The Future of Technical Services (It's Not the Technical Services It Was)

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The world is so fast that there are days when the person who says it can't be done is interrupted by the person who is doing it.

—Anonymous

Teaching technical services to library school students raises a recurring question: "What is the future of library technical services?" Even though students typically acknowledge that it is important to understand the foundations and evolution of technical services, many see no future for the field. They believe that its roles and tasks can be outsourced, thus relieving the library of the burden of supporting those "housekeeping" operations. This perception may be heightened by the continued definition of technical services as the aggregate of acquisitions, bibliographic control, and automation for libraries primarily as repositories of books, rather than organizers of information content for users throughout various information environments.

In 1999, Bates succinctly put forth the challenge facing us today—the need to see beyond the details to the substantive changes and challenges to all librarianship and the educational preparation for it:

> In our field as a whole, in questioning library education, aren't we all actually asking ourselves what will libraries and librarianship be like in the 21st century? . . . Most of the time in history there are long periods of only incremental change. People get used to the incremental changes and assume that the next changes coming along are more of the same. But sometimes there are really revolutionary periods where even the fundamentals shift and never resemble the old again. . . . I do believe we are indeed in one of those revolutionary times, when we need to respond with more than incremental changes.[1]

Today's library technical services face the most significant changes since the invention of moveable type. These changes challenge librarians to develop new policies, apply new technologies, develop new competencies, and to take risks for making improvements. Most importantly, libraries find themselves operating in a totally new environment, one where they serve as only one source of information, not *the* source of information. Finding solutions involving policy changes cannot be outsourced.

Traditional Technical Services

Most of today's technical services librarians were educated in one era of librarianship, but are now working in another. Today's retiring librarians began their careers in the 1970s, when the overwhelmingly largest application of MARC records in the newly founded OCLC was the production of customized catalog card sets for its members, and computers were used to "automate the card catalog" or "automate circulation." Technology had not yet reached the widespread availability, affordability, and usability in the general population that now requires librarians to fundamentally rethink basic library functions and their inter-relatedness.

Alarm bells were beginning to ring already more than ten years ago with the words of Stanley Wilder:

> The relatively advanced age of librarians is not a new phenomenon. Library Manpower, a landmark study of librarianship by the U.S. Bureau of Labor Statistics, established that, as of 1970, U.S. librarians were older than their counterparts in most comparable professions. Populations do not age the same way that individuals do; they may grow younger, remain the same, or age. *In fact, the average age of U.S. librarians did not change between 1970 and 1990 and, in theory, librarianship could have remained older than comparable professions for the next twenty-five years in a stable, predictable way. However, between 1990 and 1994 librarians in the United States aged rapidly* (italics added). In 1990, 48 percent of librarians were aged 45 and over, compared with 58 percent in 1994.[2]

My own library, the Fairfax County (Va.) Public Library, summarized position longevity and age for all positions in 2005: The average age of the 132 incumbent Librarian Ones was fifty-one, well above the average age in the community.[3] Thus, the combination of an aging profession and new challenges is a double-edged sword. In the past, when the society and the profession aged at the same

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rate, there was a steady infusion into the library practice of newly minted librarians representative of the demographic whole of the community they served. This is no longer the case, raising questions of succession and transitions as well as fully understanding user expectations.

Nevertheless, the foundation for today's advances provides important insights into where we are and how we got here. The greatest twentieth-century advances in bibliographic access—the MARC record in 1968 and the founding of OCLC's WorldCat in 1971—still dominate the library world. Both the MARC record format and the OCLC network were begun to facilitate easy sharing and output products from catalog records. The synergy of standardized records and a dynamic network led to much more, including global exchanges of ideas and a framework for rethinking the nature of libraries, bibliographic access, and information.

In the past generation, the relationships between internal and external information management and seeking were generally the realm of special libraries, not academic or public libraries, where the focus was on managing and organizing selected resources "owned" by the library. The profound distinction between document or media and content concepts was barely on the horizon. Technology was a path to improved accuracy, speed, and economy in managing the library's separate paper files. Library technical services literature, even fifteen years ago, focused primarily on accuracy and efficiency in the management of collections of books. As new libraries were built in the latter part of the twentieth century, the key concern was shelving and storage primarily for collections of books. Nodding acknowledgement was given to "other media." Today, the challenge is a broadened role for libraries, not as just a place and objects (though they are still important), but also to embrace content, roles, and relationships.

In reality, libraries and technical services were never just about books, any more than they were about tablets or scrolls. Books were simply the most common packages of information of the past millennium. Technical services have always sought to identify, acquire for access, label, and organize information and its content for a community of users. Books became a shorthand notation for our resources because of their dominance, but going all the way back to our roots with the first cataloging code, Panizzi's Ninety-One Rules in the nineteenth century, the real work of technical services has been concerned with recorded intellectual creations, and how to make them accessible.[4] Freedman was able to summarize Panizzi's function of a library catalog in three statements:

1. To relate the works of an author so that the user can know all of that author's works;
2. To identify and distinguish particular editions, translations, and so on, so that these are not confused with each other; and
3. To assemble all of the editions of a work so that a user seeking a given publication will not just find it, but also all of the editions of the given work and works related to it.[5]

Similarly, Ranganathan poetically summarized all of librarianship in five short and famous statements, which he called laws:

1. Books are for use;
2. Every reader his book;
3. Every book its reader;
4. Save the time of the reader; and
5. Library is a growing organism.[6]

So, between the catalog staff and their philosophical assumptions, the work of the library and its technical services was framed around information content and user needs. This led to several assumptions:

1. "Packages of information" have predominantly been books, but included other documents and resources that are published, reviewed, vetted, and selected to match the library user criteria. These resources were "fixed," meaning that they were unchanging after their release. There may be addenda, new editions, and so forth, but the content within each issue of the work did not change. Anecdotally, citation standards established in that environment included a page, an edition, or a date. Anyone could then consult the original with confidence that he would see the same content as the citing writer. Today, many of the citations require the addition of the date the writer accessed the source; tomorrow the content may be different.
2. Acquiring library materials usually meant adding to the collection through purchase, license, subscription, or lease. Most often the acts of acquiring and making available were synonymous from the user's perspective.
3. Organizing materials was the aspect of technical services collectively referred to as "processing and cataloging." The emphasis was on placing each item in a location (whether physical or electronic) relative to the rest of the collection. For more than thirty years, this has led to reliance on MARC and its successor MARC21 and AACR, and its successor *AACR2* revised.[7]
4. Library resources fell under the rules of copyright, allowing for "fair use."

Thus, the resources were organized by concepts used to provide access to these resources. The library either provided "answers" to client queries or advised users about the library's organizing principles.

In his insightful 1986 article, "Open Systems for Open Minds: Building the Library without Walls," Sack anticipated that libraries were entering a new era.[8] He is perhaps best known for including the phrase "the library without

walls" in his title, but he was not referring to the emerging virtual library. Although the existing library paradigm would persist for the foreseeable future, he understood that librarians were at the beginning of a tremendous cultural and technological transformation that would change both libraries and technical services. In this paradigm, some fundamental definitions would change. In his vision, the library is part of a universe of knowledge and information with the user at the center rather than the library.

Changing Technical Services Definitions

Traditional interpretations of many library terms need to be redefined. Some that are particularly important for describing the future of technical services include: "packages of information," "acquisitions," and "cataloging and indexing."

Packages of Information

"Packages (or containers) of information" are increasingly not fixed, but are often digitally born, stored, transferred, modified, and accessed in evolving media formats. They are now often "unfixed," meaning that their content may vary from moment to moment.

The Internet has grown to support not only publishing in the patterns of print media (for example, Washingtonpost.com), but also participatory submissions from anyone with an Internet connection—a phenomenon that has been dubbed Web 2.0. This term is an attempt to conceptualize a change in the use of the Web by applications that are dynamic, allowing users to make additions, changes, deletions, or comments that may add value to the site of application. Wikipedia, blogs, RSS feeds, and Flickr are commonly cited as examples of Web 2.0. New formats for the distribution of information have historically given rise to new and unexpected genres. Web 2.0 is an attempt to reconnect first-hand knowledge with information. These attempts are in their infancy, often clumsy or even factually wrong, difficult to discover and maneuver, but they surely foreshadow important aspects of information and communication, worthy of the attention of libraries and technical services. In effect, users control the content in contrast to online encyclopedias.

Web 2.0 resources are often the only sources for some information. For example, reports of unfolding events are available more rapidly in wikis and blogs than "traditional" reports edited and printed in a newspaper or broadcast on the evening news. These newer forms of information are available universally within and outside a library setting, creating a new context from the user point of view that goes beyond the library's collection. The context of all resources becomes that of the user, who is increasingly avid in pursuit of information wherever it may exist. It is also clear that the popularity of social networking and user contributory applications is gaining wide use.[9] And increasingly, the *user* is organizing the resources through tagging and is sharing those tags, forming a community of users bound by common interests and levels rather than location or affiliation.[10] Librarians are sometimes blind to that shift in user perceptions and behaviors when planning and executing library roles.

The rapid growth in participatory formats on the Internet hints that here, too, are the makings for newly emergent "genres"—cheap publication media, growing technical competencies, and affordable or even free access. As recently reported in 2006, "Thirty-nine percent of Internet users, or about 57 million American adults, read blogs—a significant increase since the fall of 2005."[11] And the sheer number of blogs is growing rapidly as well. "According to an analysis performed by Netcraft, in July 2006, the Internet grew by 4.4 million new hostnames. This is the largest one-month gain in new sites and it is being driven by blogging. Microsoft added 858,000 new sites through Windows Live Spaces, while Google through Blogger grew by 568,000 sites last month."[12]

These unfixed forms of information require the serious consideration and understanding of librarians for two reasons: first, leaving aside the purely entertaining results of some social networking endeavors, broad participation can support communications to solve a problem of knowledge management, context, and valid interpretation that many thinkers posed in the last part of the twentieth century. The dilemma was how to bring human expertise, experience, and wisdom to an understanding of information. Brown and Duguid in *The Social Life of Information* traced the effectiveness of informal collaborative storytelling as a supplement to printed manuals in resolving equipment maintenance and repair problems.[13] They were able to document productivity increases when there were frequent "water cooler" exchanges. A strong argument might be made that Web 2.0 is the water cooler meeting place of our times.

The second reason that librarians need to pay attention to these interactive and user-controlled sites is that they are used by library users. They are part of the library user's information ecology. They enter into the controlled library information space carrying unpackaged and unfixed library information with them. Use of these sites has become part of the whole information exploration.

Acquisitions

The definition of "acquire" has also evolved far beyond purchasing, subscribing, and licensing. Acquisition activities now include—and in the future will increasingly include—issues of rights management. While copyright law and fair-use conventions provided acceptable guidelines for published and fixed resources, the understanding of rights in newer information and communication formats is murky. Even file sharing is an area rife with problems—distinc-

tions and definitions are just beginning to be made, often through court actions.

The Google Book Search library project, which involves scanning, indexing, and making millions of pages of books searchable, illustrates the difficulties of rights management. The project was undertaken as a partnership with several major libraries that have made their collections available. The user would be able to search the contents of books and see small excerpts from them. To read the entire book would require obtaining the book itself. On the surface, this program would appear to comply with copyright law and to greatly enlarge access to the content of books. And yet there is publisher opposition that has led the program into a fierce legal battle, one which will also result in governing rules for libraries.

Sometimes acquisition is simply the awareness of a resource, one that is available for use without any special monetary arrangements. Libraries are already practicing this form of acquisition when they create links from their Web sites to sources on the Internet. Acquisition also requires supporting access to all packages irrespective of format via technology whenever the content value dictates. In other words, content access is no longer neatly limited to planning and maintaining shelves and storage spaces for packages the library owns. Today's packages come in many electronic formats requiring technical interfaces to access. One role that the library can take is to manipulate these information packages to make them useful and usable to its clients.

Perhaps one of the greatest challenges is content preservation policies and procedures in this new environment. Preservation itself raises other issues of rights, authentication, attribution, and access. Although libraries have always been rather fragile repositories, subject to the ravages of everything from weather, molds, insects, theft, fires, earthquakes, and wars, they put together patchworks of measures ranging from rebinding, filming, and digitization to collaborative last-copy agreements to reduce the loss of critical resources. New threats include access data decay, technological obsolescence, hard-to-detect alterations, and sustainability. Preservation and access critically hinge on defining packages of information within each library in terms of what would be the results of their loss. "Weeding" the collection was a way of making room for newer items. Certainly librarians still need to weed, but they especially need to take extra measures to assure continued access to those digital resources that are not maintained.

Cataloging and Indexing

To "organize" is no longer limited to cataloging and processing in the traditional sense. The proliferation of formats incorporated into library resources was first encountered through a parallel proliferation of bibliographic formats, and this was managed by the expansion of the MARC format itself. It became clear, however, that total reexamination of the structure, relationships, and definitions for records and the entities they describe needed to be undertaken. The International Federation of Library Associations' Study Group on *Functional Requirements for Bibliographic Records* (*FRBR*) was formed in 1992 to develop a model of the bibliographic universe that is independent of all cataloging codes and system implementations. Its report and subsequent continuing working groups have brought a new clarity to the bibliographic universe that makes provision for not only current cataloging formats and codes, but future expressions as well.[14] Perhaps the study's greatest contribution is the simplicity that it brings to defining work, expression, manifestation, and item. This complete and flexible model was described by Barbara Tillett, the chief of the Library of Congress' Cataloging Policy and Support Office, in a succinct 2003 article appearing in *Technicalities*; that article is now available as a brochure from the Library of Congress.[15]

The 2006 status of *FRBR* includes the availability from OCLC of an algorithm for converting MARC21 bibliographic records to the *FRBR* model. In their research, OCLC researchers found that the radical re-thinking of bibliographic works in their context cannot be reflected using current MARC files. However, having resources brought together under the *FRBR* umbrella gives users the opportunity to find the work that they seek regardless of its package. In the *FRBR* hierarchy, the work is the unique intellectual creation; the expression is the realization of the work; the manifestation is the physical embodiment of the expression; and the item is the single copy or issue of a manifestation. Thus, a work may have many expressions, and each expression may also have more than one manifestation, each of which may be embodied in more than one item. Actually, this hierarchy may have been intuitive to library users before librarians, since *AACR2* focuses on the physical manifestation, while *FRBR* centers on the work in the hierarchy. In this way, *FRBR* also puts resources in the context of the user.

As important as *FRBR* and its adoption is, there remains the underlying need to consider the role of cataloging in the new library environment. In her case study of the Ohio State University Libraries, El-Sherbini stated: "Technical services of the future should not only focus on creating a single database, such as the library catalog, but should also develop ways of providing client service-based indexes of networked information."[16] Certainly, this is an important step; however, users themselves are entering into the indexing arena via "tagging"—an area (a "folksonomy") where user-provided tags, i.e., subject assignments, might also be an enhancement to library-created catalogs and databases. In his blog, Stephen Abram, SirsiDynix's vice-president for innovation, has suggested that this is a practical and useful consideration for implementation, albeit beginning with internally created tags for sharing with book clubs, local history groups, and so on, using "del.icio.us."[17] Certainly the virtues and foibles of author-

ity files and virtually all subject heading compilations have been fodder for much debate over the years. In these debates, direct inclusion of user input has not taken place to the author's knowledge.

Conclusion

Radical rethinking of technical services is still new, but it forces examination of the rift between theory and applied practice.[18] A forward-thinking job description of the new technical services librarian appears to be a hybrid chief information officer, systems engineer, Internet architect, and strategic planner who also happens to manage the selection, cataloging, acquisition, organization, and labeling information packages for a library. Other duties will also include digitization project management and digital archiving. This new librarian has been dubbed "Librarian 2.0" in library blogs. Michael Stephens, librarian and blogger at St. Joseph County (Ind.) Public Library, has been a leading advocate for the Librarian 2.0 as the person embracing the full read/write potential of the Internet.[19] However, all that said, how does today's library plan for tomorrow move from theory to reality at a time of stringent budgets, aging workforces, and unprecedented technological development?

Addressing the competency gaps for present and future librarians is the most obvious and critical need. The technical services librarian/department of tomorrow will need a whole expanded set of competencies to swiftly respond to the vast changes in the bibliographic/information universe. It took centuries for the codex to replace the scroll; it has taken less than a generation to embrace a huge array of new digital technologies. August 1994 is commonly considered the "birthday" of the World Wide Web—there are now 882 million people globally online accessing more than 100 million Web sites.[20] There is also no sense that technological evolution is about to stop. Tomorrow's technical services librarians will not be able to survive without sound grounding in technologies as they evolve.

Some innovative programs are exploring ways of developing those competencies. The American Library Association's (ALA) Continuing Library Education and Networking Exchange (CLENE) Roundtable is perhaps the granddaddy of organizational responses to encourage lifelong development of professional competencies.[21] The ALA's Grow Your Own @ your library® institutional scholarship grants foster tapping into existing library paraprofessional staff for addressing the growing gap in filling public library positions, targeting candidates who already have sound, practical library and community experience.[22] The Institute of Museum and Library Services' Laura Bush Twenty-First Century Librarian Program provides grants annually "to develop faculty and library leaders, to recruit and educate the next generation of librarians, to conduct research, to attract high school and college students to consider careers in libraries, to build institutional capacity in graduate schools of library and information science, and to assist in the professional development of librarians and library staff."[23]

Sound as these options are, they target filling positions, not developing new competencies. One needs only to compare *Competencies for Special Librarians of the 21st Century,* issued by the Special Library Association with another recent document, *Core Competencies for Technical Services Librarians,* to see the huge gap in understanding within the profession about the future.[24] Nothing in the latter document speaks to changes brought about by the ubiquitous nature of the Internet, and its only mention of AACR2 and MARC indicates competencies post-1980. In 2002, a review was made of course catalogs of all ALA-accredited library school offerings to match the topics that had been named as competencies required for new hires in the Fairfax County Public Library as found in postings for available positions.[25] The striking finding was that while all library schools had courses or topical coverage for competencies required before the advent of the Internet, most did not address the needs emerging for libraries to integrate technological advances and respond to economic and social changes (such as grant development, volunteer recruitment and management, copyright in digital resources, and so on). For technical services librarians, perhaps most importantly, project management is a critical competency, largely untaught in library schools and continuing education courses. The 2002 review, which already needs to be updated, spoke to a serious gap between library education, continuing education, and real needs.

These concerns indicate that now is the time for a paradigm shift. The library user is a collaborator in the organization of information; the library integrates information found within and outside the library. Some practical implications for library technical services include exploring how tagging or commenting within the "catalog" might work. At the very least, what is now called collection management and cataloging will include search engines as major information resources for the library, and technical services will organize results for the client rather than the library. The cataloging codes and metadata of the twentieth century are being revised in at least as many profound ways as those that replaced the card catalog, and admitted non-print resources into the collection. Library users are influenced by the bibliographic information and presentation that they find on Amazon.com, for example, and the topical relationships uncovered by various search engines.

The library exists in the global information ecology; the technical services librarian's perspective will need to be equally global, recognizing the invisible community that uses the library remotely, as well as traditional users. Just as library departments are no longer separate entities operating with their own conventions, files, and customs, individual libraries are no longer separate entities, each

serving a distinct community of users. Global collaboration among libraries from local to international levels is already well underway. For managers of technical services departments, this requires a new level of interlibrary participatory practices.

Given this daunting but exciting set of circumstances, there is a future for technical services, but it may take on other names (access management and digital and Internet services are two examples). Likewise, the need to identify, acquire, access, organize, and label packages of information will become more complex. It isn't the stuff of outsourcing. It is the stuff of intense development, planning, policy adaptations, and reacquainting ourselves with users.

There are ways to accomplish this task. One modest proposal that could be put on the table is adoption of a healthcare education model: For healthcare professionals at all levels, theory and practice are joined into the educational processes and retention of professional status. They have come part way in that most library schools do have practicum opportunities, usually self-selected by the students and limited to locally available choices. Continuing education, with the exception of school librarians, is totally optional in most cases. In addition to honing professional competencies, more formal development in these areas will also bring the practitioner and library educator into a closer dialog, enriching both worlds. By these or other means, the future of technical services rests in the balance.

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