management software system developed by Simon Fraser University Library.<sup>86</sup> Discussing the lessons learned from implementing a homegrown ERMS, Meyer advises that libraries opting to take this path will need personnel with significant expertise in both programming and e-resource management.

### Evaluation

The literature's discussion of the evaluation of serial use centers around two initiatives: Counting Online Usage of Networked Electronic Resources (COUNTER) and the Standardized Usage Statistics Harvesting Initiative (SUSHI). Pesch describes COUNTER as a code of practice that e-resource access platforms can voluntarily adopt to consistently record and exchange a library's e-resource use information.<sup>87</sup> In a separate article, Pesch discusses how SUSHI builds on the COUNTER initiative.<sup>88</sup> He explains that SUSHI is a protocol through which COUNTER-compliant use statistics can be automatically transmitted from e-resource access platforms to a library's ERMS. In doing so, SUSHI relieves libraries from the tedious process of manually retrieving use statistics.

The implications of initiatives such as COUNTER and SUSHI have been explored from a number of contexts. Analyzing the e-resource use statistics of a large research library over a three-year period, Blecic, Fiscella, and Wiberley consider the effect of both COUNTER and enhancements to users' ability to search and access e-resources.<sup>89</sup> Among the authors' key findings is that, while COUNTER has significantly enhanced libraries' ability to evaluate e-resource use, enhancements in users' abilities to search e-resources redefine the meaning of use statistics. Accordingly, they caution that enhancements in e-resources' searchability requires corresponding enhancements in the measures libraries rely on for evaluating use.

In a study sponsored by the United Kingdom Serials Group, Shepard examines another topic related to the success of initiatives such as COUNTER and SUSHI: the viability of developing usage factors (UF).<sup>90</sup> The UF would offer a means for measuring a serial's quality on the basis of use statistics. Describing the results of a survey of authors, editors, librarians, and publishers, Shepard reports that "there is significant support, even among established publishers whose journals perform well in IF [ISI impact factor] rankings, for the development and implementation of journal UFs."<sup>91</sup> The findings of Duy and Vaughan offer further insight on the relationship between e-serials' use and IFs.<sup>92</sup> Assessing the use and citations of chemistry and biochemistry serials at Concordia University Libraries, the

authors found that, while there were strong correlations between print and electronic use and between electronic use and local citation data, there was no correlation between IFs and electronic use.

### Archiving

The 2006–7 literature's most far-reaching analysis of e-serial archiving initiatives is a Council on Library and Information Resources report authored by Kenney and colleagues.<sup>93</sup> This report discusses the results of a survey of twelve e-serial archiving initiatives in which representatives of the initiatives were questioned regarding six topics: "organizational issues, stakeholders and designated communities, content, access and triggers, technology, and resources."<sup>94</sup> Based on the responses, the initiatives were evaluated regarding their ability to meet indicators for success. These indicators concerned each initiative's mission and mandate, rights and responsibilities, content coverage, minimal services, access rights, organizational viability, and role within a network. Key among the report's recommendations are that initiatives "should present compelling public evidence that they offer at least the minimal level of service for well-managed collections" and that they clearly indicate the publishers and holdings included.<sup>95</sup> Further recommendations involve securing guarantees that holdings can never be removed; considering the implications of holdings' entry into the public domain; and forming a network of initiatives in order to provide mutual support, broaden collaboration, and enhance communication.

The archiving initiatives receiving the most attention in the literature are Portico and Lots of Copies Keep Stuff Safe (LOCKSS). Portico is a nonprofit initiative developed with support from JSTOR, Ithaka, the Andrew W. Mellon Foundation, and the Library of Congress. Fenton, the executive director of Portico, describes the initiative's archiving strategy as the normalization of the source files contributed by participating publishers.<sup>96</sup> This approach aims to facilitate the successful migration of the files as new data formats replace current formats. Portico grants supporting libraries access to archived content following designated "trigger events" or, in some cases, following a supporting library's cancellation of an archived resource. LOCKSS archives e-serials using a different strategy. As Seadle states, this initiative "offers a community-based rather than a corporate approach."<sup>97</sup> He expands to explain that LOCKSS constitutes a network of libraries using the same open-source software. This software both archives the source files of participating publishers and maintains the integrity of these files by comparing the contents of each libraries' LOCKSS archive with the archives of other libraries in the network. In contrast to Portico, LOCKSS does not normalize source files. Due to concerns that normalization may corrupt data

and alter content, LOCKSS relies on a bitstream approach to archiving that preserves content precisely as it appears to users.

## Conclusion

The 2006–7 literature shows that serials librarianship is in a period of great innovation. Propelled forward by user preferences, libraries are rapidly transitioning from acquiring serials in print to providing access electronically. Accompanying this transition in the formats of collections are evolving concepts of seriality and increases in subscription costs. Among the outcomes of these changes are new ideas regarding the models through which serials are acquired. Although more established models such as publisher packages continue to pervade, libraries are demonstrating growing interest in alternatives. These alternatives include relying on OA content and acquiring access through arrangements that do not include provisions for perpetual ownership. Countering this latter strategy are voices within the profession that advocate the need for libraries to secure perpetual ownership provisions during the acquisition process.

Innovations are equally apparent in the literature's discussion of serial access, management, and initiatives. Online catalogs, link resolvers, and metasearch engines are emerging as libraries' primary points for providing serial access. For each of these access points, efforts are underway to evaluate and enhance users' abilities to search for and access content. Meanwhile, managers are achieving change by reassessing and restructuring workflows, organizations, and communication channels so that they are focused on the electronic access and administration of serials. Finally, stakeholders throughout the serials landscape are partnering to develop new initiatives. For example, SERU holds promise as a pragmatic alternative to license negotiations; COUNTER and SUSHI are enhancing the evaluation of e-serials; and archiving initiatives such as Portico and LOCKSS are providing mechanisms through which libraries can retain perpetual access to their e-serial collections.

Looking to the future, the literature is sure to reflect further innovations in the movement to transform serials and libraries. With these innovations will come significant challenges to the imaginations of those engaged in serials librarianship. For example, the 2006–7 literature shows a gulf between some of the alternative models being explored for acquiring serial access and the perspectives of commentators advocating the need to secure perpetual access provisions. Publications aiming to both clarify and reconcile these differences between the need to meet users' expectations for expansive e-serial access and research libraries' traditional commitment to retaining ownership of their collections would be welcome additions to the professional literature.

Also of value to the professional literature would be more publications examining the wider effect of the transition to e-serials on libraries' organizational structures and tools for providing and managing e-serial access. Indeed, while the 2006–7 serials literature includes numerous contributions discussing the implementation of specific tools and tasks related to e-serials, the literature includes relatively few publications addressing the large-scale implications that the centrality of e-serials is having on libraries. For example, the literature would be enriched by publications describing how the transition to e-serials has led to larger changes in the organization of departments and workflows and in the overall infrastructure of tools libraries rely on to manage and provide e-serial access. The 2006–7 serials literature's focus on specific tools, projects, and procedures likely will serve as a springboard for future contributions to the literature that explore the broader effect of innovations in serials librarianship.

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