

Challenges and Possibilities for Collection Management in a Digital Age

By Tony Horava

This paper considers some of the major issues concerning collection management in academic libraries in a rapidly changing environment. Specifically, this paper reflects on core values, scholarly communication issues, acquisition activities, access and delivery issues, and innovation. The paper concludes with ideas for incorporating shifts in these areas into a sustainable, forward-looking approach to collection management.

What is collection management in the digital age? Our environment is fast-paced, driven by rapid changes in information technology, emerging areas of interdisciplinary research, a profusion of new digital resources, budget constraints, changes in teaching practices and learner expectations, and shifting institutional policies and priorities. What happens to collection management in this sea of information resources and formats, access methods, and budgetary choices? This paper seeks to answer this question by exploring collection management in terms of core values, scholarly communication issues, acquisitions activities, access and delivery issues, and innovation. It concludes with reflections for charting the future of collection management.

We can begin by asking what can be a valid and tenable concept of collection management. The problem is far more complicated than it was in the predigital age. Collection size and scope, as determined by holdings counts, particular strengths, and unique materials, were formerly understood in relation to institutional mission and programs. The “tonnage” model of collection building traditionally has been focused on breadth and scope of owned resources, although this is starting to change as the importance of access to leased resources is recognized. Mapping resources to an institution’s collective needs was challenging but not impossible. The universe of available publications and formats was finite; with professional experience, one could connect the dots to recognize its size and scale in relation to a specific collection’s desired parameters. Johnson notes that collection management was proposed as a concept in the 1980s: “It includes collection development and an expanded suite of decisions about weeding, cancelling serials, storage, and preservation.”¹

While these core activities remain integral to our work, their scope has altered significantly. Selection of new material, weeding of less important items, storage off-site, and preservation in various formats are best understood in the

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context of our dramatically changing information landscape. This includes the transformation in scholarly communications practices, the broad impact of information technologies and communication devices on the use of the collection, new forms of information-seeking behavior and learning styles, and the explosion of online resources for obtaining, using, and sharing knowledge and research. Taken together, these changes present a challenge to our time-honored practices and strategies. Can we reinvent our roles to incorporate the new realities of our cultural and technological environment? What are the implications for our understanding of collection management only decades after its recognition as an important field within the library world?

Traditionally, pride and prestige were imbued in the hundreds of individual daily actions of building a permanent collection that would serve our community's present and future needs with reasonable effectiveness. In many respects, size did matter. Quality and quantity were interwoven values. The warehouse was the typical metaphor for describing this approach, but for many large libraries it was more akin to building a cathedral. The zeal had a transcendental, pseudo-religious quality to it. The collection had a sacred element for those who contributed in diverse but cumulative ways to support learning and scholarship. The book collection, not surprisingly, played a central role in how the overall collection was understood and perceived. Books, in their vast quantity and depth of argument, commanded awe and respect in ways that journals and other formats never could, particularly in the humanities and social sciences. However, Sandler puts this in sober perspective:

Libraries are not about books; they were, are, and will be about facilitating communication across space and time. Books have been a way to do that historically, but today there are other, often better, ways to accomplish this. Libraries need to become facile at supporting all sorts of media, and they must continue to embrace the new, or face the consequences of losing relevance to the mainstream culture.²

Approaches to collecting material have evolved over time in the context of our institutional role, our financial resources, and the formats for containing scholarly information. Gorman summarizes how the understanding of a library collection has changed over the last century or so:

The definition of a library collection has expanded over the last 125 years to comprise at least four levels: locally owned physical documents; physical documents owned by other libraries but available through ILL; purchased or subscribed to electronic documents; 'free' electronic documents.³

This reflects several major developments, such as the establishment of resource-sharing networks (e.g., interlibrary systems and union catalogs), the increasing importance of digital materials for education and scholarship, and the growing availability of free digital resources that are deemed valuable to students, faculty, and other researchers. The challenge lies in how to balance libraries' finite resources of money, time, and energy against these several directions of collection focus. No single approach will suffice because each will be important for addressing the library community's diverse information needs and educational goals. These are complementary collection strategies that allow us to offer a hybrid of core and specialized resources, owned and un-owned. Viewed together, they challenge the traditional collection-building assumptions of permanence, control, and relative comprehensiveness. Traditional approaches to budget allocation, collection development policies, acquisition workflow, and preservation honed over several decades will need to be realigned in relation to these intertwined collections strategies.

How we reformulate our practices of selecting, acquiring, and disseminating a collection is one of the most difficult issues we face. Lee notes that "tangibility, physical collocation, format, and ownership are no longer adequate for conceptualizing a collection. Unfortunately, they have deep roots in the traditional thinking, and will take some effort on our part to get rid of them in developing and broadening collections."⁴ As we navigate in the new era, we are often taken out of our comfort zone. Our collections should assist patrons in making sense of the world; i.e., collections should help patrons solve the wide range of intellectual, social, and cultural problems they want to address. We need to redefine the collection in ways that correspond to how our users engage with scholarly information resources, regardless of format, to meet this goal. If we do not provide timely and tailored resources for sense-making, other interests with commercial motivations will fill the void, thus undermining the basic purpose of the collection. This brings to mind one of Ranganathan's laws—"Books are for use." This simple but meaningful dictum applies to all media and resources.

Moreover, we need to consider our priorities for content and interactivity differently. These cannot be separated into discrete compartments for attention. Content and interactivity now are intimately linked in ways that were impossible before the digital era. Therefore the content—whether a scholarly article, blog posting, systematic review, government report, digital map, or e-book—needs to be assessed not only on the quality of its content, but also in relation to how it can be used, shared, repurposed, and integrated into teaching, learning, and research. Being a creator, publisher, and consumer of information are facets of the same continuum of activity. Disintermediation has become a hallmark of autonomous behavior in communication

and information-seeking behavior. Individuals follow their own course of inquiry without needing any guidance from information professionals such as librarians. The ubiquity of media mash-ups and format and time shifting are a natural element of this continuum. These online behaviors challenge collection practices developed in a print era.

Another marker of our intellectual landscape is the separation between content and container, or information and artifact.⁵ The digital medium is expanding information visibility enormously, both where the unit of meaningful information is small (e.g., a paragraph) and where it is much larger (e.g., an entire book). This expansion of information visibility has several implications for libraries. We need to expose the full range and depth of information content within our traditional containers. Our public tools need to allow this deep mining to occur as seamlessly as possible for the patron, and we need to think in terms of a knowledge management approach to our collections.

Core Values

Various core library values are implicit in our common understanding of collection management. Several come to the foreground: equity of access, intellectual freedom, open access, stewardship, and trustworthiness. Equity of access assumes that everyone should have the ability to use the collection for his or her own needs; no one should be excluded. Reducing and eliminating barriers is grounded in democratic principles, and it has been an important thrust of library activity. The marked trend toward greater protection for intellectual property rights holders has unhinged the delicate balance between competing interests between users and rights holders, thus pushing our profession to adopt advocacy and teaching strategies in response.

The idea of intellectual freedom, or freedom to read, underlies the notion that the collection should not be censored. For all publicly funded libraries this has been ethical bedrock, and the battles fought over the years are evidence of this steadfastness of purpose. The notion of a balanced collection is integral to how we perceive our professional responsibility. We inherently aim for developing a collection that presents equilibrium of numerous perspectives, interests, and ideologies in a well-rounded manner. While censorship can be subtle, such as the practice of self-censorship, our long-standing opposition to censorship has helped define how collections are developed.

A belief in the value and importance of open access (that is, access to resources that are digital, online, free of charge, and not limited by copyright and licensing restrictions) has taken firm hold in the library community. Open access is viewed by many as the legitimate and fundamental form of scholarly communication for taxpayer-funded research in

the library community and in many research communities. Open access peer-reviewed journals, public domain e-books, and large-scale cultural memory archives such as the Library of Congress's American Memory Project (<http://memory.loc.gov/ammem>) or the British Library's Online Gallery (www.bl.uk/onlinegallery) have demonstrated the value of these resources as a public good. As we select and make accessible these resources via numerous channels—such as Web portals, link resolvers, catalog records, and federated search tools—we are implicitly telling our patrons that they have met our standards of quality and relevance and are to be used alongside commercial, fee-based information resources. For the patron who does not know and does not care whether a resource is free, the provision of access via the library is a credentialing, deliberate function that has collection-related implications. How we count these resources in our management reporting activity is of less importance than the enhanced value that they provide to our patrons, who want timely and relevant resources that can help them achieve their educational and research goals.

Commitments to open access can take various forms, e.g., a fund to defray authors' publishing costs, an initiative to fund journal or book publishing, advocacy efforts, organizational membership contributions, and cancelling paid subscription titles in favor of open access alternatives. Many approaches intersect with political and fiscal challenges in the library and the academy for funding and attention. Some of these costs may be allocated to the acquisition budget and thereby affect the priority given new titles; the financial pie needs to accommodate these choices. Demonstrating leadership in our institutions and navigating these political issues is a frequent role for collections librarians and others. The simultaneous increase of support for open access and of our commitment to scholarly electronic resources from commercial publishers is one of the key paradoxes that we need to assess and confront. How long before this parallel approach is no longer financially viable? We continue to acquire new digital resources from these publishers, whether via subscription or purchase options. How much longer can we continue to pursue both strategies simultaneously before this becomes philosophically and financially indefensible? The pressures on our budgets will continue to grow. Much depends on where the funding for open access scholarly communications originates and how this affects libraries' acquisition budgets. The political stance of libraries' parent institutions in relation to an open access program also will play a crucial role in this dynamic.

Stewardship is a steadfast value. The fragility of digital (and print) collections has become all too apparent as formats change, hardware is superseded, and software is rapidly made obsolete. The risk factors contributing to the loss of digital data have been highlighted by many, e.g., by the report of the Interagency Working Group on Digital

Data to the Committee on Science of the National Science and Technology Council.⁶ Certifiable standards for preservation based on best practices have become essential for how we envision the future of our collection. Collective and collaborative efforts are becoming the norm for preservation efforts given the scope of time, money, and resources involved in establishing a cohesive, long-term model. The division between preserved and nonpreserved materials in our collections is a fault line that is growing wider every year. The former will provide durable access and document integrity; the latter will encompass all other materials for which the long-term future is dubious. Because durability of access and availability are critical for future generations of students and faculty, libraries' actions in regard to stewardship are an essential marker for how we define our role in protecting and managing our collections. The slow-burning fires of acid paper books deteriorating into oblivion are paralleled by the cyber fires of digital content that can disappear with frightening speed as online objects become unreadable or unfindable. Dempsey and Childress' collection grid provides a graphic illustration of the range of resources in library collections, the degree of uniqueness of these resources, and the degree of care required for effective stewardship.⁷ Stewardship decisions require careful planning and long-term commitment, as well as particular attention to metadata creation and choice of standards. Stewardship of scholarly resources in various formats for future generations is commonly recognized as one of our most important values and one the most serious challenges we face.

Trust becomes even more important in today's environment—trust saves the user's time, keeps the user's attention, and provides an implicit stamp of quality. This is true whether dealing with free or fee-based resources and regardless of format, location, or provenance. The library's brand of trust remains an important asset to exploit to our advantage regardless of the formats or types of resources to which we are providing access. Atkinson has noted that

the universe of information has become so much more complex, its contents so much more varied with respect to quality or reliability or utility, that the user's need for some kind of intermediate sort, to designate or privilege subsets of materials that are more immediately authoritative and useful, is much greater and more warranted than was ever the case in the traditional environment.⁸

This speaks to the importance of accurate and comprehensive metadata and the need for an abundance of virtual access doors to the collection, such as search engine referrals, open URL link resolvers, federated search tools, Web portals, and, of course, the catalog. Making these multiple doors to the collection seamless and simple for the patron is

an ongoing issue for all librarians to address. As the digital collection expands in many directions, this issue becomes more and more significant.

Scholarly Communication Issues

Scholarly communication—the complex exchange of discoveries, ideas, and information—is being transformed. A generation ago, librarians assumed that a collection, whether in print, microfilm, or audiovisual formats, was tangible and that it was owned by the institution. Even if some materials needed to be moved to off-site storage, mechanisms such as document delivery services, consultation rooms, and catalogs of holdings ensured discovery and easy access to the full collection. Resource-sharing agreements, such as interlibrary loan networks, were designed to fill the gaps in a local collection. The postsecondary educational system and research infrastructure expanded enormously on a global scale following World War II. The quantity, range, and size of research journals grew exponentially. Many new fields of inquiry were developed at the interstices of traditional disciplines, developing new foundations of theory and practice, new specializations, and a flood of publications that embodied these new discourses. Some examples are microbiology, area studies, globalization, women's studies, e-commerce, and bioethics. The melding of multiple traditional domains of knowledge in cross-disciplinary research illustrates a central challenge of collection management, i.e., scoping the extent and degree of publication coverage for a specific research discipline while recognizing the interrelatedness of many different clusters of intellectual inquiry. How far do we extend our reach? Teamwork and collaboration are foundational to most areas of research today. How should our acquisition fund structure and budget allocation respond to this discourse of cross-fertilization?

The Association of College and Research Libraries report *Establishing a Research Agenda for Scholarly Communications* highlights the many new forms of scholarly publishing, and notes that “blogs, wikis, and other new media are advancing scholarly discourse outside of comfortable definitions of the scholarly publishing landscape.”⁹ Coping with the profusion of forms of scholarly publishing, variable notions of authorship, and challenges of selecting materials—all while managing a library collection budget—is no simple matter. It involves prioritizing needs, planning for effective access, and integrating resources into coursework and research agendas. Casserly asks, “How will your library establish a focus on collection content in the changing landscape of scholarly communications?”¹⁰ To do so will require a steady focus on the scoping criteria in our collection development policies to be able to apply them to new types of content, most of it digital. The standard principles

of selection—such as authority, originality, impact, timeliness, breadth and depth of coverage, and demand—are ever important, but they must be expanded to encompass new forms of scholarly communication and publishing.

A growing awareness of the importance of retaining author rights and copyright issues for permitted uses and limitations on the use of library materials has been a theme of our times. We need to monitor developments in these areas to ensure access. This will encourage a broader approach to defining collection content to include material for which the library has played and continues to play an active management role, such as an institutional repository service and open access scholarly journals and books. This new approach requires a broader understanding of how we access and manage the collection content in collaboration with many players in the libraries, institutions, and other organizations. The interconnectedness of the inputs and outputs of the scholarly communications system are becoming more apparent. Copyright education and outreach has become recognized as an area where the library needs to take a leadership role in the institution, from both a teaching and a knowledge management perspective. Advocating for scholarly communication issues could become a core responsibility for liaison librarians, reflecting the strategic importance of these matters in academic libraries.¹¹

In the networked world, knowledge is mutable, fragile, accessible, and deliverable in forms that were previously impossible. The explosion of knowledge is exponential as the scale of digitally available research expands in breadth and depth by the hour. Knowledge management is becoming an essential dimension of what we do. The value of a collection is understood not only in the acquisition of scholarly information resources but in the enabling of discovery through tools, practices, infrastructure, and collaboration. This can include citation management software, tools for textual and linguistic analysis, social media technologies, course management integration of information resources, the library's embedded presence in academic departments, and publishing and preservation initiatives. How the collection is integrated into the workflow of the researcher is becoming critical to the value and impact of the collection and the library as a whole.

The blurring of traditional boundaries has become a hallmark of our age. The interconnections between our services and collections are a consequence of the technological, social, economic, and educational climate in which we work. In a convergent, networked world where information abundance and immersive interactivity are dominant, everything is related to everything else. As active players in open access journal publishing, institutional repositories, and advocacy efforts for reforming the structure of the scholarly communications ecosystem, we are integrating collections activities into the broader spectrum of public policy

and cultural discourse. Collection management needs to be seen in terms of how we create rich, interactive spaces (both virtual and physical) in which the value of our resources can easily integrate into the scholarly communication behavior and research workflow of our patrons.

Finally, our special collections represent a rich legacy and scholarly resource that we need to exploit more fully for discovery and learning purposes. Correspondence, diaries, narratives, reports, and oral histories are a few types of primary research material libraries can offer. As many library collections look more homogenous in the digital age, particularly in relation to licensed electronic resources, special collections of primary and local material create a presence of unique materials for discovery and learning. In the words of a recent Association of Research Libraries (ARL) report on the state of special collections, we need to recognize “the unique and irreplaceable contribution that special collections make to scholarship and learning and to the general public good.”¹² These collections represent a form of scholarly communication that we need to promote in a much more accessible manner through digitization, online finding aids, durable URLs, and integration into course assignments and research projects.

Acquisition Activities

Acquisition activity is characterized by several key challenges: budget allocation, pricing models, licensing options, and new technologies for managing approval plans and workflows. As the scholarly information landscape has been transformed by the availability of new resources in various digital formats, the irreversible trend toward acquiring these formats has been clear. Libraries are now spending a large portion of their acquisitions budget on electronic resources. ARL data from fiscal year 2008 show that “in every year of the last decade electronic materials expenditures have grown sharply, anywhere between two and ten times faster than other materials expenditures have” and that the average ARL university library was spending “51% of its materials budget on electronic resources.”¹³ This growth has had a major impact on workflows that typically were geared toward print purchasing and processing. Libraries have been required to reprioritize their collection development strategy and constrained budgets in terms of the value of digital content versus other delivery forms. Print books, while still important in various disciplines, compete for scarce dollars with digital products that are available remotely and that can be incorporated into new workflows. We face a bewildering variety of pricing frameworks for content in digital form (e.g., subscription, one-time purchase, purchase with annual access fee, new data fees based on additional content, cataloging record fees, etc.). This is further complicated by consortial

acquisition options that offer substantial benefits but greatly diminished local autonomy over content selection decisions and price implications. What pricing models are employed? What is the cost-sharing model? Is central funding available, and under what circumstances? These are some of the questions that come with consortial acquisition. The Big Deal (purchasing all or most of a publisher's list of titles with some guarantee of cost containment) has its supporters and detractors, but all agree on the need for greater flexibility to provide more options regarding content inclusion, swapping and replacement privileges, cancellation rights, and post-cancellation access to subscribed content. In many academic libraries, Big Deal agreements consume a large portion of the acquisition budget, thereby narrowing options when budget restraints force a cancellation program. This all-or-nothing approach reduces the options for reassessment. The deep tensions between individual title selection and the package model have become evident in many libraries facing budget restraints because of the global economic downturn.

Overlaying the pricing smorgasbord is the range of licensing frameworks—the terms and conditions that govern the contract between the library and the provider. User rights, library responsibilities, vendor responsibilities, and legal boilerplate issues (such as governing law and indemnification clauses) are integral to licensing arrangements. Issues such as post-cancellation rights, perpetual access, preservation arrangements, and user rights (in relation to copyright and intellectual property) are especially significant. These have a direct effect on pricing because of the costs involved in maintaining business relationships between vendors and libraries. License negotiations have become a critical aspect of acquisitions activity during the past decade, and a new skill set has become essential for acquisition and collection librarians involved in these activities. This includes an understanding of the publishing landscape, knowledge of new formats of content and new areas of research, negotiations acumen, budget understanding, and a holistic awareness of the library's role and the community's expectations for research support and delivery channels. The development of model license agreements as negotiation tools has been important for promoting library and user interests in a proactive manner. In the print era, the library owned the material it acquired, and copyright legislation was perceived as providing a reasonable balance of rights and protections. In a digital era, the collection is a contentious trigger of intellectual property disputes that are fraught with divergent views and values held by content creators, rights holders, and librarians.

Sustainable practices for acquisitions will leverage new technologies, streamline workflows for material selection and acquisition, and optimize collaboration with vendors and publishers. The widening of approval plans through blanket instructions for book series, instructions

for automatically receiving books associated with prizes and awards, and implementation of treatment-level profiling are examples of such practices. These actions can increase the quantity of books acquired automatically and free time for selectors to focus their attention on more complex collection development matters. The adoption of electronic invoicing in the integrated library system's acquisition module involves batching the record creation and payment for new books, thus making the process more efficient. Implementing shelf-ready processing services from a vendor, as well as batch-loading MARC records, is well worth the initial investment of time and energy. Direct ordering of new titles in the vendor system by collection librarians also can lead to efficiencies of scale while providing a greater sense of control over the process. The goal should be a timely and efficient delivery of material to the patron, regardless of format or location. Operational workflows should leverage vendor services to streamline acquisition processes and redirect staff to atypical or complex issues that an automated process cannot address.

Access and Delivery Issues

Access is another fundamental facet of how we are reformulating the utility and effect of a collection. Not long ago, access to information resources was by necessity on-site. The bricks-and-mortar library created a sense of place, a feeling of familiarity, and an immersion into the wealth of resources amassed for browsing and discovery. The digital culture of today requires that resources are available 24/7 and are integrated into the information-seeking behavior of students and the workflow of faculty. Shifting seldom-used items and those duplicated by digital surrogates to off-site storage has led to a transformation in the purpose of library buildings, which are becoming study and learning hubs where many resources are available virtually. In many libraries, the large-scale transfer of print monographs to off-site storage has created major tensions between the library administration (which is driven by space and budget pressures) and the faculty (for whom browsing the bookshelves is integral to the research and discovery process). It may be a generation or two until a consensus forms around this visceral issue.

Resources that are only available on-site, such as print books, print journals, and microforms for which no digital surrogates exist, are overshadowed by digital resources that are seamlessly available from wherever a student or professor happens to authenticate access. If an item is not available online, it has less and less importance to many of our patrons. The treasures of our book collection will not be unlocked by the next generation unless these books are available online. Faculty at the University of California, according to a Mellon-funded study on scholarly communication, felt that

online publication had significant advantages:

These include the ability to reach a larger audience, ease of access by readers, more rapid publication even when peer reviewed, the ability to search within and across texts, and the opportunity to make use of hyperlinks. Administrators and faculty both cited the fact that new technologies enable innovation in scholarly work.¹⁴

Discoverability and the manipulation of objects (e.g., tagging, annotating, and sharing) are becoming more crucial with the evolution of our collaborative, media-shifting, online culture. Undergraduates and graduates, who have largely integrated online culture into their daily social and educational experience, would see these advantages as a given. Horwath and Williamson suggest, however, that the technical savvy and advanced intelligence of our patrons, particularly the Millennial generation, have been overblown and need to be balanced with a sober understanding of how they navigate the complexity of a library's resources.¹⁵ Navigating this balance remains a continuing challenge.

We need to focus not only on the range and types of material that our patron groups require, but also on how the resources we acquire can lead to effective learning outcomes. In so doing, we will be demonstrating clearly how the collection can be instrumental to curricular objectives and individual learning. We need to view our patrons in terms of specific groups with particular needs, such as distance learners, international students, students with disabilities, and mature students, rather than as generic aggregations, such as undergraduates and graduates. This will lead to greater understanding of their needs in relation to our collection. While promoting widespread use of resources is an essential responsibility that creates value and impact, this is not an end in itself, but a means to a large purpose: developing the information competencies and analytical skills in students that are essential for achieving success in their studies.¹⁶ Being attuned to the research agenda of faculty—whether they are newly hired, senior members, or part-time or visiting scholars—is integral to how successful we are in tailoring our selection and acquisition functions to the diverse needs of this community. Knowledge creation in its multiple forms and purposes—for teaching, learning, and scholarship—determines our collection's value for our patrons and our role in facilitating and enhancing this holistic and interconnected process.

The range and types of material that our patron groups require can be a key driver to our budget allocation and the difficult fiscal choices that we need to make. Ultimately, this speaks to the mission of the institution. One can readily concur with Bodie and Maier-O'Shea, who recommend "developing a collection, regardless of format, that meets

curricular needs but also addresses the interdisciplinary nature of learning outcomes; recognizes the disparate intellectual, cultural, and social needs of a diverse student body; and supports the library's outcomes for information literacy."¹⁷

With a few exceptions (such as rare books and ephemeral material that do not yet have digital surrogates), the dichotomy between on-site and remote access will determine the visibility and use of our resources. Moreover, as we develop more tools such as bookmarking, tagging, and integration with course materials to allow interactivity and flexibility in how patrons engage with these resources, we are creating a richer experience that demonstrates the value of the library's collection in new and innovative ways. In so doing, we are embracing the new forms of learning and communication that have shaped the generation of digital natives.

Innovation

We need to consider the dynamics of innovation in light of the "innovator's dilemma," as articulated by Lewis in his commentary on the book *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, by Clayton Christensen.¹⁸ Lewis writes,

Established organizations generally fail when change involves disruptive technologies, and organizations at the periphery or from different sectors succeed. . . . Invariably cheaper and faster, disruptive technologies are often easier to use even if quality is not high and capacity is not large at the outset. In general, disruptive technologies require new service models and pricing structures that challenge established organizations and the interests and expertise of the individuals within them.¹⁹

These are prescient words. One needs only think of various initiatives like Google Books, Open Content Alliance, Amazon, and LibraryThing to realize that these alternatives enable individuals to search, retrieve, and share information faster and more seamlessly than does the library's traditional approach to information resource delivery. We need to focus on the ways our patrons communicate, search, share, and repurpose information if we want to remain effective and successful. We need a blended approach that integrates these technologies into our mainstream rather than repudiating them as peripheral or nonacademic. This is a huge challenge to our thinking and our habits. The conservatism and risk aversion often endemic to academic culture can pose a real problem in soberly examining our environment and adopting innovative approaches. The transformations

in learner expectations and communication forms that are occurring all around us require a measured response. This could include, among other things, patron-driven acquisition models, pay-per-view systems, print on demand, and unconventional partnerships with information providers for new value-added services. The disruptive collection, marked by a new understanding of how technology and user behavior are twined, is a consequence of our social and educational landscape. The flip side of disruption is opportunity, and we need to see the enormous opportunities afforded by a disruptive landscape in reconnecting with our patrons in new and effective ways. Martin asserts that “to be skilled at the unorthodox just might be the single greatest leadership skill needed for future library leaders.”²⁰ The challenge for collection management is to retain the best of our traditions—our values, our experience, our knowledge—while embracing the opportunities that allow us to see our critical role in a more imaginative light. The challenge is how best to bring this rich presence to our patrons’ attention and use.

Our collections are not disappearing. On the contrary, they are becoming extraordinarily important as our Web presence allows us new capabilities to connect and be relevant to the population we serve. By focusing on remote access, active stewardship (locally and in collaboration with external groups), a heightened awareness of learning outcomes and the researcher’s agenda, and a carefully nuanced, sustainable approach to acquisition activity, we can enhance the value and use of our collections. However, a new understanding of the collection needs to be counterbalanced by the human qualities of service and expertise that we bring to the enhanced exploitation of scholarly information resources. Our traditional emphasis on selecting, acquiring, and disseminating the works of recorded knowledge needs to be enhanced by a broader approach that emphasizes building innovative bridges between intellectual works and the people who are using them in new ways to solve new problems.

In the era of information abundance and multiple pressures on collection building practices, significant portions of our collections are rarely or never used, and this is becoming a risky liability. This issue is not new (the 1979 Kent study at the University of Pittsburgh, found that 26.8 percent of the monographs in the University of Pittsburgh library accounted for 82.2 percent of the use), but we are only beginning to address it.²¹

The very term *collection building* has a whiff of the warehouse that is no longer relevant to our goals. Anderson’s view “that most research libraries should seriously reconsider their traditional strategy of meeting patrons’ needs by building large, inclusive, speculative collections that attempt to anticipate them” is well taken.²² To paraphrase Einstein, everything has changed except our way of thinking. We need to seriously consider the implications of the abundance paradigm and the new realities of learning and

information-seeking behavior in how we define success in collection management. The targeted, just-in-time delivery of value-added information at the point of need is how we can demonstrate relevance in the attention economy. We are only beginning to reexamine the purposes and practices inherent in collection management in light of the massive shift in the production and distribution of information in the global supply chain. With intense competition from a range of information providers such as Google, Amazon, and Microsoft, complacency is not an option. Developing a culture of assessment also has become essential to best practices in collection management. Lakos and Phipps argue that “libraries are challenged to be nimble, innovative, responsive, proactive and, most of all, able to demonstrate their value.”²³ Collection assessment can employ many methods and strategies, whether use-based or user-based. Libraries need to consciously focus on approaches that can lead to tangible measures of value to their patrons.

Immediacy of the collection is becoming critical to our success. Networked resources need to be equally available on mobile devices, laptops, and home computers. How to finance, license, and deliver information resources in multiple formats and delivery options are important questions. The answers will exert greater pressure on our budgets and our allocation decisions. Various resources may need to remain in print if circumstances require it. Rapid and wide diffusion of scholarship, formal and informal, is erasing space and time boundaries in the researcher workflow. The massive Google Books Library Project raises a profound and unsettling challenge to the future of libraries and to our collection activities in particular. Do we still need a library collection? We instinctively answer yes, but we need to reposition our thinking in a way that demonstrates the unique value that the collection provides. While many disquieting questions surround the Google digital library, including its long-term durability, its business model, and the quality of its metadata and image files, the issue is not one of competing with Google but of demonstrating how we offer unique value and services that allows students to achieve their learning goals and researchers to further their programs. Regardless of how we define the form and scope of our collection activities, we are still privileging some materials over others, and we are still anchored in the core values that have animated our work for many generations. Our core values have not changed, but our means of expressing these values through our work are drastically changing.

Outline of a New Approach

The following ten ideas are suggestions that can redefine collection management in the networked era.

Focus on what is sustainable. With many competing

demands on the acquisition budget and collection development strategies, there are definite limitations on which needs we can satisfy. Since we cannot be all things to all people, how do we prioritize what is essential over what is not? Sustainability involves an understanding of how we can marry best practices to strategic goals to achieve high impact for our diverse patron community. This can include a thorough implementation of approval plans, including shelf-ready processing, enabling direct ordering of materials by subject librarians, embedding librarians in academic departments to better exploit the collection, and consortial acquisition strategies to achieve greater value for limited dollars. Reconceptualizing our physical collection space to emphasize learning and collaborative opportunities can mean large-scale transfer of little-used print monographs to off-site storage, though this can be politically challenging and requires careful planning and nurturing. What is sustainable will vary greatly from one institution to another, but what is important is to create a dialogue that allows everyone involved to contribute to the articulation of a well-planned strategy.

Consider what a collection does rather than what a collection is. The ways in which a collection is integrated into the researcher's workflow is becoming critical for the optimal use of the materials. The easier the integration, the greater will be the use of our resources, thus allowing us to demonstrate the added value that the library collection and the staff bring to the academic enterprise. What tools do we have to support the information-seeking behavior of researchers, such as citation management software, document delivery options, OpenURL linking, federated discovery tools, computational analysis tools, and social media? What technologies should we be investigating in more depth, e.g., mobile devices and readers? Workflows and information use vary greatly by patron community. Faculty in natural and applied sciences conduct research differently from those in humanities and social sciences, and differences exist within each department or research area. There is a range of specific student audiences, such as mature students, distance students, international students, and exchange students, as well as the conventional division of undergraduate and graduate students by discipline. How effective is the collection in meeting the diverse information-seeking behaviors and workflows of these groups? This is no easy task, but one worth considering when we examine the service infrastructure that is supposed to optimize the use of the collection.

As our parent institutions are changing, so must we. New research programs are being adopted, new scholars are being hired for teaching and research, and departments are being realigned, merged, or downsized. The scholarly information requirements are changing as a consequence. Knowledge has become thoroughly multidisciplinary.

Staying on top of this dynamic evolution is challenging but essential, especially for enabling us to argue for additional financial support when decisions are being made at a curriculum-planning level. Because collection building is complex and long-term, the need to be more agile in shifting approaches in response to new institutional directions is becoming more important for remaining relevant and effective. If the collection is not a reflection of the institution it serves, we risk becoming marginalized as researchers look elsewhere for information resources.

We must make strategic decisions about what formats we support in the multi-format universe. While we do need to support a variety of formats, the appropriate mix will depend on a thorough understanding of our patrons' needs and information behaviors, our assessment of new technologies, and our budgets and planning processes. Our technological expertise in supporting different formats also is a factor, whether for books, journals, audiovisual material, music resources, or GIS data. By monitoring new technologies and devices, we can better anticipate what is important and what is merely a passing fad. Many institutions are undertaking pilot projects with various mobile devices, such as the Kindle and the Sony eBook reader, to provide experience in their use. More important, however, is the strategy used in assessing and prioritizing these devices and formats in relation to what we currently support. Which formats will be optimal from an access perspective and from a preservation point of view? Our world of "containers" is becoming very volatile, fast-paced, and unpredictable.

Changing current practices will add value for our patrons. Disruption can be an opportunity for innovation and refocusing our efforts. As mentioned earlier, some possibilities include pay-per-view models, patron-driven acquisition systems, print-on-demand, and supporting alternative scholarly publication models. Questioning long-standing practices can lead to a shifting of resources and new and creative ways to deliver materials to our patrons. Disruption can be difficult and painful in the face of long-standing assumptions and practices, but the status quo will not suffice to retain our position in the academy or add value in the minds of patrons. With limited staff and financial resources, seizing new opportunities will mean decisions to let go of nonessential practices or activities.

We must seek the right balance between competition and collaboration. Librarians often stress the importance of collaboration, particularly in relation to consortial purchasing, shared cataloging, and resource-sharing arrangements for interlibrary loans and off-site storage. However, as institutions compete intensely with each other for faculty, students, and research dollars, acquiring and supporting highly specialized and often expensive research resources can be a way of attracting people to one's institution. With respect to collection management, how do we manage the delicate

balancing act between competition and collaboration? This is an issue that continues to bedevil us. We need to be more frank about the political dimensions of the collection and the strategies that we consequently adopt. The line between competition and collaboration is a gray and nebulous zone. It will shift toward one pole or the other depending on circumstance, and we need to recognize that collaboration is often overshadowed by the competitive reality of the post-secondary system.

We must seek creative partnerships with publishers and vendors. Our relationships with publishers and vendors are essential for success in our collection development practices, whether it is for content acquisition, selection and ordering workflows, MARC record acquisition, or the physical processing of new items. These partnerships will evolve in relation to new opportunities and collection needs. However, this must be put in perspective. Publishers and vendors are neither our friends nor our enemies; they have a job to do and so do we. Our interests overlap but are not strictly mutual. Therefore our relations need to be governed by professionalism, integrity, and a forward-looking attitude. In this manner we can collaborate in new and productive ways that build on mutual opportunities and interests. We need to think more carefully about how we can maximize these relationships in relation to new technologies, new institutional directions, and the wide range of formats and information resources available.

We need to measure collection value in new ways. We need to have a wide-ranging dialogue with our patron community about what forms of access create value for them. How we determine return on investment is a question of signal importance to senior administrators and external stakeholders. Contribution to the organization's mission and priorities is a closely related issue. The quality of access has supplanted the raw counting of owned resources as a method of assessing our impact. The availability of many forms of access can lead to new types of interaction, collaboration, and discovery. Collection assessment as a practical and strategic activity can drive new value indicators and insights into understanding the ways our collection meets research and teaching requirements. This is related to the importance of promoting learning outcomes to measure tangible benefits of our collection activities.

We need to exploit our new understanding of the collection to the best of our ability. The collection is everywhere and nowhere—it is a cloud of distributed resources in a variety of places around the globe that are made centrally available via the library. This is a new paradigm that we are still assimilating into our practices and our thinking. Unlike the past, we cannot point to any single location or site to explain or define the scope of the collection. To our patrons, accustomed to 24/7 connectivity and seamless full-text access to information resources, this means that the collection is a

steady presence to which they have easy access at the point of need. The physical collection is one site among others in space and time. The cloud collection is both an exciting reality and a turbulent state of practice that we are addressing in our workflows, policies, and practices.

Collection librarians must expand their skills and expertise. To effectively develop and manage our collections in the networked era, we need collection librarians who have the right set of skills and aptitudes. This can include an understanding of the scholarly communications and technological landscape, a curiosity to explore options for integration with research and teaching, an ability to build innovative bridges with our patron community, and a passion for exploring new formats for knowledge and new approaches to learning. Traditional skills and expertise, such as budget management, subject knowledge, vendor relations, and understanding of preservation options, can be layered inside these newer skills.

Conclusion

No one can say with any confidence how collection management will be understood a generation from now. The ideas offered in this paper are intended to help us face the exciting and bewildering challenges in the networked era. The terms *transformation* and *paradigm shift* are regularly heard in discussions on the future of libraries in a period of enormous technological, cultural, and institutional change. In the context of collection management, our challenge is to creatively reimagine our role in light of these rapid developments in scholarly communication, acquisitions activities, access and delivery issues, and innovation, while maintaining our core professional values of equity of access, intellectual freedom, and stewardship. We need to carefully examine our rapidly changing environment so we can demonstrate clear and compelling value to our patrons and to our institution as a whole. This is a fascinating and turbulent time to be a collection librarian.

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