Library Workflow Redesign: Six Case Studies

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effort to incorporate information literacy into Smith's open curriculum, and the creation of library spaces that are more responsive to student needs. Before coming to Smith in 2000, he held a variety of positions at the University of Minnesota-Twin Cities Libraries, including head of interlibrary loan, head of access services, and team leader for reference and consultation services. He holds an M.L.S degree and a master's degree in classical archaeology from the University of Minnesota.

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Preface

The proliferation of electronic information and tools has changed the way that readers and researchers do their work. It has also changed the way library staff members provide materials and services. Several years ago a group of liberal arts college librarians, realizing the need to streamline processes to serve changing needs, asked CLIR to help.

With support from The Andrew W. Mellon Foundation, we offered workflow redesign support to teams from six institutions that are part of consortia. We asked them to give us descriptions of their work, thinking that a publication on how some library staffs are changing their work patterns might be useful to other libraries that are undergoing the same kinds of changes. This monograph is the result of their work. These institutions were pioneers. Now the issue of workflow redesign appears to be on the minds not only of librarians in small institutions, but also of many librarians in research libraries. We hope that this publication can be the beginning of describing changing work patterns, and that it can be followed by additional publications, both in print and through the CLIR Web site, on imaginative ways of providing good services in a shifting environment.

Susan L. Perry
Director of Programs
CLIR

Library Workflow Redesign: Concepts and Results

Marilyn Mitchell

Libraries throughout academia are familiar with the scenario: expensive technology, demands for more services, opportunities for better service, tight budgets, and competition with outside providers to implement services once solely their own. In meeting these challenges and pursuing these opportunities, libraries have looked to the worlds of business and management for tools and techniques, engaging the principles and practices of total quality management, strategic planning, customer-directed service, and team-based management, to name a few. Some cynically refer to this as management *du jour,* but others acknowledge each contribution as an important step in understanding better how organizations work and how people in organizations make them work better.

Library workflow redesign, the topic of this work, comes on the heels of the business process-reengineering movement introduced in the early 1990s and further elucidated by Michael Hammer and James Champy in their 2001 work, *Reengineering the Corporation* (Harper Collins). The authors promoted the idea that radical redesign and reorganization of an enterprise are sometimes necessary to lower costs and increase the quality of service, and that information technology is the primary enabler for this radical change. Librarians have seen the possibilities of such reengineering applied to their workflows. While these processes are frequently mandated by rules and standards, they are just as frequently driven by precedent, habit, and convention. Examining workflow in light of changes in the work environment and evolving library technologies seems a natural development in the push for improvement demanded by the times.

Libraries have a tradition of cooperation. While they may borrow techniques from the business world, it is improved services, rather than profit, that motivates libraries to examine their operations. Likewise, service improvements often come as a result of library coopera-

tion. Recognizing this, granting agencies routinely make cooperation among libraries a requirement for funding. The projects described in this volume focus on reengineering workflows for improved service, and all involve interlibrary cooperation and the sharing of results.

Getting Started

In spring 2003, The Andrew W. Mellon Foundation awarded a planning grant of $48,625 to the Council on Library and Information Resources (CLIR) to work with The Stillwater Group, a firm that specializes in work reengineering and financial management of higher education institutions, and with seven liberal arts colleges to offer training in workflow redesign. This request came as the result of discussions with directors of liberal arts college libraries at Mellon Foundation offices in the summer of 2002.

Many of the library directors at that meeting believed that technological advances make it possible for libraries to offer new services that are more responsive to student and faculty needs. At the same time, they agreed that to take advantage of these opportunities, libraries would have to drop some of their existing services and practices. The directors asked for help in deciding which of the "old" work could be dropped in favor of innovative services.

Stillwater planned two workshops to help a pilot group of librarians prepare for this workflow-redesign project. The first workshop was held at CLIR in May 2003. In preparation for the second workshop, each director was asked to submit a written description of a project that involved a specific type of workflow redesign and to appoint a project manager. That workshop was held in July 2003.

Six directors developed projects and identified the resources needed to implement them. The directors represented the Appalachian College Association, the Libraries of The Claremont Colleges, the Denison University/Kenyon College collaboration, Smith College, Tri-College Consortium, and Robert W. Woodruff Library. Each director also appointed a team to head the project. During the summer of 2003, CLIR requested an implementation grant of $600,000 from The Andrew W. Mellon Foundation to support awards of $100,000 to each of these teams.

The projects began in fall 2003 and ended in December 2005. Susan Perry, director of programs for CLIR and a senior adviser to the Mellon Foundation, in consultation with Deanna Marcum, then president of CLIR, helped participants refine their projects and gave advice on resources. Perry provided oversight and support for each project, from inception to completion.

All six libraries completed their projects. All were enthusiastic about their experiences and satisfied with the results. Each project manager submitted a written report to CLIR upon completion of the project. CLIR believed the information in those reports could help the broader library community understand the importance of rethinking the activities and services of the college library. This monograph, which summarizes the results for each project, is writ-

ten for that community. Much of the data in the colleges' reports was submitted as appendixes. For practical purposes, these appendixes are not included in this publication; however, they are available on CLIR's Web site at *http://www.clir.org/pubs/abstract/pub139abst.html.*

The Projects

Each library or group of libraries undertook a unique project to meet a specific need. The Robert W. Woodruff Library of the Atlanta University Center and the Libraries of The Claremont Colleges improved the ways in which they serve their patrons. Woodruff took a holistic approach, engaging in a library-wide values clarification. In a matrix, they grouped services throughout the library whose goals and processes corresponded, then allowed staff with similar problems to work together to improve service delivery in their respective areas. Taking a more focused approach, Claremont redesigned its reference and information services. The project required extensive cooperation and communication among staff and resulted in significant changes—from desk relocation and redesign to instant messaging to creation of a reference blog.

The 32-member Appalachian College Association (ACA) was the largest consortium in the project, although many of its members have very small libraries. ACA focused on making the principles and techniques of redesign available to staff in all its member libraries and on encouraging them to identify projects on the basis of individual and collective needs. ACA trained at least one staff member in all but two of its member institutions in workflow redesign. The consortium established an exchange program so that staff from the various schools could call on each other's expertise. ACA member schools implemented impressive projects that addressed such topics as assigning tasks to student workers, innovations in processing, technical services workflow, shelving, systems administration, document delivery, and rare-book preservation.

Smith College Libraries, a member of the Five College Libraries of Western Massachusetts, was facing the challenge of staffing cuts when the project began. Its effort centered on the redesign of all cataloging and materials workflow processes as well as all purchasing functions. Other members of the Five College Libraries of Western Massachusetts were unable to participate during the grant period, but Smith expects to include them in technical services process improvement as they move to a new, integrated library system.

Building on past successes, in particular the development of a shared electronic resource-management system, the Tri-College Consortium libraries of Bryn Mawr, Haverford, and Swarthmore Colleges partnered with two vendors to achieve their joint goal of more comprehensive e-resource management. They worked with VTLS (Visionary Technology in Library Solutions) in the development of its Verify system and with Harrassowitz' HERMIS in the application of its e-resource customer services. In addition, they produced a model consortium license agreement for electronic resources that governs

the terms of use for e-resources purchased by libraries.

The libraries at Denison University and Kenyon College, members of the Five Colleges of Ohio consortium, identified the merger of their technical services operations as a logical extension of past cooperative ventures. Their merger entailed applying redesign techniques to their individual workflows and then recombining them into a single workflow.

All participants reported that work redesign is now a part of their decision-making toolkit, and many said that they had only just begun to use these techniques to improve or streamline workflow. All said that they would continue to use the techniques to complete work begun during this project or to begin new work.

Lessons Learned

Although individual projects varied widely, the processes they used had much in common. The insights they gained not only confirmed the value of traditional organizational practices but also led to new connections and conclusions.

Motivation

As Christopher Loring notes in his report, motivation can arise from crisis or opportunity. Among the participants, Smith and Woodruff faced crises. Smith anticipated a 10 percent staff reduction, and Woodruff was experiencing a significant decline in library service. ACA and Claremont recognized the need to change long-standing practices in order to keep up and do better. Denison, Kenyon, and Tri-Colleges, having participated in successful joint ventures in the past, wanted to try more ambitious cooperative projects. All participants were energized by the redesign training they received, and all saw opportunities for improvement. The common motivation was the realization of a unique opportunity to effect fundamental changes both in workflow and in library culture.

Change and Risk

Redesign implies change. It is commonly avowed that no one likes change, that change is difficult, and that change is resisted and frequently undermined. The redesign process revealed that while individuals may resist the changes imposed on them, the agents who create change are its champions. These projects, which used broad-based team approaches, developed change agents throughout their organizations. Many reports emphasized the importance of engaging the entire library staff. Broad buy-in by staff and constituents and full staff participation were seen as antidotes to rejection and lack of cooperation. The elements of redesign—understanding a process in its entirety, identifying and reassembling its component parts, and, most important, seeing one's role in accomplishing new tasks—created process ownership and, by extension, created the change agent. Through replication of the redesign processes described in these projects across and between libraries, staff members elsewhere can

become change agents. Ultimately, their own organizations may undergo a change in culture.

Projects encouraged risk taking. Risk carries the possibility of failure—personal or organizational. It means giving up the known for the unknown. Understanding the process and visualizing personal success in the process can reduce this fear. A close reading of all the reports reveals this confidence-building behavior.

Leadership

Implementing work redesign requires having champions in leadership positions as well as in work redevelopment. Leaders build vision and provide resources to realize that vision. Leaders also build confidence. Leaders at different levels in the participating colleges prepared the reports on which this document is based; as a result, it represents different perspectives. Deans and directors, for example, stressed the importance of staff ownership and direction. Team leaders stressed the importance of management support. Champions in leadership positions in each of the libraries got the projects under way with campus administrators as well as with library staff. Design and implementation teams in the individual libraries provided the energy, expertise, and interest to effect creative change.

Outside Assistance

All the projects employed outside help to facilitate discussions and to train staff in work redesign. Consultants came from corporate consulting firms, library consulting organizations, libraries, and teaching faculties. The roles of the external facilitators varied. At Woodruff, they guided the entire project, from conceptualization through evaluation. At Kenyon, Denison, and Claremont, they trained participants in the process of workflow redesign; at ACA, they trained local trainers. At Smith, they helped focus on project goals. In many cases, they facilitated the meetings of planning and work teams throughout the project, assisting members in solving problems and in communicating ideas. Some were physically present; others kept in contact by phone, e-mail, and off-site meetings. Irrespective of their particular roles or styles, these facilitators were critical to project success.

Planning

Most authors referred to formal institutional planning processes that provided an umbrella for their work-redesign efforts. Woodruff and Smith were guided by their colleges' strategic plans. The Claremont team's planning was part of the annual campus budget-review process as well as campuswide strategic planning processes.

A goal of strategic planning is to have planning in place before a crisis arises. An environmental scan anticipates the crisis, and workflow redesign can provide solutions. Such was the case, for example, at Smith and Woodruff, where information gathering was an important component of each program. Kenyon/Denison and Claremont performed extensive literature searches and included the results of these searches in their final reports.

Communication

Communication was a vital component of each project. Workflow redesign necessitates culture change, as well as changes in jobs or organization. The project institutions understood that effecting change requires that all staff be informed and that as many people as possible participate in the process. Faculty and students were often involved as well. Libraries used questionnaires and focus groups to survey staff and patrons before or after the onset of their projects. They recognized the need to keep the campus community informed.

In spite of the universal dedication to maintain effective communication, however, almost all participants felt the need to do a better job. Nearly all noted that getting the message out, having it heard correctly, and acting on it in a positive and sustained manner were challenges.

Group Decision Making

All the projects reported that group decision making works. When several individuals contribute their unique experiences and expertise to solve a problem, solutions are superior to those of any single member. Each of these projects involved teams or committees whose memberships were drawn from different libraries or different departments in a single institution. All reports commented on the value of different perspectives and skills.

Original Thinking

The reports alluded to another common feature of redesign: the need to think outside the box. Some boxes are imposed by hierarchical structures, limiting job descriptions, or dogmatic procedures; others come about because of the comfort they provide. Mixing team members from different boxes relaxed the walls. Library visits and other professional interactions all provided the same message: There are many ways to accomplish a given goal. Indeed, some of these ways have not yet been designed. Adhering to data is important, but creative thinking is also essential. The effect is synergistic: one idea leads to another, and the resulting construct is bigger than its parts.

The Team

Planning and implementation teams need to include all stakeholders. The assessment movement has recognized the value of user input, and the application of LibQual+, institutional surveys, and focus groups bring more voices to the redesign dialog. In many projects, users expressed wants and needs and communicated misunderstandings and a lack of awareness. Facilitators and consultants enhanced the dialog by articulating problems and processes, providing new perspectives, and promoting and focusing discussion.

Time and Timing

Institutions have to be ready to participate, and timing is a part of the readiness equation. Not all libraries in the consortium partnerships were able to participate; this limited the scope of their pro-

posals. Many of the libraries reported difficulty in completing their projects in the time allocated. Keeping communication open and productive was time intensive. The more participants involved in the project—within the library, between libraries, and most particularly outside the library with vendors—the more difficult it was to meet deadlines.

The Model

Maintaining the momentum of change and accepting that change is the basis of continuous improvement are the goals of the redesign process. A single project or a group of unrelated projects can provide models for emulation. Just as the many ACA projects showed members what they could accomplish, all the projects described in this report can stimulate libraries of different sizes and resources to investigate the tools described in the case studies and to look for opportunities to use them. Success in these projects required (1) commitment from management; (2) energy, fortitude, enthusiasm, and will; (3) collegial support; (4) time; and (5) funds.

Meeting the first three of these requirements is possible in many libraries that have strong, organizationwide leadership, a vision, and a spirit of cooperation. Time and money are more difficult to come by. The very small staffs at ACA libraries allowed almost no flexibility for reallocating work, because basic services take up all time available. However, even larger organizations often see no more alternatives. With a finite amount of time and an increasing number of goals, priorities must be set, agreed to, and supported by staff throughout the organization. A similar consensus is required with respect to financial resources. Workflow redesign may or may not be a high priority, depending upon organizational values and leadership. The Mellon grants made these projects possible. But scalability is an important advantage in redesign. Its principles can be applied to workflows simple and complex. With this process model and the multiple project models, it is hoped that others will create opportunities, identify the resources on which they can call, and choose the resources most appropriate for their own redesign efforts.

A few of the specific lessons found in these reports exhort those who would undertake such a process to

- communicate, communicate, communicate
- take risks
- give up on good ideas that will not work
- realize the importance of focusing on broad workflows rather than on discrete tasks
- let go of the "perfect" on behalf of the "good"
- acknowledge that the journey is just as important as the goal
- expect the unexpected

The success of the redesign tool is exemplified many times over in the following chapters. This work is an introduction to organizational culture change.

New Techniques in Library Technical Services at the Appalachian College Association

Anne Chase and Tony Krug

The Appalachian College Association (ACA) is a nonprofit consortium of 36 private, two-and four-year liberal arts colleges and universities spread across the central Appalachian Mountains in Kentucky, North Carolina, Tennessee, Virginia, and West Virginia. Collectively, these institutions serve more than 39,000 students. The central library, now called the William G. Bowen Central Library of Appalachia (BCLA), is a division of ACA. BCLA partners with ACA member institutions to make it economically possible to provide ACA students, faculty, and staff with information resources and services to support teaching, learning, and scholarship.

In November 2003, ACA received a $100,000 grant from the Council on Library and Information Resources (CLIR) to help ACA libraries explore ways to improve work processes and expand services. The program is called New Techniques in Library Technical Services (New TiLTS). At the ACA Annual Meeting for Library Administration in October 2003, Anne Chase, New TiLTS program manager, introduced the program as it had been proposed to CLIR, noting that it had the following strategies and goals:

Goal 1. All participating libraries will reduce the staff time needed for acquisitions, cataloging, or processing activities.

Goal 2. Some libraries will expand services through an internal restructuring that deploys staff more effectively.

Goal 3. Some libraries will share staff expertise with other ACA libraries to acquire, catalog, or process library resources more effectively.

Goal 4. Some libraries will outsource certain aspects of technical services to provide more staff time for working with faculty and students.

The project would establish the following strategies to meet the goals:

Strategy 1. Staff members of ACA libraries will be introduced to business-process redesign principles at workshops held throughout the region.

Strategy 2. To encourage the sharing of expertise among ACA libraries, the BCLA will implement a voucher system called Tony Tokens. The BCLA will serve as a clearinghouse by maintaining a list of services on the Tony Token Web site.

Strategy 3. Libraries may apply for funds to support process-improvement projects. Funds may be used for consultants, training, travel, and equipment. Project results will be presented at the ACA Annual Meetings for Technical Services.

During the grant period, ACA libraries were kept apprised of program progress. At the ACA Annual Meeting for Technical Services in May 2004, the New TiLTS steering committee worked with Dianne Schaffer of the BCLA staff to develop an agenda focused on improving technical services processes. Tara Cooper, Union College Librarian, discussed her staff's experience creating a process map of the college's technical services operations. Members of the New TiLTS steering committee led breakout groups that gave attendees opportunities to share ideas for improving technical services processes. Several libraries shared the maps of their current processes. At the 2004 and 2005 Annual Meetings for Library Administration, Chase provided updates on the New TiLTS projects and explained the Tony Token program. Directors were encouraged to share their experiences with process improvements. Public services staff members learned about the grant at the 2004 and 2005 ACA Annual Meetings for Public Services, where Chase again provided an overview of the effort and invited staff to participate.

Developing the Strategies

Strategy 1: Process Mapping and Process Improvement for Libraries Workshops

The grant supported seven workshops around the region on process mapping and process improvement for libraries. At these sessions, Martin Ramsay of the CEATH Company introduced participants to techniques for examining and improving workflow. The sessions involved hands-on examples and gave attendees opportunities to work with staff from other libraries. A description of the workshop is provided at http://www.clir.org/pubs/reports/pub139/ACAappx1.pdf.

During the first part of the workshops, participants stepped outside the comfort of their library roles and into new ones. Working in small groups, they were asked to learn new jobs in a very different environment, namely, a factory that builds cars from LEGO bricks. The assembly line was stopped several times so that productivity could be measured, after which members discussed ways to improve productivity for the next run. By the end of the afternoon, all the groups had redesigned the workflow and improved the productivity

of their fictional LEGO factories. Each group explained what it had done to improve workflow, and workshop participants as a whole reflected on their learning experience.

The second half of the workshops focused on library processes. Participants made lists of library processes, identified the customers for these processes, and discussed the importance of measuring activities and of selecting the best methods for taking these measurements. Ramsay introduced the concept of process mapping. The participants divided into groups to practice mapping a particular process, that of buying a pair of shoes. After comparing notes on this experience, they selected several library processes to be mapped and once again formed small groups to prepare process maps. For many, this was a valuable opportunity to talk about process problems in their home libraries.

As a part of the workshop evaluation, participants were asked to identify specific library processes that they wanted to improve when they returned home. The top five responses were technical services, student utilization, book processing, acquisitions and ordering, and cataloging.

Strategy 2: Tony Token Program

Many ACA libraries are small. Their staffs do not have the time or expertise to develop, implement, and deliver new services. Collectively, however, they have a wide range of knowledge and experience to share. Libraries were encouraged to widen the pool of expertise by training their staff in new areas. To this end, the BCLA staff worked with the New TiLTS steering committee to develop the Tony Token program. Tony Tokens are vouchers that one participating ACA library can exchange for services from another other participating library. A Tony Token is valued at 30 minutes. Each library sets the charge for its services and designates a service coordinator who negotiates the service details and charges.

To get the program started, the New TiLTS steering committee created several quick ways for libraries to earn Tony Tokens. Each library that sent staff to the Process Mapping and Progress Improvement for Libraries Workshop received 25 Tony Tokens. Libraries earned 25 tokens for submitting a list of services for the program, and each library involved in a New TiLTS project received 50 tokens upon submission of its final report. A handout describing the program and available services has been distributed at every ACA annual meeting for the past two years. An example is provided at http://www.clir.org/pubs/reports/pub139/ACAappx2.pdf. Dianne Schaefer created a page for the BCLA Web site (http://alice.acaweb.org/New_TiLTS/TonyTokens.html), which gives details about the program and names of contact persons.

In the first 18 months of the program, libraries earned more than 1,200 Tony Tokens; however, only a few libraries used the tokens to acquire services from another ACA library. Of those that did, one library provided the consulting services of a college archivist to assist a library that was beginning to plan an archive, and another library

tapped a library's cataloging expertise for nonprint items. Despite the rather slow start, the BCLA Library Technical Services Committee believes that the program has potential, and it is encouraging libraries to look to one another for assistance.

Strategy 3: New TiLTS Projects

At the Process Mapping and Process Improvement for Libraries Workshops, libraries were encouraged to undertake a project and share the results. The New TiLTS grants provided funding to assist with these projects. Funding was also available to develop a service center that might support several libraries. In all, the New TiLTS steering committee approved 10 proposals involving 18 libraries. In several cases, multiple libraries worked together to improve workflow or to develop expertise that they could share. The following section summarizes each of the 10 projects.

New TiLTS Projects

Improving Student Worker Retention in Technical Services: A Crafts Shop Model at Warren Wilson College

Warren Wilson College is a work college that requires all its students to be employed on one of more than 100 campus work crews, one of which is centered at the library. The library must compete with other work crews, some of which offer students opportunities to work outdoors, perform physical activity, interact socially, or complement career goals. Student turnover rates in the technical services department, as well as the other areas of the library, were high, approaching 100 percent each year, or even each semester. The typical student worker regarded the detail-oriented, repetitive work as tedious and unsatisfying. This situation presented tremendous challenges, for it obliged the technical services staff to invest in repeated training of student workers.

With a New TiLTS grant, the technical services department designed a program to address the issues of high turnover, low skill level, low commitment, and job fragmentation by creating a productive, learning-oriented environment. By moving away from an assembly-line approach and toward a craft shop model, they developed a crew that was more skilled and more committed.

In the craft shop model, each worker is responsible for an item from the time it is received from a vendor to the time it is ready for patron use. Each item is marked with a color-coded flag as it proceeds through the process on specially marked book trucks; each student is assigned a specific corresponding color. When the item is ready, the student initials the bar code and stamps the date due slip with a message that reads, "Prepared by (name)." The librarians perform quality control checks at various points and offer feedback to the student workers. By increasing accountability, ownership, and pride, the craft shop model has produced higher-quality work, enhanced worker satisfaction, and improved student worker retention rates. One of the most surprising findings was that a smaller student

crew produced as much work as larger ones had, and that the quality of the work was consistently higher than it had previously been.

Warren Wilson College Library's final report is available at http://www.clir.org/pubs/reports/pub139/ACAappx3.pdf.

Using a Consultant to Improve Technical Services Workflow at Bethany College and Wheeling Jesuit University

The Bethany College and Wheeling Jesuit University (WJU) libraries, both in West Virginia, use the Sirsi library system. Both libraries recently switched to OCLC's Connexion service for cataloging. For these reasons, the libraries collaborated to review their technical services workflow. With help from a consultant they identified three goals for their New TiLTS project: reduce the time from when a request is placed to the time the item requested is on the shelf, reduce redundancy, and reduce costs and staff time.

In preparation for the consultant's visit, technical services staff visited each other's library to review the workflow and setup. The visits gave staff the opportunity to discuss similarities and differences and to begin thinking about streamlining processes. The improved communication between the two libraries was also an important benefit.

The consultant, Sandy McIntyre from OHIONET, spent a day at each library. She observed processes, interviewed staff, and gathered data necessary to complete the workflow review. In preparing her final report, she was asked to identify similarities and differences between the two libraries, identify key processes, and recommend improvements. She was also asked to create a workflow map for each library and to make recommendations for staff training. As a result of the workflow analysis, McIntyre identified processes that should be eliminated or modified to improve efficiency (see http://www.clir.org/pubs/reports/pub139/ACAappx4.pdf.).

The WJU library, after reviewing the consultant's report, revised its technical services workflow and can now process items in significantly less time than before. WJU closed its shelf list, thereby eliminating the staff time once devoted to creating, editing, and filing the shelf list card for each new item and reducing staff time when materials are withdrawn. Streamlining the processing of materials simplified the instructions for student workers, which helped reduce time needed to handle each item. The WJU technical services staff also set several goals to improve operations. These goals included training more students to process books and processing all items within five business days. WJU is also investigating the use of OCLC's PromptCat. Finally, WJU is committed to using the Sirsi System to generate cataloging statistics. Although this will require time to set up, the effort will pay off when it eliminates the need for staff members to count new titles manually.

Improving Technical Services Workflow: Technical Services and Circulation Working Together at Bluefield College

Bluefield College Library's technical services department has only one staff member, a librarian. This person formerly was responsible for all phases of acquisitions and cataloging as well as for much of the processing of materials. The workflow was hampered by the fact that the technical services office was in the basement of the library, while all other departments were located upstairs. The building has no elevator; materials were moved from floor to floor with lifts. New materials often made three trips between the basement and the first floor before they were finally added to the collection.

An analysis of the department's workflow identified changes that, combined with other work patterns in the library, would increase productivity by redeploying work cycles[1] from other staff in the library to assist the lone technical services department staff person. The changes required additional equipment, which was purchased with New TiLTS funds. The old and new workflows are shown at http://www.clir.org/pubs/reports/pub139/ACAappx5.pdf.

Under the new workflow, the librarian receives the materials and enters the preliminary cataloging information into the online system, functions formerly performed by the technical services staff position. The assistant director completes the call number and verifies location codes, assuming more aspects of the workload formerly placed on the technical services position. The circulation supervisor completes the cataloging process by creating the item records and overseeing the processing of materials by student workers. This restructuring reduces the workload on the technical services department. The materials no longer return to the technical services department for processing, and the circulation staff members have work to keep them productive at times when work at the desk is slow. With these work cycles reassigned across other positions in the library, the technical services librarian now has time to pay invoices, maintain library materials accounts, and deal promptly with database-maintenance tasks.

Reviewing Essential Library Functions at Lee University

Like many academic libraries, William G. Squires Library at Lee University is expanding its services. It is enhancing its bibliographic instruction program, helping faculty integrate technology into their teaching, and managing an expanding collection of electronic resources. Like many academic libraries today, Squires Library is obliged to provide these additional services without an increase in staff.

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[1] The project team defines *work cycle* as the smallest possible component of a task, akin to a single rpm in a mechancial process. In the library, one work cycle for checking in periodicals might be noting the issue in a computer file and the next might be placing an ownership stamp, each being a crucial step in the task of recording the receipt of a single journal issue.

The library requested a New TiLTS grant to engage a library consultant and to fund a department head retreat to discuss the consultant's recommendations. Debra Morrissey from Mount Holyoke College was hired to review the essential functions of Squires Library with the goal of identifying procedures that could be modified to achieve greater efficiency, to bring processes in line with current best practices, and to save money.

In preparation for her campus visit, Morrissey reviewed procedural manuals, minutes, reports, work statistics, SOLINET charges, and budget information. During her two-day visit, she studied workflow, observed committee functions, and talked with key library personnel as well as the university's vice president for academic affairs. Her recommendations included the following:

- Focus the workflow in technical processing in Voyager to reduce the number of times materials are searched in OCLC and to limit how long materials stay on the backlog shelves before cataloging is completed.
- Revise the process for applying Library of Congress call numbers to materials by printing labels from the Voyager system and eliminating the shelf list.
- Eliminate the marking of books with the call number, OCLC number, and date.
- Shift responsibility for student supervision and the final revision of catalog records from the technical processing librarian to the technical processing support person.
- Move away from the paper-intensive materials ordering process in favor of a Web-based order form, allowing selectors and patrons to search the book vendors' databases and transmit their orders directly to the library and using system-generated reports to follow up on outstanding orders.
- Develop a training program for selected staff in basic reference skills so they can staff the reference desk during slower times of the day.
- Move responsibility for processing outgoing mail to interlibrary loan staff to centralize these processes.

Morrissey's complete review of library procedures at Lee University is available at http://www.clir.org/pubs/reports/pub139/ACAappx6.pdf.

Library leaders held a retreat to consider the recommendations. Laura Kaufman from Bryan College Library facilitated the retreat. The group felt that most of the consultant's recommendations should be implemented, in some cases with adaptations. If the recommendations can be fully implemented, Squires Library could recoup one full salaried position, allowing funds to be redirected to acquiring additional resources or improving services.

Streamlining the Management of Overdue Materials at Montreat College

The Montreat College Library used a New TiLTS grant to streamline the management of overdue library materials. The library staff mapped the process and identified several changes that improved it substantially, benefiting both staff and students needing access to the overdue materials.

To accomplish these improvements, library staff members identified several activities that needed to occur: (1) train the circulation staff to make full use of technology; (2) reallocate responsibilities to give the circulation staff more ownership of the process and eliminate unnecessary use of professional staff time; (3) implement a consistent and systematic schedule for notifying students of overdue materials; (4) provide adequate resources for reshelving books; and (5) create a procedures manual for handling overdue materials.

As a result of these systems changes, the process of handling overdue materials became far less labor-intensive, particularly at the end of semesters, when workload had been especially high. More books were returned on time. The library reduced the total number of overdue materials and of students with overdue materials. It also reduced the cost of the process and improved access to the collection.

The project exceeded its goals. A 50 percent reduction in overdue materials was realized in some areas and as much as 80 percent in others. Staff time required to process overdue materials was reduced, and turnaround time for shelving books was shortened. Other results are summarized at http://www.clir.org/pubs/reports/pub139/ACAappx7.pdf.

Improving Shelving Procedures at Bryan College

Many library patrons and staff alike are frustrated by the material that is "available" according to the catalog, but not easily located on the shelves. In many cases, the missing items have simply been misshelved. Library staff must spend time locating the missing items and notifying the patron needing the materials.

The Bryan College Library used process mapping to identify problems with its shelving procedures (see http://www.clir.org/pubs/reports/pub139/ACAappx8.pdf). The library staff revised its shelving process, identified best practices, and used New TiLTS funds to purchase book trucks. Training was improved with the use of Dewey Easy, a computer-training program. The students enjoyed the program's interactivity and the immediate feedback it provided. Other improvements included training all circulation desk student workers to shelve, having student workers select a particular subject area for regular shelf reading, and providing book trucks where patrons could place materials for reshelving. The changes reduced by 81 percent the number of items reported as missing and increased shelving speed.

Improving Preservation in Libraries with Limited Resources

Three West Virginia libraries (West Virginia Wesleyan College, Ohio Valley College, and Wheeling Jesuit University) did not have enclosures to protect fragile or deteriorating rare books and documents. While libraries can order custom boxes, best practice involves making an enclosure after assessing the item to determine the best type of enclosure material and construction. West Virginia has no preservationist who can prepare such enclosures, and libraries are understandably reluctant to send rare materials out of state. Thus, rare books were at risk of continued degradation.

Using New TiLTS funds, six staff members from the three libraries arranged a workshop with Jill Deiss of Cattail Run Bookbindery. The workshop topic was selection criteria for preservation in libraries with limited resources. Participants received hands-on training in making enclosures and learned techniques for paper repair in preparation for enclosure. The workshop also covered heat-set paper repair, Mylar encapsulation, L-folders, tuxedo boxes, and phase boxes. Workshop participants learned what overriding issues (e.g., space and time) they would need to address before they could routinely make preservation enclosures.

Kathy Parker, West Virginia Wesleyan College, created guidelines for creating preservation enclosures that workshop participants and their colleagues could use in their libraries (see http://www.clir.org/pubs/reports/pub139/ACAappx9.pdf). She also presented a preservation workshop at the 2005 ACA Annual Meeting for Technical Services.

Staff members at West Virginia Wesleyan College, Ohio Valley College, and Wheeling Jesuit University Libraries have now been trained to create preservation enclosures for fragile and deteriorating rare books and documents. Through the Tony Token program, they are ready to create enclosures for other ACA libraries.

Expanding System Administration Support for the BCLA Shared Catalog

The BCLA Shared Catalog, based on the Innovative Interfaces Millennium platform, supports 14 libraries. An additional 14 libraries are partial members of the system and use the remote-access features. The need for timely and effective responses to questions and problems is critical for all users of the shared catalog. However, the BCLA has only one full-time staff member, Dianne Schaefer, dedicated to supporting the system.

Using New TiLTS funds, two librarians from participating shared-catalog libraries, Melissa Garrett (Union College) and Debbie Nichols (Maryville College), attended the two-day III System Administration Workshop that Innovative offers for new III System Administrators. At this hands-on session, they studied management information, Web access management, system options and functions, database management and statistics, Web management reports, and Web OPAC administration. Following their training, Garrett and

Nicholas received the necessary systems permissions to expand their Millennium systems access/function.

The ACA-CL Shared Catalog e-mail and listserv were established in the fall of 2005. Schaefer, Garrett, and Nicholas all receive and respond to messages. Nicholas is focusing on the cataloging modules (including the headings report), and Garrett is supporting the circulation module (including reserves). Schaefer addresses issues related to the other modules. A response is guaranteed from at least one of the system administrators. The three librarians share routine system-administration tasks.

The expansion of system-administration support for the BCLA Shared Catalog is addressing two important goals: speedier resolution of problems by not having to depend on one person's availability at any given time; and potential resolution of questions and problems at another level, freeing Schaefer to focus on more complicated concerns. Among these concerns, many members are eager for time to be allowed for the development of new services, including federated searching, link resolution, and electronic resource management that are resident, or could be added, to the system, but not yet implemented.

Sharing System Administration for Endeavor (SAFE) Libraries

The six ACA libraries using the Endeavor integrated library system requested New TiLTS funds to develop a shared depth of library system expertise not attainable individually. The libraries had not been able to fully implement the potential of the Endeavor system because of budget and personnel limitations. Working as a group, the SAFE libraries have now

- jointly negotiated an annual maintenance fee cap with the vendor;
- obtained systems-certification training for librarians from two libraries; and
- obtained advanced reporting training for selected staff members from all six libraries.

In addition, the libraries agreed to plan to

- design a shared interface that generates custom reports for all six libraries and benchmarking statistics for each with the other five;
- review system functions to determine which functions can be shared and which will remain under the purview of the local system administrator;
- review options for integrated resources access (through Endeavor or other vendors) to include federated searching, Link Finder Plus capability, and proxy authentication; and
- pursue group purchase of additional Endeavor modules to maximize vendor discounts.

A postproject assessment revealed that the SAFE libraries improved their systems expertise and confidence, eliminated postponed or backlogged items for system administrators who had been

overtaxed and undertrained, and significantly increased awareness and use of reporting capabilities. They can now afford additional library system software as a result of a cap on annual maintenance contract costs. They will continue to work on leveraging system-administration expertise to benefit all six libraries. Members also plan to work together to provide staff training on the various Endeavor modules and features.

Exploring a Document-Delivery System

ACA libraries are challenged to respond quickly to requests for interlibrary loans (ILLs). Some ACA libraries are not members of OCLC and therefore do not have access to the OCLC ILL services. Other libraries have not been able to implement ARIEL because of a lack of appropriate technology on their campuses. Still others limit their ILL service or are unable to promote ILL as a service because of insufficient staff. Meanwhile, demand for ILLs is taxing staff and budgets at those colleges that do provide the service.

The ILL staffs from Berea College, the University of the South, and West Virginia Wesleyan College met to discuss the possibility of developing a Web-based document-delivery service among interested ACA libraries. The three libraries mapped their ILL processes and assisted each other with identifying ways in which to streamline workflow. They worked together to draft policies and procedures for the BCLA document-delivery system (see http://www.clir.org/pubs/reports/pub139/ACAappx10.pdf).

The goals for this project were to

- reduce staff time needed to request documents;
- provide an option for patron-initiated ILL requests;
- deliver requested documents directly to the patron;
- create a Web-based ACA library union list of journal holdings, including electronic resources; and
- create a Web-based document-request form.

Rick Manspeaker from West Virginia Wesleyan College created the prototype Web-based database and article request form. Each participating ACA library's journal holdings can be easily loaded into the database from an Excel spreadsheet. Using the prototype database, a patron can search for a journal by title or ISSN, determine which library owns the issue in question, and fill out an article-request form. The article request form is e-mailed to the lending library. The lending library then attaches an electronic copy of the document to the article request form and replies to the patron who placed the request.

Unfortunately, this system has not worked as well as planned because some e-mail systems limit the size of messages and attachments. Another method for delivering the electronic copy of the document must be found. If funding continues for New TiLTS projects, the group would like to work with a Web programmer to develop an easy method to post files to a server, create a password for the file, and generate an e-mail message that provides the link and password for the file.

Summary and Analysis

The workshops generated an interest in process redesign and in teaching process mapping techniques. All those who participated are proud of the outcomes. Eighteen of ACA's 35 colleges were involved in at least one effort, and many were involved in more than one. Some other libraries implemented process redesigns that did not require external funding or cooperation. They are not reflected in these figures and findings; nevertheless, these projects helped ACA reach its goal of documenting an impact on every member library.

The New TiLTS steering committee emphasizes that the work on process redesign has only begun. It hopes that process redesign will be a regular topic of discussion for ACA libraries, and that BCLA annual fees will fund future work of this nature.

Because the workshops consumed the first six months of the grant, libraries had only a year for project development and implementation. Although there was sufficient time to develop and implement some projects and exchanges, more time was needed to complete implementation. Recognizing this need, the steering committee requested and was granted permission to use any remaining grant funds to continue funding New TiLTS projects.

Recognizing the value of process redesign and the resulting redesign projects, the BCLA Library Technical Services Committee will continue to keep these tools before the librarians of the BCLA as a component of the committee's services and programs into the future.

While some staff members attend workshops, others must stay at home to keep the libraries operating. Many library directors felt they had experience with process design and stayed home so that more of their staff could attend. Although this arrangement made sense, it prevented the library directors from sharing their staff members' workshop experiences, and staff members had difficulty helping their directors apply what had been learned. This blunted the benefit that might otherwise have accrued from the rush of enthusiasm immediately following the workshops. Continuing exposure of the library directors to process design and mapping techniques would help engrain these strategies into the administrative routine of ACA libraries.

Working together and sharing expertise are part of the Appalachian experience. Such activities intensify librarians' natural tendency to collaborate. This principle was seen at work in the two exchanges and in half of the 10 projects funded under this program. Yet a presubmission review of the project questioned whether ACA libraries had the time for collaboration on the scale proposed. ACA libraries are open an average of 85 hours per week, using, on average, just three professional librarians and three support staff, with 1.6 full-time equivalents of student help. A large percentage of staff time is committed simply to keeping library facilities open and basic services operational. Thinking through work redesign and collaborating on training or projects require a relatively larger percentage of staff time in smaller institutions than in libraries with larger staffs.

Organizations that have faced many challenges often say that one has "done so much, for so long, with so little, that one now is prepared to do anything with nothing." ACA libraries might add that when one has to focus excessively on the basics, it is difficult to visualize what opportunities might exist for collaborative work across institutions. Developing a collaborative perspective also takes time.

The CLIR work-restructuring grant awarded to the Appalachian College Association has enjoyed much success initially and promises a great deal more. The librarians of the Appalachian College Association are grateful for the support provided by the Council on Library and Information Resources and The Andrew W. Mellon Foundation.

Reference and Information Services Redesign at The Libraries of The Claremont Colleges

Linda Gunter and Cindy Snyder

The Libraries of The Claremont Colleges serve 6,500 undergraduate and graduate students as well as the faculty, staff, and larger community within Claremont University Consortium (CUC), which comprises five undergraduate and two graduate institutions. As a crucial unit of academic support at the colleges, the Libraries conducts an annual review to ensure that its budget is consistent with its mission and strategic goals. This budget review includes discussions of whether resources can be realigned to advance the Libraries' strategic goals. Then, as necessary, the Libraries asks the colleges' administrators for budget increases to improve services. The administrators require justification for budget-increase requests. They ask what could be done differently: Is there duplication of efforts? Are the Libraries' efforts being correctly directed, and is value being realized from these expenditures?

In 2004, to explore answers to these questions and to assess the Libraries' performance in offering information and reference services, the Libraries requested and received a grant from The Andrew W. Mellon Foundation for a library services improvement project. The primary objectives of the project were to identify those reference and information services most appropriate to and needed by the library user community and to determine how such services could be provided most effectively. The Council on Library and Information Resources administered the two-year grant.

Rationale

In its strategic plan, CUC identifies four broad strategic goals for the services provided to the colleges. Two of these goals relate directly to the library services improvement project: (1) to enhance service quality; and (2) to build and sustain exceptional library services and

resources consistent with the requirements and expectations of elite liberal arts colleges and outstanding graduate programs.

The goal of this project was to better understand what library users need, both in person and remotely, by taking a hard look at the Libraries' information and reference services and how these services are provided. Because technology continues to change the ways in which things are done, it is necessary to examine regularly the tools available to increase users' awareness of the services offered and to help them obtain the information they need.

The Libraries' staff members have always taken pride in the quality of reference and information services they provide. Survey responses and comments over the past few years supported the assumption that these services were exemplary. When only librarians staffed the reference desks in the buildings, they could be held accountable for the quality of service provided. They felt better able to provide the extra touches that made library service unique and valued in the liberal arts college context. When resources were not stretched so thinly, coping with the rate of external change was manageable, and demands on staff time were not as great as they are now. Times have changed, however. Librarians now participate actively in library management, additional emphasis has been given to instruction and outreach, and resources, both print and electronic have multiplied. The observations below point to the need for a thorough review and redesign of reference and information services.

During spring 2002, the Libraries conducted focus groups to assess various library services. Staff were dismayed to discover that a large portion of people in the groups focused on reference and information services did not know about the many and varied services that the Libraries provided. Focus group participants criticized the Libraries for not offering specific services when, in fact, those services were available. Some participants, for example, were unaware of the subject guides available to assist in independent research or of the options for accessing reference services. They did not know that they could schedule appointments with individual reference staff for research assistance and other services.

In spring 2003, the Libraries participated in the LibQual+ Survey. Comments submitted on the surveys indicated that users' perceptions of reference and information services were not as complimentary as they had been in the past. While there were still positive comments, there were enough neutral or negative comments that staff members felt it was imperative to re-examine the services offered and the methods for offering them.

During preparation for a recent Western Association of Schools and Colleges review of the Libraries, librarians noted that with the ever-expanding list of databases and services provided, they no longer felt able to assist with every service offered. They simply did not have enough time to learn everything. They also commented that they felt unable to meet all the demands of the job: to provide instruction, to develop and manage collections, and to participate in the management of the Libraries, in addition to their reference duties.

As the Libraries' collections and reseources have grown and services have expanded, a number of service points have been added that are staffed primarily by students or other staff rather than by reference librarians. Since users often refer to any library staff member as a "librarian," it is hard to know where, or from whom, users received the service that they judged unsatisfactory. While exemplary service should be provided at all service points and from everyone working for the Libraries, pinpointing the source of problems is critical to ensuring improvement.

In studying and evaluating the reference and information services and the locations from which they were provided, it was necessary to examine the layout of the building and to consider what might be done to alleviate some of the confusion and difficulty in navigating it. Honnold/Mudd Library is composed of four separate units joined at different times into one architectural whole. It includes the original, four-floor Honnold building, the three-floor Mudd building, the multi-tier stacks within the Mudd building, and the three floors of the "new library" that joins Honnold and Mudd. The building structure is complex and signage has long been inadequate.

Taking into consideration these points, the following objectives were established for the project: (1) to identify those reference and information services most appropriate to and needed by the library user community; (2) to determine how these services can be most effectively provided; (3) to increase user awareness and knowledge of the range of reference and information services offered by the Libraries; (4) to improve user satisfaction with reference and information services; and (5) to enhance the ability of reference librarians and staff to meet established performance standards.

Staff Involvement in the Project

In January 2004, a five-member reference redesign team was formed to pursue the work of the grant proposal. Cindy Snyder, reference coordinator, was project manager. She drew on staff from various work areas concerned with providing information and reference services to form the team. The team initially included Kelley Bachli, Linda Gunter, Pedro Reynoso, and Ina Thomas. Mary Martin and Julie Shen joined later. As work progressed, other library staff members were involved in subgroups and special tasks. All library staff members were involved in small and large group meetings, workshops, surveys, and focus groups. The goal was to involve as many people as possible in the project in order to gain a wide variety of perspectives. Over time, the team's membership gradually changed as one and then another staff member left the Libraries' employment. However, total team membership remained at five.

The reference redesign team met at least weekly over about 18 months. It devoted many of its first meetings to developing an approach to the work—exploring methodologies and dividing the work among team members. The team adopted the philosophy that

exploring ideas, vetting them with as many staff members as possible, trying them out, and abandoning them if necessary would result in the most positive, productive, and effective project.

The grant supported the hiring of part-time temporary reference librarians, which freed team members to devote time to developing the redesign project and carrying out its objectives. Each semester, from spring 2004 through fall 2005 (excluding summers), one or two librarians were hired for 10 to 20 hours per week.

Methodology

The team employed many methods for assessing the quality of the services currently offered and determining needed services. Processes included the following:

- Literature reviews. The team read and discussed books and articles on a variety of approaches to reference and information services. Among the theories and concepts discussed were business process reengineering, appreciative inquiry, FISH, and topics related to Generation X and the millennials. From these discussions, ideas were distilled and consideration was given to which approaches would be most appropriate.
- Attendance at local and national conferences. Several team members attended conferences and workshops that addressed reference redesign, including sessions dealing with remote reference services, "chat," the information-seeking practices of millennials, workplace design, the future of reference services, and assessment of library services.
- Personal networking.
- Site visits. Team members made site visits to explore how other libraries offered reference and information services. Libraries visited included Seattle Public Library; Cerritos Library (California); California State University, San Marcos; California State University, San Jose; and Mount Holyoke College Library.
- Locally developed user surveys. In addition to the formal surveys conducted in 2002 and 2003, the reference redesign team conducted brief surveys of students and of staff in each work unit.
- Participation in the LibQual+ Survey in spring 2003 and spring 2005.
- Focus groups. The team and a campus facilitator solicited focus group input as a major source of information.
- Consultant services. Maureen Sullivan was hired to help refine the methodology and to discuss various philosophies of teamwork, management styles, and approaches to redesign. She made two site visits to Claremont, met with large and small groups of staff, and held several intensive work sessions with the reference redesign team. The team communicated with her by e-mail and telephone over several months and met with her at an out-of-town conference.
- Meetings of the team representatives with individual library work groups. The team developed specific questions for these meetings

to elicit how all staff, regardless of their positions, duties, or responsibilities, felt about user service. Each team member met with two to four work groups. Following these meetings, the team discussed the findings and incorporated them into the general model for the redesign.

- Meetings of the team and all staff. As work progressed, meetings took place to promote general communication about the team's work and the work of the consultant and to solicit input from as many staff members as possible.
- Meetings of the team and the librarians' group. Since much of the team's focus was the work of the reference librarians, discussions were held with this group throughout the grant period. The team's proposed model was distributed in various iterations to librarians and all staff.
- Meetings of the team with students. Early in the team's work, students who worked in public service areas of the library were invited to join the group for several discussion sessions. The students provided useful insights, particularly with respect to the needs of the millennials.

Development of the Model

Team members worked steadily for about six months, immersing themselves in reference and information services currently offered or that might be offered. During this time, representatives of the information technology (IT) work unit met with the team to explore options for services in the new reference and information model. As the work progressed, team members decided to focus on developing alternative models. Each team member designed and presented a model to the whole team. The entire model, as well as specific elements, was considered. Through this process, a model for reference and information services redesign was created. The model, summarized in the following paragraphs, is described in detail at http://www.clir.org/pubs/reports/pub139/CLappx1.pdf.

The model consisted of two major sections. The section entitled "Philosophy of the Model" outlined the premises of work as currently accomplished and the principles of the redesign. "Features of the Model," section two, included physical features, technological features, and assistance strategies. The purpose of the model was to integrate the present information, reference, and search center assistance desks and to ensure that personal and electronic services would be equally welcoming and helpful. To accomplish this, the model addressed the provision of reference and information services, the use of technology to enhance services, training for all levels of staff, IT needs, staffing needs, and feedback mechanisms.

Specific features of the model included plans for a new service desk and the creation of new staff positions. The team proposed that a welcome desk be placed in the lobby of Honnold/Mudd Library; that a supervisory coordinator position be developed; that an information assistant position be created for staff and students who

provide the first-tier level of reference service at a new information and reference desk; and that an information assistant coordinator position be designed to supervise these staff. The model also suggested that continuous user feedback be included in the Libraries' Web revision project, which was scheduled for spring 2006.

Concurrent with presenting the draft of the model to staff and soliciting their input, the team created additional teams to design and staff the welcome desk and to redesign the physical layout of the search center. The search center redesign team drew up plans for rearranging computers and peripheral equipment in the original search center space and made plans to expand the search center into a room adjacent to the new site for a combined reference and information desk. The new plans allowed for placement of computers to meet requirements for private work and group projects. The team also presented design possibilities for the proposed reference and information desk. These plans were vetted with all who would work at the new desk, as well as with all staff.

A trial welcome desk was put into place in the Honnold/Mudd Library for one week at the beginning of the fall 2004 and the spring 2005 semesters. The response was favorable, and the idea was incorporated into the reference redesign model. The welcome desk team met several times to plan the location, setup, staffing, and training needs for the proposed permanent welcome desk. The desk would be placed opposite one of the two sets of entrance doors and would be visible to all who entered the library. The new library elevator, which opened to the entrance lobby, would provide access to all floors of the library. Before this redesign, operating this elevator required a staff key. Full access to the elevator would necessitate moving one set of security gates downstairs to the lobby and require that the welcome desk be staffed all hours the library is open.

Implementation of the Redesign Model

Following staff review of multiple iterations of the draft document, the model was accepted and work began on the following physical and service changes.

- Installation of a combined services desk. Three individual service desks (reference, information, and search center assistance) were merged into one location. A new desk was ordered and installed in spring 2005. Decisions regarding placement of telephones and computers were made and implemented. The desk would be staffed by one information assistant and one or two reference librarians during most hours of library operation; an IT staff member would be there during some hours. Assessment of this staffing model continues as staff members gain experience working in this group configuration.

- Establishment of the welcome desk. The philosophy for the welcome desk is that everyone who enters the building will be

greeted. First-time users or others who do not have college or community cards will be offered information about the Libraries; users with substantive questions will be referred upstairs to the reference and information desk. When the welcome desk was established, all staff members were encouraged to volunteer at least one hour per week. A tenet of the reference redesign model is that everyone on the staff is a "roaming information provider," and work at the welcome desk fosters that philosophy. Many staff members who are new to public service have expressed satisfaction in doing this work.

- Development of job descriptions and filling the new positions. The reference redesign team, with library administration, developed job descriptions for the positions of information assistant coordinator and welcome desk coordinator, and the CUC human resources unit approved the positions. The positions were posted internally, providing opportunities for staff advancement to supervisory responsibilities. The positions were filled in March 2005. Office areas were designated, and the work of developing policies and staff training materials began. Workers were hired and trained. Adjustments continue to be made, especially in training, as these jobs evolve. It is intended that the welcome desk will be staffed with regular staff during weekday daytime hours, and that student staff will work the evening and weekend hours. Conversely, the reference and information desk will be staffed most hours with student staff, and a smaller number of hours will be filled with regular library staff during weekdays.

- Relocation of the security gates to the library lobby entrance. Gates were moved from the second floor to the lobby to provide security for the collection.

- Opening of the library elevator for patron access to all floors, providing compliance with the Americans for Disabilities Act (ADA) and enabling all users to get around the building without assistance.

- Development of training plans for the information assistants. The information assistant coordinator is responsible for training regular staff, part-time temporary staff, and student information assistants, and for conducting one-on-one and group training. A training team is planned to develop individual training modules and to place these modules on the Libraries' Web site. These plans are described in detail at http://www.clir.org/pubs/reports/pub139/CLappx2.pdf.

- Scheduling of regular and student staff for the welcome desk and the information and reference desk. The two coordinators are responsible for the scheduling of these desks, both of which are staffed all the hours the library is open.

- Development of budgets to support the new desks. No new funds were available to support these functions. Money previously budgeted to cover student assistants at the search center assistance desk and to staff the former information desk were transferred to provide some funding for student staff. Because of budget constraints, it is important for regular staff to volunteer to serve at the welcome desk for an hour per week. It is hoped that all staff will ultimately work at this desk, and that job descriptions for all new library positions will include this commitment.

- Installation of chat software for instant messaging (IM) with users. When the redesign project began, the reference librarians had been using 24/7 Reference virtual software for about three years. Librarians monitored this service, which serves users throughout the United States and Canada, one hour per day, Monday through Friday. With the redesign, it was decided to try monitoring 24/7 Reference from the reference and information desk during regularly staffed hours for Claremont users only. After testing this for about five months, it was determined that Claremont users were not using the service extensively and that they would be better served with more familiar chat software. In fall 2005, the Libraries' IT staff installed GAIM on the reference and information desk PCs, with links displayed prominently on the Web site. GAIM is an interface that allows users to chat with the librarians from their AOL, MSN, or Yahoo IM accounts. The service began slowly but grew dramatically over the first semester of use.

- Design of a "Need Help?" button. This button was a featured part of the redesign model. The goal was to communicate with users in ways they knew and used, primarily electronically. The service was based on the belief that a prominently displayed button on every page of the Libraries' Web site would be particularly attractive to students and that it would encourage them to contact librarians for help from any location, rather than coming to a reference desk as the traditional reference model dictated. Redesign team members worked with IT representatives to develop the button. The button displays in the upper-right corner of the Libraries' Web pages, in bold red letters. The text of the button reads: "Need Help? Ask Us" and has three links: for e-mail/chat/phone, linking to the appropriate information for sending an e-mail reference question; for using IM services such as AOL Instant Messenger, Yahoo! Messenger, or MSN Messenger; and for contacting the individual reference librarians or the reference and information desk.

- Movement of search center networked printer. The search center was expanded into two rooms and the copy center was relocated and given responsibility for servicing the one networked printer. All search center PCs print to that machine, and students collect their print jobs from it. Copy center hours have increased over the past two years to better serve users.

- Relocation of multimedia equipment to more patron-accessible areas. Before the redesign, multimedia machines were located in a locked room accessible by a reference librarian. With the redesign, all machines were moved out of this room. DVD viewing capability was installed on all search center computers, scanning equipment is now available in the search center, and GIS software is loaded on two designated search center machines. Some exceptions remain. Video viewing is available on two public machines and in a private location on another floor of the library. The plotter for the GIS software remains inside the copy center because of the need for assistance with this process and the high cost of the equipment.

- Proposal for an IT staff presence at or near the reference and information desk. Beginning with the fall 2005 semester, IT scheduled one staff member at the reference and information desk during the hours service was most needed. After working with this schedule, it was decided that there was little need for full-time IT presence at the desk. An IT IM group was established and a link to the group was added to all reference and information desk computers. IT staff make it a point to respond to reference IM queries immediately. If personal assistance is required, they come to the reference and information desk to help.

- Installation of multilingual functionality on all search center machines. User comments indicated that many would like to have Web pages display in Chinese, Japanese, or Korean languages. This application has now been activated on computers in all campus libraries.

- Proposal for two-way radios and headsets. A plan emerged to provide librarians or information assistants with headsets when they left the desk to assist patrons. They could then be reached if needed by using a headset instrument at the desk. Headsets could also be used by librarians roaming the building looking for people needing assistance. Although testing was successful, a few participants in focus groups felt that the radio headsets and the "roaming librarian" were distracting, and the idea was abandoned.

- Automatic start-up and shutdown of public computers. This technology had been introduced prior to the reference redesign project, but the initial implementation was unsatisfactory. It has since been put in place and is effective. The time required to start up and shut down 30 or more machines is now spent assisting users with their information and reference needs.

- Creation of an electronic rolodex and blog. The team and the reference information staff discussed several options for making information more readily available to the staff and decided to implement an "electronic rolodex" and a reference blog. The objective

of the rolodex was to provide a quick means to look up answers to patrons' questions, many of which were asked repeatedly, and to respond to difficult questions. Librarians would no longer have to research the same topics repeatedly, and information assistants could use information already discovered. The rolodex was created using Microsoft Access software, and training was provided for populating the rolodex with information useful to staff at the reference and information desk. The rolodex was to be loaded only at this desk and would not be publicly accessible. The reference blog was created and posted on the Libraries' Web site. A public resource, it offered topics of immediate interest. After the rolodex and the blog had been tested in use, it became apparent that the information they provided was somewhat redundant. The rolodex was abandoned, and the blog, renamed refblog, now includes searchable categories such as "course assignments," "rolodex resources," "stories," and "Web searching tips."

- Marketing the new services and desk design. The Libraries' marketing group played a pivotal role in publicizing the new and redesigned reference and information services and in introducing users to the new desk with its reconfigured staffing. Marketing staff designed and produced bookmarks and table tents advertising the "Need Help?" button and the various "Ask a Librarian" services. In spring 2005, an evening open house was held at the library to introduce the new layout and services. Refreshments were served, CD-ROMs were given to each person, and there were drawings for USB flash drives.

A report on progress in information and research services redesign as of June 14, 2005 is provided at http://www.clir.org/pubs/reports/pub139/CLappx3.pdf.

Assessment of the Reference Redesign

The reference redesign team used a variety of methods to assess the effects of the project. At the beginning of the model design, a student minisurvey was conducted (see http://www.clir.org/pubs/reports/pub139/CLappx4.pdf). This was followed in October 2004 by another brief survey; results are available at http://www.clir.org/pubs/reports/pub139/CLappx5.pdf. In return for filling out the surveys, students were offered a candy bar. Response was good, and much information was gained about student knowledge regarding library services. The last question on the minisurvey asked students whether they would be interested in participating in a focus group. There were many positive responses.

In late October and early November 2004, a series of focus groups was conducted for faculty, staff, and students. Twenty-two members of the colleges attended these sessions. The graduate student and the faculty groups were held in late afternoon; the undergraduate group took place in the evening. Refreshments and small

cash payments were given to students. Faculty members were given gift certificates for a local restaurant. Each focus group consisted of 6 to 10 participants. A graduate student in behavioral and organizational sciences facilitated the conversations. One or two team members attended, took notes, and provided clarification when requested. Hearing the conversations and observing body language were useful to the team. The facilitator prepared a report of the results of the focus groups and submitted it to the reference redesign team (see http://www.clir.org/pubs/reports/pub139/CLappx6.pdf).

To gain a better understanding of the effects of the changes, another series of focus groups composed of library staff was held in summer 2005. The goal was to gather information from all staff now working occasional hours at the welcome desk or the reference and information desk. Feedback was solicited regarding the new physical layout of the desks, staffing arrangements and schedules, the new electronic communication programs, the ways in which regular and student staff now interacted, and the overall impact of the redesign. Five staff focus groups with a total of 26 participants were convened in late June and early July 2005. A report on the findings of these groups was issued on August 5, 2005 (see http://www.clir.org/pubs/reports/pub139/CLappx7.pdf). In late July, staff members unable to participate in the focus group sessions were surveyed by e-mail. The questions asked were similar to those in the focus groups. The findings of the focus groups and the surveys were mixed. Some users were positive, others were ambivalent, while still others were confused by the new design. Further surveys are planned.

Statistics gathered from the new electronic user communications were analyzed. After discontinuing the 24/7 Reference software and implementing the "Need Help?" button and the IM service, use of IM increased to a total of 286 messages for the first three months, compared with 104 for the entire previous year, confirming that today's students communicate by IM and expect this service. In addition, the team implemented Web-based continuous feedback by means of a quick link on the Libraries' home page.

A final survey of survey of users of the Honnold/Mudd Library was done in December 2005. Results are available at http://www.clir.org/pubs/reports/pub139/CLappx8.pdf.[o]

Conclusions and Lessons Learned

The reference redesign team took on a life of its own. Some parts of the work went well, and some could have been done differently. Some of the more successful methods used included meetings with a variety of staff in small and large groups; much one-on-one discussion; giving serious attention to the results of user surveys and taking steps to implement desired services; setting up two pilot welcome desk projects to gauge the reaction of staff and library users; and including and recruiting as many staff as possible for specific purposes such as the formation of additional teams to design the new reference and information desk and the welcome desk, and to

market the new design and services. In reviewing the model adopted by the reference redesign team and endorsed by staff for implementation, several key requirements have been initiated or accomplished.

- Three service desks have been merged into one, allowing users to approach one desk for assistance rather than wondering where to go for help.
- A welcome desk has been set up at the entrance to the library. This has already received positive feedback from staff and library visitors.
- Training has been developed and presented to staff and students who staff the reference and information desk and the welcome desk.
- Opportunities have been created for staff to work at public service points.
- Multimedia equipment has been moved out of locked rooms and made available for use in the search center.
- New ways of electronic communication have been installed (e.g., Microsoft Communicator and IM), providing services more efficiently and for more hours of the day.
- Multilingual browser capability has been installed on search center PCs.
- An IT presence has been established at the reference and information desk, initially in person, and later accessible through an IM account.
- An ADA-compliant workstation with Jaws and ZoomText software has been set up.

It is difficult to sustain a project of this nature over an extended time given the staff's other commitments. Whether because of a lack of sustained interest, a lack of time, or funding constraints, not all elements of the proposal or all recommendations of the model have been put into operation. Features still to be implemented include the full complement of proposed training modules; information kiosks in areas where no staff are available to help (e.g., with periodicals and microforms) or in offsite locations farthest from a library; signage and directional assistance for the Honnold/Mudd Library; and plans for expansion of the lobby/entrance area of Honnold/Mudd Library.

From the outset, the team that devised the model relied extensively on brainstorming and group discussion. This required a significant amount of time, and meetings sometimes became tedious. Some aspects of the work bogged down. It was difficult to know when to stop brainstorming or when disagreement was disruptive rather than healthy. While team members could have sought ways to do things differently, they respected each other's opinions and contributions and generally worked well together.

One aspect of the team's work that needed more attention was communication with the rest of the Libraries' staff. Until the model was presented, some staff occasionally commented that they didn't know enough about what the team was doing. In retrospect, it would

have been wise to communicate with staff on a regular schedule rather than sporadically. Perhaps a "What Has Reference Redesign Done This Week?" e-mail would have eliminated the speculation over team discussions and their impact on individuals' work.

Another lesson learned was the importance of being willing to try new things, to abandon those things deemed unworkable, and to apply aspects of unworkable ideas. While the roaming librarian idea was discarded as a formal feature of the model, the idea increased the expectation that all library staff will provide assistance when asked and offer a welcoming presence throughout the building.

As noted in the introductory section of this report, many theories and models of organization, such as business process reengineering, FISH, and appreciative inquiry, were explored. While none of these methods was used in its pure form, features of many were applied. The model developed reflects the Libraries' unique organization and the services needed and wanted by its community of users. Implicit to the model is the belief that services will continue to develop and that they will keep pace with the best practices available. The reference redesign project and the grant supporting it provided the opportunity to devote time and energy to learning what users need and want. It has also allowed the flexibility to spend time designing and implementing services to better satisfy those needs and wants.

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Cooperative Work Redesign in Library Technical Services at Denison University and Kenyon College

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Libraries, better than most institutions, have long understood the value of cooperation and collaboration. Since the role of a library is to make information freely available, to promote its use, and to preserve it so that it remains freely available, libraries can surely accomplish more working together than they can separately. Realizing the need to make the most of their cooperative and collaborative networks, Kenyon College and Denison University have begun reorganizing technical services across the two campuses through the creation of a joint department of collection services. Budget cuts and staff reductions were not factors in the decision to undertake this project; the goal was the colleges' desire to do more—not with less, but with what they had. This step was a way to combine two great technical services teams and make better use of the expertise at both institutions to increase the efficiency of current services and add new ones. The lure and challenge of electronic information; the desire to provide greater access to local, specialized collections; and a desire to be proactive rather than reactive were at the core of this effort. It has led to more-empowered employees working collaboratively to provide the best-possible customized information access tools for their constituents.

The Context

Denison University and Kenyon College, two small, liberal arts schools located 27 miles apart, are members of the Five Colleges of Ohio consortium. The other three members of the consortium are Oberlin College, Ohio Wesleyan University, and the College of Wooster. Four of the schools (Denison, Kenyon, Ohio Wesleyan, and Wooster) have shared an online catalog, CONSORT, since 1996 and have participated in cooperative collection initiatives. The five

college libraries share a leased storage facility, CONStor, and all are members of OhioLINK, a statewide consortium of 85 academic libraries including both public and private institutions and ranging from research universities to community colleges. A shared union catalog allows direct, patron-initiated borrowing from any participating institution in the state. Delivery is usually within five days. OhioLINK coordinates the purchase of more than 100 databases and more than 6,000 electronic journal titles. Members have participated in grant-funded initiatives for information literacy and for use of statewide digital media collections, and they are planning a statewide digital repository project.

Because of their geographic proximity, Denison and Kenyon have long had a strong relationship of collaboration institution-wide, particularly between the two libraries. The two institutions have roughly comparable library collections, budgets, and staffing, which has also fostered close collaboration.

	Denison	Kenyon
Location	Granville, Ohio	Gambier, Ohio
Enrollment	2,204	1,611
Student/Faculty Ratio	11:1	9:1
Total Annual Library Expenditure	$2,783,691	$2,219,485
Total Annual Acquisitions Budget	$1,115,306	$1,005,754
Total Full-Time Equivalent Library Staff	22.70	22.45
Total Full-Time Equivalent Technical Services Staff	5.75	5.75
Total Bound Volumes	405,385	430,058
Total Volumes Added Annually	6,312	6,204
Print Periodicals Received	1,196	1,308

Table 1. Comparison of General Characteristics for Denison and Kenyon

Phase I: Project Planning

In the summer of 2003, a committee of three administrators, two technical services librarians, one public services librarian, one systems librarian, and one paraprofessional cataloger was formed to write a proposal to The Andrew W. Mellon Foundation for a grant to plan the redesign of technical services work. Prior to writing the proposal, the committee had used Hammer and Champy (2001) as a catalyst for discussions on redesign. As part of the proposal-writing process, the group created a process map, a case for action, a vision statement, budget, and a time line (Five Colleges of Ohio 2003). To

inform this process, committee members relied on many of the published works listed at the end of this chapter.

After receiving the Mellon grant in 2004, the group created a task force to do the actual planning and hired Maureen Sullivan as project consultant to provide general oversight and training in group dynamics. The goal of the project was to improve access to information resources and create value-added services for patrons through cooperative efforts. The task force agreed to the following assumptions and principles: (1) a workflow dealing with the majority of materials would be created and automated wherever possible; and (2) the goal would be to move materials between the two schools, and between each school and CONStor, in 24 hours or less.

The task force consisted of two librarians and two paraprofessionals from Denison, two librarians and three paraprofessionals from Kenyon, and the CONSORT systems manager. Five of these individuals had been members of the grant-writing committee. The library directors appointed a facilitator for the group. The task force met weekly. Its charge was to draft a written framework for how operations could be combined (or left independent), to identify the infrastructure necessary for plan implementation, and to consider how to position the unit to be as innovative and forward thinking as possible. Library directors from both schools participated in this group as needed; however, they had no role in planning the agenda and did not regularly attend meetings. The process was designed to be staff driven.

To launch its work, the task force held a retreat with the library directors and the project consultant in January 2004. The group reviewed its charge: to create a robust system for combined library technical services. The target was a system that would be flexible, transferable, malleable, and adaptable. Its focus would be evolving patron information needs, research patterns, and desires. Other discussions focused on work-redesign principles, planning assumptions, environmental assessment, vision, development of initial work redesign, agreement on how the task force would conduct its work, and a review of the project timeline.

A model for a consolidated department was built on the assumptions that it would

- be driven by user needs;
- have staff from Denison and Kenyon working a single unit to accomplish shared goals;
- build on the strengths of all staff members in the technical services areas;
- take advantage of technology to streamline work;
- create a combined collection that was greater than the individual collections;
- adjust to changes as necessary and be transferable;
- focus on systemwide processes; and
- hinge on staff participation and empowerment for success.

The project consultant facilitated a brainstorming session to generate additional ideas. R2 Consultants was hired to conduct an analysis of existing technical services workflows at both institutions. In April, R2 met with technical services staff as a group and then with each individual member. In May, all staff members were invited to attend the consultants' presentation of their analysis and recommendations.

At this time, the task force prepared the following vision statement:

- *Be courageous!*
- Act as a collaborative unit to best serve users at multiple locations.
- Provide intellectual representation of the collection as a whole.
- Foster a culture of staff empowerment that effectively uses and rewards individual strengths.
- Enable research and development capacity for the entire organization.
- Appreciate that as processes are combined, some activities may still best be implemented separately.

The group generated a work-process model (figure 1) and formulated a detailed plan based on the goals of the project (Library Technical Services Work Redesign Task Force 2004). It decided that the new technical services unit should be location independent and that the work process should be expandable. A joint-approval process that included cooperative selection, budgeting, and accounting would be created. Paper information flows should be replaced with electronic flows, and vendor services should be evaluated and integrated. These steps would allow the concentration of human capital in areas that could not be automated.

As shown in figure 1, the work process would have six components: (1) selecting (including the vendor-approval plan); (2) ordering; (3) receiving; (4) using Fast Cat for most of the print workflow; (5) cataloging; and (6) making materials accessible to users. These process definitions were deliberately broad and were intended to accommodate the diverse streams of materials currently processed as well as those that would be provided in the future. The process was designed to allow workflow to change to meet new circumstances.

Within the work processes would be four material streams: (1) print resources, including print periodicals and government documents; (2) electronic resources; (3) audiovisual resources; and (4) special projects. Using the same workflows, large percentages of each stream would be acquired, processed, and delivered to users. Applying efficiencies to all four streams would enable both libraries to dedicate more time to providing access to unique resources and services for our users.

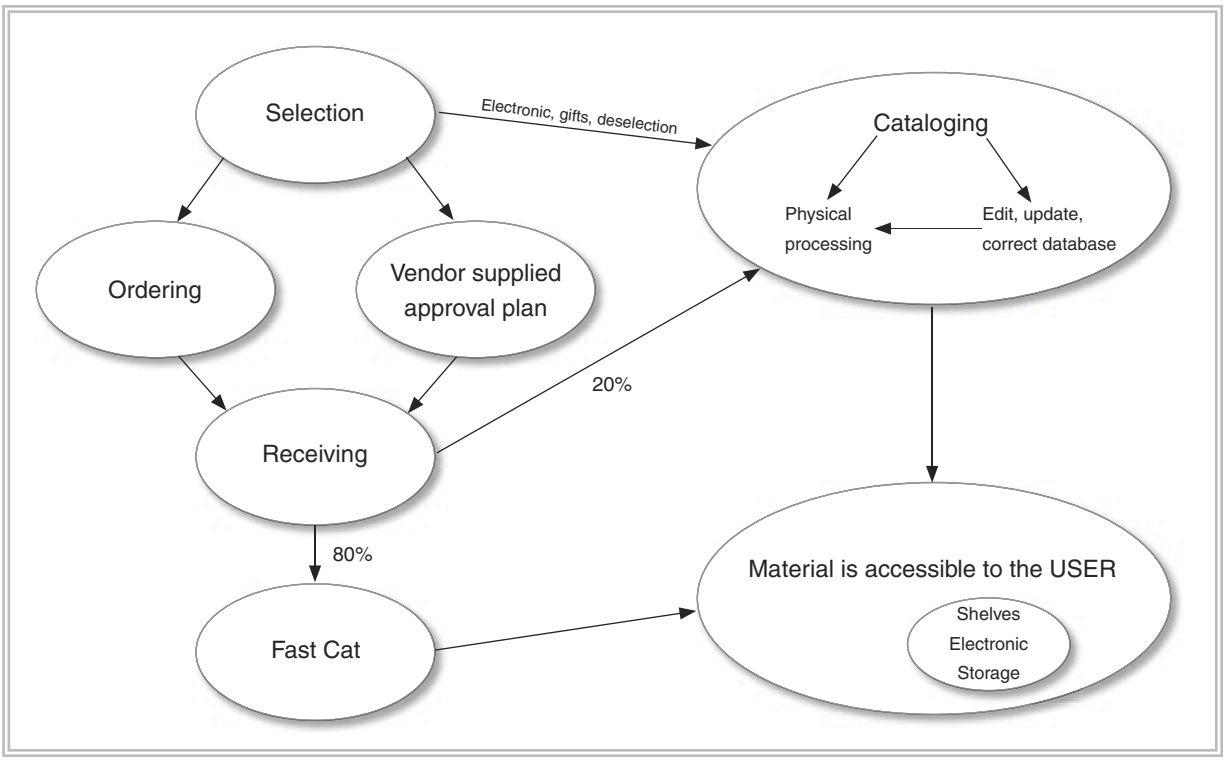

Fig. 1. Work Process Model

Phase 2: Project Implementation

After nine months of effort, the task force delivered its plan to library directors and then to all staff at both libraries. Following dissemination and discussion, a three-person team was assembled in January 2005 to implement the plan. All members of the implementation team had been members of the planning task force. Included were a librarian from Denison, a paraprofessional from Kenyon, and the CONSORT systems manager. The team worked with staff at both institutions to define how the plan would work in real life, focusing first on print resources, especially monographs. After investigating logistical issues, the task force decided that technical services staff would initially continue at their current locations. In light of this decision, the team then determined the best way to change the processes so that neither school would be overburdened.

This work continued over the first half of 2005, and the first joint workflows were realized in late summer 2005. During the initial phase of joint operations, all purchasing, receiving, and cataloging of monographs from the primary book vendor for both institutions took place at Denison. Orders from other vendors and standing orders were processed at Kenyon. Materials were shipped daily between the two institutions. Vendors now provide more services, so as much material as possible is received shelf-ready. All materials received are spot-checked to ensure accuracy.

During the first phase of implementation, all staff members were provided a rough model of where full-time employees (FTEs) were

to be deployed within the new unit (figure 2). Staff members were asked to select where they were most interested in being stationed, on the basis of their experience and desire for growth. All staff members were assigned to work in their respective areas of preference. As staff had previously been engaged largely with the work of their entire units, most expressed a desire to work in multiple areas under the new configuration. Efficiencies stemming from the combined workflow achieved a savings of 2.5 FTEs. The plan proposed that this surplus be redeployed within the unit to perform duties not previously performed, including cataloging of electronic resources (1 FTE), identification and implementation of strategic initiatives with regard to catalog enrichments and enhancements (1 FTE), and coordination of training initiatives for the unit (.5 FTE).

New work assignments are being more clearly defined as staff members begin to participate in new workflows. More complete position descriptions will be developed after workflows are settled and well understood. The human resources offices at both campuses have been kept informed about the project, and they support the changes in position descriptions and evaluation procedures that have been and will continue to be made. A new leader for the combined unit was hired in February 2006. This librarian reports to both campus library directors and carries forward the vision for integration within the unit.

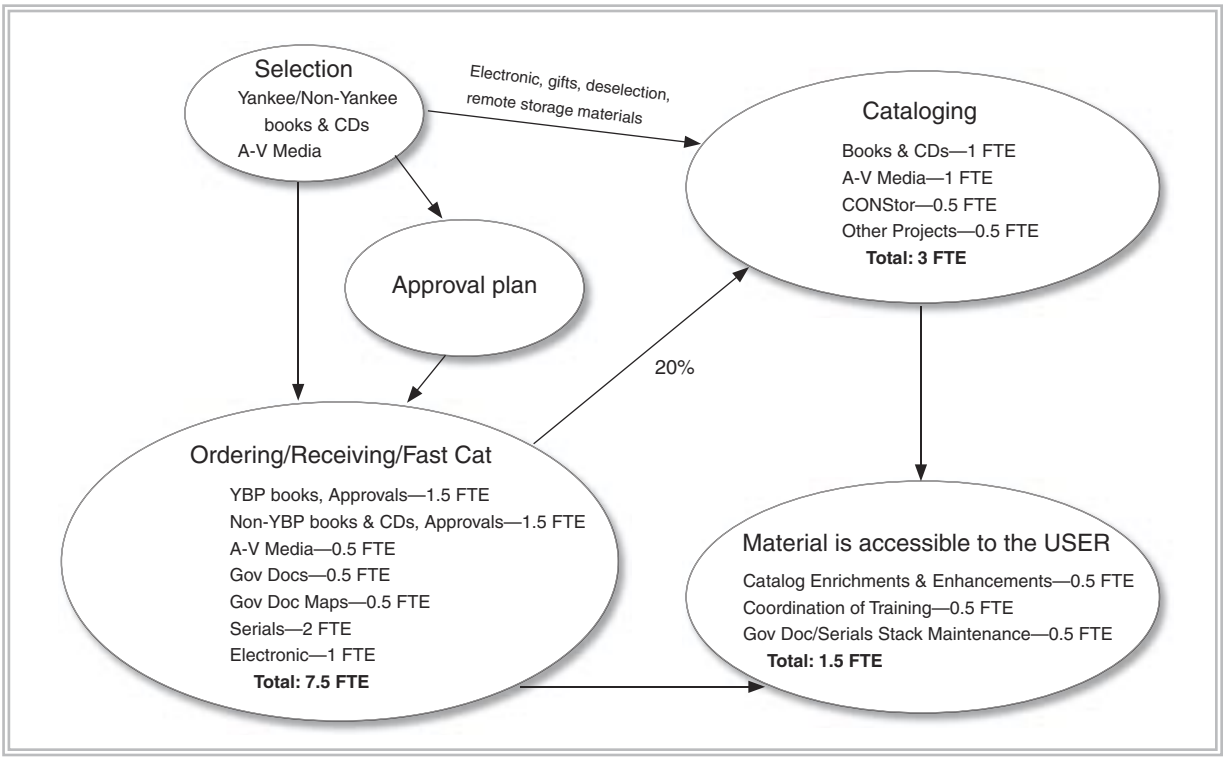

Fig. 2. Revised Work Process Model

The next phase of implementation will be to create work teams across the two schools. Each member of the staff will be on two teams. One team will comprise all the members who work within the same process (within the same bubble on the model). A second team will comprise all the members who work with the same general media type. Currently, the media types have been designated as (1) books; (2) electronics, government documents, and periodicals; and (3) audiovisual materials. Once established, these teams will designate a team leader; this responsibility will rotate among members. The charge to teams is to work together to ensure that members communicate effectively, that they share ideas openly, and that they explore new ways of working cooperatively.

The combined unit will continue working to finish implementation across all media streams, particularly audiovisual materials, where there are significant differences between the campuses regarding how these media are handled. Many staff in the unit and in both libraries are also beginning to think critically about what it means to create a more useful library catalog with new access tools and have begun to generate creative proposals. These include catalog and catalog record enhancements, increased local use of metasearch tools, and coordinated digital collections initiatives.

Conclusions

The overriding lesson of this project was that the journey was just as important as the ultimate goal. The process of engagement was well worth the time, and the end product put the participants in a good position to work as innovators in their libraries, not just within management but throughout the ranks of all staff, thereby creating a critical connection to the libraries' fundamental missions.

The following factors were critical to the success of the process and the product:

- clear, patient, collaborative leadership from the library director and dean, along with complete support from their superiors on campus;
- regular, transparent, and repetitive communication of the broad goals and implications of the work to be done, in recognition of the fact that it was necessary to think not only about the tasks to be done but also about broader workflows;
- a thorough, well-reasoned proposal before planning was begun;
- an experienced consultant to assist the project team with the difficult work of managing change;
- a consortium partner that shares an online catalog, delivery service, or storage facility, and preferably all three; and
- honesty about the motives for the project, especially if it entails saving money or eliminating positions.

The key to addressing all these issues was clear and ongoing communication that reflected the overall goal of the project. Communication was not always handled in the optimal way, but as work

proceeded staff learned more and more how important it was to be as open as possible about where the libraries were headed and about the decisions being made. Once trust had been established, working through the inevitable hurdles became much easier. Communication centered on broad, and often theoretical, discussions about the library profession and about how libraries should be positioning themselves within the changing world of information providers. This helped everyone focus on the general implications of networked information for library work rather than on individual tasks. This communication strategy helped make the case for change, even when things seem to be working fine at the time.

Staff involvement and ownership were critical to moving the project forward. Task force members needed to spend a fair amount of time getting to know one another before they could communicate comfortably within the group. It was sometimes difficult for some members to speak their minds because of the mix of staff (including supervisors and those they supervised), but in the end the benefits were worth the effort. The mix of people allowed for different viewpoints to be expressed and incorporated into the final plan.

The time required to create this level of change was greater than anticipated. Every step of progress involved many modifications to the workflow, some of which were not foreseen. At times this was because of the number of staff and vendors involved in each decision. For instance, the decision to receive shelf-ready books from the major vendor involved input from technical services staff at each location, input from the vendor, a PromptCat profile change at OCLC, and budget approval. A slowdown at any point in this process increased the time needed to make the change a reality.

Any initiative designed to combine work units between institutions is not guaranteed of success, and the work was not always easy. Some of the challenges encountered and resolved together include:

- reaching consensus with partners who were not part of the project;
- overcoming resistance to change ("If it ain't broke, why fix it?");
- staffing a joint unit with employees who did not always want to work in a new location;
- getting everyone to let go of the "perfect" on behalf of the "good"; and
- learning to manage digital information and products in all formats, especially those that were locally produced.

Nevertheless, these were minor hurdles on the road to improved customer service. While the full implementation of the project lies ahead, the future looks promising.

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Increasing Productivity through Workflow Redesign at Smith College

Christopher B. Loring

In January 2004, the Council on Library and Information Resources (CLIR) provided Smith College Libraries (SCL) with a grant to fund a work redesign project focusing on increasing the productivity of its purchasing, cataloging, and processing functions. Facing a staff reduction of more than 10 percent, SCL needed to make sure that work was accomplished as efficiently as possible.

Project Description

The goal of the project was to redesign SCLs' purchasing, cataloging, and materials flow processes to increase productivity, improve efficiencies, and improve the timely access to materials. An ancillary goal was to identify areas where the Five College Libraries of Western Massachusetts[1] could collaborate in library technical service operations and to develop and implement collaborative process-improvement strategies.

The project scope was broadly defined, allowing for the examination of any process that involved acquiring something for the libraries—whether it is paperclips, books, electronic journals, computers, or software. Included at the outset were all purchasing operations, from supplies and equipment to intellectual resources; all internal processes, from order through receipt to delivery to the bookshelf or customer; data flows, from vendor to library to integrated library system to college administrative computing systems; and access processes, such as electronic subscription, interlibrary loan (ILL), and document delivery. The scope of work within the Five Colleges was intentionally nonspecific to allow the participating institutions to discover areas where collaboration would be productive.

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[1] Amherst College, Hampshire College, Mt. Holyoke College, Smith College, and the University of Massachusetts at Amherst.

Environment

The Smith College Libraries is one of the largest liberal arts college library operations in the United States. It houses a collection of 1.4 million items and has three major branch libraries serving the visual arts, the performing arts, and the sciences. It has a robust special collections program that includes an excellent rare book room and one of the premier women's history archives in the country. Prior to the project, SCL had a staff of about 57 full-time employees (FTEs).

The project was conceived with the context of two major environmental factors at Smith College in late 2003: a strategic plan for the libraries that included an emphasis on working more efficiently; and a developing reduction in financial resources at the college. In 2002, the libraries created a vision statement and a strategic plan that included a commitment to working better as an organization. Recognizing the need to constantly respond to change, the strategic plan included as a goal that staff be flexibly deployed to meet the libraries' needs and priorities and be fully engaged in change processes. As a result of this strategic goal and prior to the grant, the libraries had engaged R2 Consultants to conduct a workflow analysis of SCL's technical services operations. The consultant's recommendations were generally interdependent and focused on budget control, work consolidation, automation, and expanded use of outside vendor tools. This was part of a larger effort to rethink work as envisioned in the strategic plan. By the time SCL received the grant, staff recognized that it would be necessary to do a significant amount of work to implement the recommendations.

During 2002 and 2003, the college started a financial-planning process to align its expenditures with its resources to ensure balanced budgets in future years. By summer 2003, it had become clear that SCL would have to reduce its staffing level for fiscal year 2005 by about 10 percent. Such a reduction would force change in a way that good times do not. When the grant was received, it was not yet clear where the reductions would be made; however, it was clear that reductions would affect all parts of the libraries and that it would be essential to re-examine how work was done.

Objectives

The objectives of the project were to

- design processes and procedures to permit a 3.0 FTE reduction of staff in technical processing, both centralized and distributed in branch libraries, and in interlibrary loan;
- establish input and output benchmarks for current processes in equipment, supplies, and materials acquisitions and for interlibrary loan;.
- improve turnaround times from order to access by 30 percent;
- improve access and control of electronic resources;
- maximize the use of software to improve access to scholarly information;
- maximize the use of software to improve business processes with the controller's office; and

- identify areas for collaboration between technical services operations of SCL and other members of the Five College Libraries.

Work Redesign and Process Improvement Methodology

Work redesign and process improvement are business concepts that have been widely used in the private sector and in higher education for many decades. Process improvement is a method by which the interrelated activities that lead to a desired result are analyzed and then redesigned to achieve the result more efficiently. The analysis is conducted by the people who know and do the work and is done systematically using a number of different tools. While data-driven decision making is emphasized, good decisions are also derived from exploration of different approaches by project team members, all of whom bring different expertise to the problems.

At Smith, five functional process-improvement project teams (PIPs) were created and charged with examining how they did their work. They were administrative services; electronic resources; interlibrary loan; receiving/cataloging serials; and stack management. A sixth PIP was created for the music library, which had incurred a reduction from 5.5 FTE to 4.0 FTE. Each team comprised staff doing the actual work. The administrative services PIP included two library staff members who were also library "customers" and, because of a prior vacancy in the unit, had been cross-trained in some purchasing and accounting functions. Each team had a leader who was responsible for overseeing the work of the team as well as for communicating the work of the team to a process-improvement steering committee (see below).

A facilitator with a general knowledge of libraries, but not a librarian, was hired to assist each team with its work. The facilitator was skilled in group process, project management, and the use of work-analysis tools. She provided a neutral, outside perspective and, because of her previous work with the libraries, was a trusted third party. She helped the start-up of each team, provided members with training on the use of analytical tools, and assisted teams in the use of data. Her role was especially important in the beginning phase of each team's work. Gradually, she met less with the teams; as they developed the ability to work on their own, they would check in only occasionally to assist in solving specific problems. The facilitator also coordinated the process-improvement steering committee meetings and updated the sponsor of the project, the director of libraries, on progress.

The process-improvement project steering committee comprised the team leaders, the project sponsor, and the facilitator. Conceived to provide general project oversight, it became a forum where teams could share their progress and provide feedback and critical appraisals of each other's work. The steering committee also championed the effort throughout the organization by communicating PIP activities campuswide.

Pre-project Environmental Changes

Projects that take some time between conception and launch can be affected by ongoing changes in the operating environment. This project, conceived in spring 2003 and slated for launch in summer 2004, was no exception. Several significant forces outside of the libraries led to changes in the scope of the project, the expected outcomes, and the time frame for its completion. The most important of these was that the college postponed staff layoffs required by its financial realignment plan until June 2004, after the end of spring semester. The fundamental driver for the project was to adjust work after the layoffs; thus, the project had to be delayed six months to get through the layoffs, the resulting disruption, and the normal summer hiatus in work caused by vacations.

Another significant force was the decision by the libraries of the Five Colleges to stop using their legacy Innovative Interface library management system in 2005 in favor of ExLibris's ALEPH software. Many of the data flow efficiencies envisioned by the project had been predicated on the Innovative Interface modules, which do not exist per se in ALEPH. While SCL was still using Innovative software throughout the project period, it did not make sense to redesign work in areas that would need to be redesigned again within a year. This major component of the project had to be set aside.

Pre-project Actions

Prior to and just after the staff reductions, the libraries' management took organizational and process actions without the benefit of the in-depth analysis and detailed data collection that are the hallmarks of process-improvement methodologies. While these actions may have been contrary to the best practices of process improvement, they were carefully considered and proved to be correct. The major organizational change was to move responsibility for stack management in the main library (Neilson Library) from the circulation department, which was burdened with multiple roles. Stack-management responsibility was moved to a small unit in technical services, the preparations unit, which had a limited role and could absorb more responsibility. The decision was based on evidence that shelving new and circulated books was too slow and that the stacks were in significant disorder. Later, during the project data collection, the benefits of this change were confirmed.

The major pre-project process change was to move serials check-in in the two branch libraries losing staff (the art library and the music library), to the central technical services department. Following the loss of staff, managers in both branch libraries realized quickly that they needed to make some significant rapid changes. Mainstreaming serials work to the place in the libraries that was already handling the majority of such work was an obvious solution that was also consistent with an important principle of process improvement, i.e., reducing variation in the process.

Results

Scholtes (1988, 5–26) provides a framework that sets forth a number of approaches to analyzing and changing a process. These approaches include describing the process, identifying customer needs, developing a standard process, error-proofing a process, streamlining a process, and reducing variations in, or mainstreaming, a process. The PIP teams used all these approaches to redesign their work and improve their results. Below are examples of changes that fall into each of these categories and provide a flavor of the project's work and outcomes.

Describing the Process

One of the areas examined by the serials PIP team was the claiming of unreceived serials. Team members sought to understand the process by flowcharting the steps and then studying how much time each step took. They also tracked the yield rate for claims. As a result of these analyses, staff came to understand that a process they thought was onerous was in fact quite easy and that it yielded significant results when done twice, but usually not a third time. Further analysis led them to understand what types of materials warranted the additional third claim. Describing and understanding the claiming process helped the team redesign the process so that claiming was done more efficiently, eliminating in most cases a final step, and was performed in a more standardized manner.

Identifying Customer Needs

Ultimately, any process exists to meet the need of the customer. Operations lacking contact with the customer need to be particularly aware of customer needs as they analyze their processes. Fortuitously, two members of the electronic services PIP team were public service staff. They were able to inform the team's workflow analysis with the user's perspectives. In particular, they noted that when students looked for journals, they generally relied on the libraries' journal locator (an SFX form) instead of OPAC, and that librarians were instructing students to use the journal locator before looking in the OPAC. Moreover, students were increasingly dependent on SFX Open-URL links in licensed databases to find licensed full text. Despite this, the process of cataloging a new electronic resource mirrored that established for print journal titles: titles were first cataloged for the OPAC and only later added to the SFX database. As a result of this input, the team realized that the current process neither reflected nor met the needs of the user. The team decided to reverse the order in which electronic resources were processed so that new electronic journals were added to the journal locator database first. This increased the likelihood that users would find the resources in the place where they were looking.

Standardizing the Process

Once a standard process has been developed and implemented, work outcomes tend to be more consistent, more efficient, and less

prone to errors. The interlibrary loan PIP team standardized two very different processes—one dealing with how materials are sent to peer libraries in the Northeast and the other with how students are supervised. Interlibrary loan had a longstanding agreement with other liberal arts college libraries in the Northeast to ship materials to each other via UPS. In its analysis, the ILL PIP found that shipping by UPS regionally was not significantly faster than shipping by U.S. Postal Service. Processing shipments by UPS was more time-consuming, and there was no return of value for the extra time spent. By moving these materials into the standard process of mailing via U.S. mail, ILL could not only process materials more quickly and more easily but also reduce shipping costs.

Analysis of ILL work helped the ILL PIP understand how important student workers were to library operations. However, the ILL PIP found significant inconsistencies in student worker attendance rates, especially when compared with rates of other public service units in the libraries. The ILL revised its student contract to bring it in line with similar service units' attendance policies and began to enforce the contract uniformly. As a result of this standardization, student worker attendance increased from an average rate of 77 percent of scheduled hours to roughly 90 percent.

Error-Proofing the Process

Any process is prone to mistakes. As one analyzes process and redesigns a process, one goal is to reduce the possibility of errors, or to error-proof the process. A common place to look for errors is in the communication between customer and supplier. Both the administrative services PIP team and the ILL PIP were able to change communication processes to reduce the possibility of errors.

In its analysis of supply orders, the administrative services PIP found that 70 percent required further clarification. Such clarification was needed; for example, when an item was not available, a wrong code was used, or an item was back-ordered. To error-proof this process, the team did two things. First, it did not become involved in the order process when the college's standard office supply vendor was used. This allowed the purchasing unit to submit online orders to the vendor and to recognize and correct problems immediately on placing the order. Second, for nonstandard orders, the team introduced a standardized form with standardized codes and trained staff in its proper use.

Patrons requesting ILLs are most likely to make mistakes when they enter their request into the online request form. Automating the process for repopulating citation data in the online form through the SFX service greatly reduces the opportunity for error. Similarly, ILL enabled OCLC's Direct Request function in WorldCat, allowing a patron who locates a book in WorldCat to create an ILL request deriving the correct information from the WorldCat bibliographic record. These steps not only reduced the opportunities for error but also reduced the handling of requests by staff and saved patrons time.

Streamlining the Process

Streamlining a process involves removing steps or subroutines that take time but add little or no value to the result. The examples of error proofing above incorporate facets of streamlining. With respect to decentralizing supply ordering, an additional process, central delivery of supplies, was eliminated. Supplies are now delivered directly to the ordering unit, which eliminates redundancy and improves delivery times. Other instances of streamlining abound throughout the PIP team's work. ILL, through an analysis of the workflow, documented that it took 10 times as long to process a photocopy for paper delivery as for electronic delivery. Working with its customers, ILL eliminated the option for paper delivery for any ILL article received electronically. In the cataloging and receiving procedures, the PIP team looked at the processes for tracking endowed funds acquisitions and found them to be labor-intensive and lacking any automated procedures. By eliminating steps and doing only what is absolutely required by the college and the terms of the gift, significant time and labor would be saved.

Mainstreaming

Variation in a process can significantly hinder productivity when subroutines, which take more time and effort and are disruptive to an efficient flow of materials, are created to account for the variation. By reducing variation, the overall process can be improved. Flowcharting revealed that two very different processing routines were being used, based on the method of reporting. There was no rational basis for the differentiation. The staff redesigned both processes into a single, entirely new process that ensures faster problem resolution and better customer service.

The serials PIP, in examining the serials check-in process, noted the number of exceptions created by allowing titles to be routed to library staff before being shelved. This variation in the check-in process was analyzed and found to be disruptive and time-consuming. While the elimination of the routing variation was not achieved, the team sought to reduce it by two-thirds.

Finally, the ILL PIP found a number of variations between the processes for branch library materials and those for the main library. The variations complicated handling of the requests and delayed processing. By installing ILL software on branch libraries' computers, they were able to harmonize the process throughout the libraries and thereby improve processing time.

Assessing the Project's Results

Scholtes notes (1988, 5-31) the Plan-Do-Check-Act cycle is firmly rooted in quality- and process-improvement methodology. At the "Check" stage of the cycle, one looks at the changes made and asks what went well, what didn't go as expected, and what could be learned from the effort and adjusted for the "Act" stage. For this project, there were clear successes for every team and for the overall

effort, but there were also areas that clearly could be improved upon in the future. Much was learned about the process and how to better prepare as work continued.

The Scientific Approach Works

A key theme of process-improvement literature is that long-term success depends on taking a rigorous, systematic, and disciplined approach to problem solving, what Scholtes calls a "scientific approach." The process-improvement project teams at SCL found this to be the case. They collected data and used the data as the basis of their changes in processes, and they looked for root causes of problems in order to create solutions that would have lasting value. They used a wide variety of tools, from flowcharting to cause-and-effect diagramming, to improve many processes.

Could it have been done it better? Yes. While all team members learned the methods of process improvement, a systematic training effort was not provided. More effort at the beginning of the project, which would have given those involved a deeper understanding and common knowledge of process-improvement methodology, would have served the process better in the long run.

Moving to Data-Driven Decision Making Is Hard

Making the transition to decision making based on data and analysis is difficult. Although this project was a significant step toward a change in culture, it was only a start. Staff members have allegiances to old ways of doing things, and giving up steps can be difficult. A long-term, ongoing, organization-wide commitment to data-driven decision making is essential for permanent change. Critical to the change is having some early adopters who champion the new way of doing business until it becomes part of the fabric of the organization.

Timing Must be Carefully Considered

Is there a right time to begin a process-improvement project? Probably not. There are, however, very *wrong* times to begin one. For Smith, it made no sense to begin this effort until after the college's financial planning had ended and the reductions in library staff had occurred. The reduction was going to be very disruptive. Any process-improvement work done before it would likely have to be redone afterward; therefore, a delay was justified.

There can be a danger in delays, however. This is because all organizations experience change all the time as a matter of course. Leaders must not let outside environmental forces become a perennial excuse to avoid doing this type of work.

Exploring collaborative work with Five College partners also proved to be subject to timing considerations. At the start of the project, the environmental conditions in their own libraries were not deemed to be right to explore possibilities for collaboration. Only in the fall of 2005 did conditions change sufficiently for them to be able to begin work.

Outside Consultants Can Help Focus Efforts

The process-improvement literature often disparages the use of consultants for a number of reasons: they see and know the operations only in superficial ways; they are not vested in the institution's outcomes; they recommend known solutions, not solutions that are tailor-made to the particular situation and issues. Despite this, Smith found the use of consultants before the project work to be useful in helping focus on which processes needed the most attention. The consultants did not recommend specific solutions; instead they identified areas where staff should concentrate their efforts. This is important. Having some sense of where the biggest return for effort will be found helps an organization avoid working on less-important processes.

Encourage Organic Discovery

While the scientific method was the foundation for most of the improvements coming out of the project, others came from a process that is best described as organic. When the right people come together to work over time and openly explore problems, they can come upon improvements that were not the focus of their work or were not being actively examined at the outset. This happened a number of times in the project, most notably when the electronic resources PIP team decided that one of the best things the libraries could do for their users would be to bring a link to the libraries journal locator service to the top of the libraries' Web site. This improvement was a byproduct of the team's analysis of how electronic journals were processed. The discussion that led to the change was triggered by this analysis, but it could easily have been missed if public service and technical staff had not been involved in discussions and been open to all manner of change.

Expect the Unexpected

In embarking on a process-improvement project, one has to expect the unexpected. One cannot predict where the practice of process improvement will lead. One of the biggest surprises for Smith was the uncovering of a significant area of organizational dysfunction. As the electronic resources PIP team analyzed how electronic journals were processed, it uncovered a number of problems. Over time, the libraries had implemented a number of new digital services, but had not clearly delineated responsibility for them within the organization. The organization had not kept up with an environment of rapid change. In response, we gathered data on the problem, analyzed the data, and made organizational changes to address the problem.

Another unforeseen finding was that resistance from outside the libraries can come from unexpected sources. The administrative services PIP team sought to eliminate a shadow budget system whose dual purpose was to provide more current information than the college's administrative software could and to act as check against data-entry errors made by the college. An analysis showed that maintaining the shadow system required significant work with little

payback. The shadow system was not as current as either perceived or needed, and the errors it helped identify, while significant, were not numerous enough to warrant the labor involved. While it was desirable to eliminate this duplicative work, the college staff advised the libraries to retain the shadow system—unexpected advice from the custodians of the college's budget software. Despite this counsel, staff have sought to find a way to use the college's system better and eliminate this redundant work.

Sustaining the Effort: Toward Continuous Process Improvement

A challenge to any process-improvement project is to transform it into an ongoing effort so that the methods of process improvement are integrated into the way in which the organization regularly conducts its work. In this case, where the effort was defined as a "project" from the outset, creating an exit strategy was essential. This responsibility fell to the project steering committee. This group continues to provide oversight and guidance, meeting regularly to check in on the work of various groups, providing feedback to team leaders, and identifying areas where continued process-improvement work is needed. The group will ensure that work that could not be started because of outside forces, e.g., leveraging data flow between software systems, is indeed pursued.

The processes that interface with the new library management software will need particular attention as the project progresses. There is an inherent danger in such a migration that processes designed for and built around the old system will be retained; in other words, staff will seek to make the new system work like the old one did. No matter how good the old processes are, trying to remake them is a recipe for making the difficult transition to the new system more difficult and for creating inefficient processes. The migration does represent, however, an opportunity to use process-improvement methods to ensure that processes developed for the new system are as efficient as possible.

Two major forces at Smith made for a successful environment for process improvement. The incentive for change, given the prospect of significant staff reductions and the generosity of CLIR in funding the project, was indeed a crisis and an opportunity. Process improvement, however, need not find its origins in such extremes. The inherent benefits of continuous process improvement, maximizing resources, should be incentive enough. Weaving continuous process-improvement philosophies and methodologies into the fabric of an organization will yield a better use of staff, time, and materials. This is something all libraries need to do.

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Managing Electronic Resources in the Tri-College Consortium

Norm Medeiros

The Tri-College Library Consortium of Bryn Mawr, Haverford, and Swarthmore Colleges has a history of collaboration that began in the late 1980s, when a shared, integrated library system was purchased. The shared catalog and twice-daily delivery service among the colleges have enabled patrons to view and access the three libraries' resources as though they were a single, large collection, similar in scope and size to that of a research library.

The Tri-Colleges' history of collaboration with electronic resources (e-resources) began in 2000. At that time, the libraries began the collective purchase of e-resources in an effort to deliver consistent content to patrons as well as to capitalize on more-attractive pricing than the libraries could garner individually. A Tri-College committee was established to review potential purchases, and this group continues to perform its charge well. When the libraries began acquiring databases and large sets of e-journals, item-level records were entered into the Tri-Colleges' online catalog. The libraries were also doing a reasonably good job of highlighting new e-resources on their individual Web sites.

One troublesome area that soon emerged, however, was the recording of license terms. The need to make interlibrary loan restrictions on e-journals available to staff was of particular importance, since these restrictions directly affected business practices. For a while, licensing information was stored in bibliographic records, but the need to store additional elements soon made it clear that the catalog could no longer serve this purpose.

As a result, in early 2001 a meeting of serialists, catalogers, and technical services administrators was convened for the purpose of discussing options for more-effective management of licensing and affiliated administrative metadata. The libraries decided to build a central database where information about e-resources would re-

side. At that time, only a few such systems were in use, and all were at much larger institutions. Nevertheless, the Tri-Colleges forged ahead, and by early 2002 they had implemented the Electronic Resource Tracking System (ERTS). This database stored and provided access to administrative metadata, but did not address many other important e-resource management tasks, particularly workflow efficiency and communication.

After attending a workflow redesign seminar in July 2003 sponsored by the Council on Library and Information Resources (CLIR) and led by consultants from the Stillwater Group, the Tri-College libraries decided submit a proposal that would enable them to tackle the difficulties they were still encountering with respect to e-resource management. The proposal outlined a plan for recasting e-resource management holistically; that is, examining all the activities that occur from the moment a decision is made to evaluate an e-resource through the decision to renew or cancel it. The libraries were already performing some of these functions well; nonetheless, holes remained. Staff members were also aware that efficiencies could be realized even in the tasks that were being performed well.

Principles of Workflow Redesign

The principles of workflow redesign, as instructed by the Stillwater Group, involve surrendering presuppositions, allowing all affected staff to have a voice, using an impartial facilitator, and learning from mistakes. Mindful of these principles, the libraries began the two-year project in January 2004 by assembling Tri-College staff deeply involved in e-resource management. This group met three hours a week over six months to detail e-resource management practices and to envision how e-resources management could be improved. The group used an impartial facilitator, a member of Bryn Mawr College's communications department, to mediate and to keep discussions on target.

This six-month period of discussion provided ample time to strategically plan a series of workflow improvements. Members of the work group interviewed librarians in other institutions, who indicated they had merely reacted to changes forced upon them by the proliferation of e-resources. They had deployed staff to areas of need without a great deal of forethought. The Tri-College Libraries, before having the opportunity to examine their own practices for e-resource management, had reacted in much the same way. Although the libraries had spent a few months planning ERTS, the workflows that developed around it, and the pre-existing workflows for e-resources management, simply evolved. The working group sought to use the redesign project as a means of improving workflows that had been created without any serious or central planning.

STRATEGY

Formation of Working Group

Management of electronic resources in the Tri-Colleges, as in many academic libraries, is a distributed process. Most of the tasks, however, are performed by technical services staff. Consequently, the libraries' three technical services administrators formed the steering committee for this project, with Haverford's associate librarian of the college leading the group. The most appropriate working group draftees were the Tri-Colleges' serials specialists, who perform the bulk of e-resource tasks. For years, the Tri-Colleges have had a licensing librarian who brokers many e-resource purchases on behalf of the libraries. His participation in the group was also critical. Given the prospect of engagement in technical work, the Tri-Colleges' Web editor was asked to join the group. Cataloging of e-resources is a coordinated activity in the Tri-Colleges, and one that is quite time-consuming. Consequently, the steering committee asked the e-resource cataloging coordinator to join the group. Finally, recognizing that the ultimate purpose in streamlining management of e-resources is to benefit library users, two public services librarians were invited to fill out the group.

Workflow Sessions

The work begun in January 2004 sought to document how the Tri-Colleges managed e-resources, both as a consortium and on an individual basis, since the redesigned workflows would need to accommodate both acquisition paths. The agenda developed for examining the libraries' current workflows was divided into 10 weekly meetings, each of which lasted approximately three hours. The agenda was based on a combination of the following:

- a discussion paper documenting how consortium-purchased e-resources are managed by staff on the three campuses, and
- institution-specific documents describing how each library purchases e-resources.

These documents provided the basis for discussions during the 10 meetings. These sessions were critically important, since they illuminated the facets of e-resource management to all members of the group and provided a common understanding of the processes that needed reshaping.

Before starting the weekly meetings to rebuild the workflows, the libraries invited publisher and serials agency representatives to talk about e-resource licensing and services, respectively. These meetings helped the group understand the pressures and work habits of vendors with which libraries did business.

Process-Rebuilding Sessions

The working group then began a seven-week period during which it redesigned the processes for consortium-purchased e-resources. The group concentrated on the following areas:

- discovery and trial
- ordering, licensing, and payment
- access
- administration
- control
- renewal

These areas grew naturally from working group discussions of e-resource management, as well as through review of an R2 Consultants' white paper that expertly detailed the variety of tasks inherent to e-resource management (Lugg and Fischer 2003). The role of the facilitator was especially important during this phase of the project to ensure that all group members' voices be heard and that no idea be dismissed out of hand.

At the end of the sessions, the working group documented the redesigned workflows for a consortium-purchased e-resource, beginning with the evaluation decision and concluding with the renewal or cancellation decision. The group also agreed on functional requirements and desirables for a new e-resources management system, such a system being deemed the engine that would power the revised workflows. The group used a secure folder in the Tri-College Consortium's Blackboard system to store this document and the plethora of other documents pertinent to the project. This central repository provided a simple means of keeping the files safe and available.

Marketplace Investigation

In summer 2004, the group began to investigate products and services that could help achieve the new e-resource management workflows. The steering committee created subcommittees and charged them with gathering information and making recommendations. The key item to investigate was an e-resource management system. As the working group had hoped, the ERMS marketplace had matured. Several library vendors now had products on the market or in the works. Some of the functional requirements identified as being part of the desired ERMS had been present in the Tri-Colleges' locally created ERTS system, but many others had not. The working group deemed such new functionality as critical to effective management of electronic resources. Some of these functions included the ability to port "server down" notices to end users, to generate an assortment of reports, and, most important, to monitor resources through the spectrum of workflow processes. Given Tri Colleges' participation on the reactor panel of the Digital Library Federation's (DLF's) Electronic Resources Management Initiative (ERMI), the working group knew that the commercial system chosen should conform to the

functional specifications disseminated by ERMI in August 2004.

The group also investigated e-resource services provided by serials agents EBSCO, Harrassowitz, and Swets. The group sought to determine the services these agencies provided vis-à-vis electronic resources, since members felt strongly that outsourcing certain e-resource activities might enable sustainable management of a growing and complex e-resource collection.

A third marketplace investigation involved MARC records. Although services that provide catalog-ready bibliographic records are not new, the Tri-College Consortium had performed e-resource cataloging work in-house throughout its history. The group recognized that the time needed to continue performing such cataloging in-house would continue to increase. For this reason, it decided to review commercial MARC record providers to see whether their offerings matched the libraries' exacting standards.

The final area of investigation involved development of a Tri-College license for electronic resources that would govern the terms of use for e-resources purchased by the libraries. With such a license, the colleges would no longer be governed by terms set by the publisher.

Decisions

On the basis of an exhaustive review of products and services, the working group made four decisions. These decisions resulted in the implementation of three new tools—VTLS Verify, Harrassowitz HERMIS, and the Tri-College License—and the deferment of implementation of one tool, a MARC records provider.

***VTLS Verify*.** The most significant decision—selection of a commercial ERMS—was not an easy one. Mindful of the functional requirements and desirables identified months earlier, the working group invited vendors of three systems (Innovative, Ex Libris, and VTLS) to campus to provide live (or, in the case of Ex Libris, simulated) demonstrations of their products. Each of the three systems had advantages and disadvantages.

Innovative's product, ERM, was commercially available, and the libraries could have had it installed within 45 days of committing to it. ERM had been used by several beta testers, and many of the problems had been resolved. Because the Tri-College Consortium was already a current Innovative customer, ERM would have synchronized with Tri-Colleges' integrated library system in a way that would allow display of license data to catalog users. On the down side, the libraries were not attracted to Innovative's Millennium interface: ERM did not adhere strictly to the DLF specifications, and it provided little support for consortium-related tasks. Moreover, the working group did not consider the much-touted benefit of porting license data to catalog users a strong incentive, since the catalog is often circumvented when users access e-resources through the Tri-Colleges' SFX link resolver.

The second product demonstrated, Ex Libris' Verde ERMS, was

in a largely conceptual stage when shown to the working group, but the system seemed to have great potential. The main architects of the system were Ivy Anderson (Harvard University) and Ellen Duranceau (Massachusetts Institute of Technology [MIT]), two of the most experienced e-resources experts in the field. Given Anderson's membership on the DLF ERMI group, the working group assumed that Verde would conform to DLF specifications and that it would interface with SFX, creating a powerful synergetic resource. The working group was intrigued with the prospect of implementing Verde, but only if Ex Libris would agree to incorporate the Tri-Colleges into Verde's beta testing pool. When the group inquired about this possibility, Ex Libris responded that it already had sufficient library partners. Although the group was disappointed with this response, Verde's relatively distant release date was the group's strongest reason for not selecting it as the Tri-Colleges' ERMS.

The third visitor, VTLS, showcased its ERMS, Verify. Members of the working group were impressed with the system, both aesthetically and functionally. Perhaps the greatest challenge for ERMS vendors is in providing support for consortia, and Verify by its nature was an extensible system. Considering the number of libraries that join forces to purchase e-resources, it is not beyond reason to think that a group of libraries less united than the Tri-Colleges might share ERMS. The demonstration of Verify showed clearly how the system could accommodate entities from multiple libraries. The hierarchical display of the entity structure was logical and easy to decipher.

The group considered Verify the best of the three ERMS at meeting the consortium's needs. Verify would also have the greatest impact on system development. After further discussions with VTLS, the Tri-Colleges were invited to become development partners for Verify. A three-year contract was executed in early 2005.

Harrassowitz HERMIS. Although officially considered still under development, Harrassowitz's suite of e-resource services, named HERMIS, offered the Tri-Colleges an opportunity to outsource a number of activities previously done internally, including resource identification and evaluation; license management; ordering, payment, renewals, and cancellations; activation of electronic resources; technical access management; and usage tracking. Of this list, the four services deemed most valuable to the Tri-Colleges were (1) resource identification and evaluation, a service in which the libraries receive customized and detailed reports of available electronic content; (2) license management, whereby Harrassowitz acts as licensing agent during the early stage of negotiation for nonconsortium purchases; (3) activation of e-journals, which includes e-resource registration procedures and notifications; and (4) technical access management, whereby Harrassowitz's help desk handles troubleshooting for resources the libraries purchase through them. In preparation for the Tri-Colleges' grant request, the steering committee estimated that 35 hours per week were being spent troubleshooting e-resource access issues. The committee estimated that using Harrassowitz's help desk could cut that number in half with no loss in response time.

Clearly, in order to continue to fund HERMIS, the libraries will need evidence that outsourcing these tasks is less expensive than performing them internally.

Tri-College License. Licensing electronic resources in the Tri-College Consortium is an arduous and often frustrating activity. The Tri-College licensing librarian brokers deals, with the Bryn Mawr College attorney serving as counsel. Since vendor licenses vary from publisher to publisher, negotiating and parsing these contracts on a case-by-case basis take a great deal of time.

While discussing improvements to e-resource processes, the working group read about MIT's experiment to provide publishers with the institution's license for the electronic resources they sought to purchase (Duranceau 2003). The working group was inspired to create a Tri-College license for electronic resources, drawing heavily from the NorthEast Research Libraries Consortium (NERL) license. The Tri-College license was finalized in January 2005.

OUTCOMES

Detail of Workflow Changes

Not to be overlooked by the glamour of the new tools and services purchased are the workflow changes that resulted from the sessions held during the second quarter of 2004. Although these tools and services hold great promise, the process improvements created by the working group influenced these purchases. Without a thoughtful assessment of how best to manage e-resources, the rest of the group's activities would have been useless.

During the discussions it became clear that the full details of e-resource management were not well known by any single committee member. Each library had created its own e-resource workflow, and participants were often unclear as to how the entire process was handled. An early discovery for how e-resource management could be improved involved electronic resource trials. Before this project, trial establishment was handled by the Tri-College licensing librarian, who was responsible for negotiating electronic resources on behalf of the libraries. Given that the libraries purchase only about 20 percent of the resources they obtain on trial, the licensing librarian was spending much time on resources that would never be used by patrons. Furthermore, the librarian found it difficult to keep up with requests for trials, and thus a haphazard approach to handling them was the norm.

To resolve this problem, the working group carved out a "trials coordinator" role, which is currently filled by a Swarthmore College librarian. The trials coordinator contacts vendor representatives to establish trials and receives preliminary pricing. She enters this preliminary information into Verify, to which many additional data will ultimately be connected. The trials coordinator collaborates with the Tri-College committee responsible for determining which resources to evaluate. Establishment of this role has helped the libraries stan-

dardize the trials process and has freed the licensing librarian to concentrate on purchases. Given the number of trials established each year and the communication challenges of working with staff and faculty on three campuses, the trials coordinator has been a valuable addition to the staff.

Enhanced communication is the other significant change that informs the development of Verify and will ultimately determine the success or failure of the libraries' new e-resource processes. Given the array of tasks and associated staff necessary to manage e-resources, effective communication is critical. The real promise of the DLF ERMI specifications is not in the hundreds of elements in which data can reside. Indeed, numerous libraries store such administrative metadata in spreadsheets and find this solution just as functional as a database system, if not more so. For the Tri-Colleges, it is the Processing Workflow Entity interface of Verify that provides the breakthrough opportunity for minimizing the inefficiencies caused by communication breakdowns.

To this end, the working group developed a communications channel within Verify that is predicated on discrete e-resource status values, each value being the smallest transaction unit. Almost without exception, when an e-resource transfers from one management activity to the next, the status of that e-resource changes. For example, when the trial period for an e-resource ends, the status of that resource changes from "on trial" to "under consideration." Such status changes require certain staff to be notified in order to perform their work. The makeshift means by which the Tri-Colleges had performed such communication to date relied on inefficient and error-prone e-mail correspondence. The new means of communication within Verify's staff interface will generate personalized screens of pending activities for classes of users. Verify will run silently in the background for most staff until a notification arrives, at which point the window will maximize and display the notice.

Typical ERMS predicate e-mail "ticklers" on date fields, but the Tri-Colleges' design predicates notification on status fields, since it is the completion of a task, rather than arrival of a date, that typically requires an action to be taken. Developing a sophisticated alerting system within Verify that can deliver notifications to staff members on the basis of a matrix of e-resource status, user log-in, and user class was among the working group's major achievements. It is also the area where the group's contribution to the library community may ultimately be most valuable.

Assessment of Decisions

It is still too early to evaluate the working group's efforts. Results will be assessed once the group's decisions have been fully implemented. However, review and appraisal processes were part of project development and are ongoing.

Tri-College Symposium. In July 2005, e-resource management experts Ivy Anderson, Trisha Davis (The Ohio State University), El-

len Duranceau, Sharon Farb (University of California, Los Angeles), and Diane Grover (University of Washington) were invited to attend a one-day symposium at which the working group reported on its progress. When scheduling the symposium in summer 2004, the working group anticipated being farther along with its ERMS implementation by the time of the symposium; this would have allowed the symposium to be a more useful assessment tool. Although the symposium presentations were limited by the project's slower-than-expected progress, the program succeeded in raising the awareness of the working group in three underexplored areas: a public interface to Verify; the malleability of the ERMI specification; and the strategic nature of the Tri-College license for e-resources. The working group was encouraged by the attendees' universal support for the libraries' holistic approach to e-resource management.

VTLS Verify. The Tri-Colleges' engaged in a development partnership with VTLS because the working group was attracted to Verify's initial design, believed in the approach VTLS was taking with Verify, and wanted an opportunity to craft an ERMS to meet local needs and the needs of other consortia. The libraries had built their own e-resource management system a few years earlier. Although this system was on a smaller scale than Verify, they believed they had sufficient expertise to assist VTLS staff in creating a comprehensive ERMS.

Their experience with the minutiae of e-resource activities, the workflows that encompass e-resource management, and the vision of the ERMI specification prepared the group well for its work with VTLS. Moreover, the working group recognized quickly the deficiencies of the ERMI specification vis-à-vis consortia and helped Verify accommodate the needs of multilibrary users. The initial testing of the first version of the Verify system in March 2005 illustrated several shortcomings that would have made it unusable for consortia. Because of this, VTLS decided to scrap its original hierarchical structure and to redesign the system using XML for greater flexibility. Much of 2005 was spent not in testing a complete system, as had been anticipated, but in helping VTLS work on system design and function. Verify is shaping up to be the kind of tool imagined when the group was considering ERMS options. The true test of Verify's success will be its ability to be the communications medium envisioned. Without complete development of the robust, task-based notification system the working group prescribed, Verify will have little more value than a spreadsheet has.

If the working group was unprepared in a single area, it was in expectations. The group anticipated a speedier development cycle. Having no commercial-development experience, the group presumed a timeline mirroring that of locally developed systems. Such was not the case. It took months for the working group to grow comfortable with Verify's seemingly slow maturation.

Two activities resulting from the libraries' ERMS implementation deserve mention: the mapping process and status values list development. In preparation for loading pre-existing administra-

tive metadata from the libraries' home-grown systems into Verify, a subcommittee of the working group mapped local elements to ERMI elements. This process resulted in an approximate 50 percent success rate; that is, 50 percent of the local elements in use in the Tri-Colleges had a corresponding ERMI element. For the remaining 50 percent, the subcommittee identified the ERMI entity into which the data should be ported. This mapping exercise illustrated the deficiency with the ERMI specification for accommodating consortium needs, since most instances of noncorrespondence was attributed to the Tri-Colleges' consortium issues.

Perhaps a more significant activity for libraries elsewhere preparing for ERMS implementation was the Tri-Colleges' values list development. In many areas, the ERMI data structure does not prescribe the values of elements when possible values are numerous. A subcommittee of the working group identified these elements and provided VTLS with the values for incorporation into Verify. At some point, the Tri-Colleges intend to share these lists with the e-resources community, since they may save considerable work for libraries in the early stages of ERMS implementation.

Harrassowitz HERMIS. The working group justified outsourcing certain e-resource management activities to Harrassowitz on the basis of the libraries' inability to perform well all of the tasks inherent to controlling these coveted and proliferating resources. The libraries' technical services staffs simply could not handle the number of tasks associated with e-resources. Harrassowitz, much like the Tri-Colleges, was trying to redesign the way in which it handles e-resources. It was prepared to offer innovative services to its customers. The timing of the two initiatives coincided, and resulted in a partnership from which both Harrassowitz and the Tri-Colleges learned a great deal. At the end of the first year of the HERMIS contract, the libraries knew that the mix of services offered by Harrassowitz was important to libraries, but some were better suited to being done in-house, while others seemed prime candidates for sustained outsourcing.

Members of the working group could not achieve a consensus about the value of having Harrassowitz mediate license terms on behalf of the Tri-Colleges. Some thought this service added unnecessary time to the negotiation process; others found it worthwhile and time-saving. More experimentation is necessary to determine the value of outsourcing this service.

On the other hand, the working group unanimously endorsed the registration and troubleshooting services that Harrassowitz has performed on behalf of the libraries. These services are recognized as time savers that do not impede access to the resources. The troubleshooting service is especially valued. During 2005, the working group compared the amount of time it took Harrassowitz to resolve access problems for e-resources brokered through them with the amount of staff time it took to restore access to e-resources the libraries purchased directly from publishers. No deterioration in service resulted from outsourcing troubleshooting, but significant staff time

was saved as a result. Although it is still too early to assess the work of Verify, it is not too early to assess that of HERMIS. After a year of contracting for these services, it is clear that some combination of e-resource activities can be outsourced successfully. Further, in many academic libraries, outsourcing will be the only means of sustainable administration of a diverse and proliferating e-resources collection.

Tri-College License. The Tri-College Library Consortium license agreement for electronic resources was provided to a handful of publishers as part of the negotiation process. Although no publisher accepted it outright, a few agreed to incorporate parts of it into the binding contract. In some cases, publishers approached the licensing librarian to ask whether the Tri-Colleges had a model license. Although the working group had anticipated opposition from publishers, nearly all the licensors were courteous and responsive. This initiative, which members of the working group believed to be in some ways outrageous and in others arrogant, was more successful than anyone had predicted. Given the enthusiasm of Bryn Mawr's counsel, who helped craft the document, and the Tri-College licensing librarian, this new approach to licensing will persist.

Aside from the moments of joy when a publisher agrees to incorporate a clause into the executed license, or when a publisher asks for our model license, the benefits of an institutional license have not yet been realized by the Tri-Colleges. The main reason for this assertion is that Verify has yet to provide a means of automated encoding of values based on the Tri-College license. When Verify can default values from the license into the Terms Defined Entity, staff time parsing licenses may be significantly reduced. The project group looks forward to the day when the license of execution is predicated on the Tri-College contract, not a publisher-supplied agreement. Nonetheless, the group's original definition of success relative to licensing—that the Tri-Colleges' efforts serve to inform publishers of terms libraries find acceptable—has been achieved.

FUTURE WORK

Continued Development of Verify, HERMIS, and the Tri-College License

Refinement of each of the three major initiatives began in the last quarter of 2005. Swarthmore's assistant director for acquisitions, systems, and data management; Haverford's serials specialist; and the Tri-Colleges' Web developer visited VTLS headquarters in Blacksburg, Virginia, to work through various aspects of Verify's functionality and design. They found it valuable to meet face-to-face with Verify's product manager and lead developer. The working group members returned from their excursion feeling confident about VTLS' ability to deliver Verify's finishing touches.

Haverford's associate librarian of the college attended a week-long strategic planning retreat at Harrassowitz headquarters in Wiesbaden, Germany. He and a colleague from Stanford University were

invited to help shape Harrassowitz's 2006 goals. In preparation for this retreat, Harrassowitz dispatched a representative of a consulting firm to spend a half-day discussing with Tri-College staff the benefits and shortcomings of HERMIS. The consultant's report of that meeting informed discussions during the retreat in Wiesbaden. As the largest implementer of HERMIS services, the Tri-Colleges had significant input during the retreat; indeed, the vision for improving and extending HERMIS services was largely driven by the Tri-College's representation at the retreat.

A powerful example of the Tri-College's influence in shaping the direction of HERMIS occurred just before this writing. The Tri-Colleges and Harrassowitz agreed to become among the first vendor/library partners to adopt the Standardized Usage Statistics Harvesting Initiative (SUSHI), a developmental protocol supported by the National Information Standards Organization and the ERMI group. SUSHI seeks to automate harvesting and aggregation of COUNTER-compliant usage statistics. A similar data-exchange experiment was tested in early 2006, in which Harrassowitz created an ONIX Serials Products and Subscriptions (SPS) file from their internal database that was ingested into Verify. The result was successful and has saved the libraries a great deal of time in data entry.

The final initiative was a planned revision of the Tri-College license to improve the language that has consistently proven problematic to publishers. When the review process was undertaken, few changes resulted. The license is available at http://trilogy.brynmawr.edu/trico/TriCollegeLicense20060116.pdf.

Ongoing Assessment of Workflows

In substance and in spirit, this project is about workflows. The tools the group has chosen to implement, although a means to an end, will not be the ultimate determinant of the libraries' success in managing e-resources. The lifeblood of this project is discrete tasks that form an intricate matrix of processes that rely on timely, appropriate information exchange among distributed staff. Not until the libraries have sufficient experience incorporating the new workflows into their overall management schemes will the working group be prepared to fully assess the project. It is anticipated that such an assessment will begin at the close of 2006.

CONCLUSION

The working group has taken seriously its commitment to advertise the project to the larger library community. Members of the working group have presented the work at several national conferences, including the 2005 American Library Association (ALA) Annual Conference in Chicago; the 2005 ASIST Conference in Charlotte, North Carolina; and the 2006 ALA Annual Conference in New Orleans. A recent ALA monograph included a chapter written by Haverford's associate librarian of the college that discusses the history of e-re-

source management in academic libraries and the work the Tri-Colleges are doing to streamline workflows (Medeiros 2006).

Less formal means of communicating the libraries' work have occurred on numerous occasions. Many colleagues have been intrigued with the Tri-Colleges' approach. Three areas elicit the most interest among colleagues. The first is the libraries' holistic approach to redesigned workflows. Many colleagues have addressed certain aspects of e-resource management, but not the overall corpus of activities. Second, while the development of the Tri-College institutional license appears to some as overtly aggressive and unlikely to succeed, others are impressed with the idea and recognize that working from a known, fair license may have great value. Third, the Tri-Colleges' service agreement with Harrassowitz has raised questions, since few know such services exist, and those who do question vesting such complex tasks with an agent.

This initiative has made a remarkable impact on the way in which the Tri-College Libraries think about and approach the management of electronic resources. Before this project began, the steering committee felt confident in the libraries' overall ability to tackle this work. The Tri-Colleges had been one of the first academic libraries to develop a local ERMS and was the only small institution thinking about e-resource management in such an advanced way. Now, having completed a rigorous, two-year journey in theory and practice, and to places as diverse as Blacksburg, Virginia, and Wiesbaden, Germany, the group understands the complexities presented by the digital medium in a much more sophisticated way. This experience has been humbling, yet empowering. The Tri-Colleges are far more potent and knowledgeable than they were before this project began. They have learned from others farther along, contributed their knowledge to similar and not-so-similar libraries, and undergone a process that can be applied in nearly every group of processes that occurs in library departments. The Tri-College Libraries will benefit from this experience for many years to come.

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Redesigning Services at The Robert W. Woodruff Library of the Atlanta University Center, Inc.

Loretta Parham and Carolyn Hart

The Robert W. Woodruff Library (RWWL) serves the instructional, informational, and research needs of the four member institutions of the Atlanta University Center (AUC), the world's largest and oldest consortium of historically black colleges and universities. The institutions served by the library are Clark Atlanta University, the Interdenominational Theological Center, Morehouse College, and Spelman College. The RWWL collection exceeds one million items, and its archives and special collections department is noted for its extensive materials documenting the African-American experience and the rich history of the AUC schools.

The RWWL features a governance structure unique among academic libraries. It operates as an independent, nonprofit entity governed by an 11-member board of trustees under the leadership of a chief executive officer (CEO)/library director. The board includes the college and university presidents[1], an academic officer, a faculty member, three at-large members not affiliated with AUC, and the CEO/library director. This structure is the result of bold and strategic steps taken in 2000 by the Council of Presidents of the AUC. Library services at that time had been declining, largely because of a governance structure that posed too many bureaucratic obstacles for the library director, inadequate funding, and unstable leadership. As a result, students and faculty were not being served effectively. An expert panel chaired by Billy E. Frye, former chancellor of Emory University, documented this environment. Other panel members were Deanna Marcum, then president of the Council on Library and Information Resources (CLIR); Joan Gotwal, dean of libraries at Emory University; and James Williams, dean of libraries at the

[1] The Morehouse School of Medicine is a member of the AUC but is not served by RWWL.

University of Colorado. The panel's report, known by RWWL staff as the "Frye report," made several recommendations, all of which were unanimously approved in 2002 by the Council of Presidents. The recommendations were as follows:

- Incorporate the library as an independent unit.
- Reappropriate the library budget and place full authority and accountability for its management in the hands of the library director.
- Improve security.
- Develop a communications strategy.
- Establish institutional library liaisons.
- Create a council on information resources and technology.
- Appoint an interim library director.
- Recruit a CEO/library director.
- Deliver a visioning and planning process.

In 2003, the library completed a strategic plan. One priority in this plan was to design and implement a service improvement strategy. Thanks to generous funding from The Andrew W. Mellon Foundation, RWWL began to systematically rethink its organization and staff and how it should deliver services to students and faculty. The Atlanta-based Caleris Consulting, LLC, was engaged to work with the library management team (LMT) and staff to develop a service improvement strategy and an implementation plan. This initiative was linked to the RWWL vision: "to be the *first choice* for our users in their search for information." It was named "Project First Choice" in alignment with this vision.

Essential in framing the service redesign process was the establishment of a comprehensive strategy that addressed all critical service areas in the library, i.e., reference, instruction, collection development, interlibrary loan (ILL), and circulation. As a first step, the LMT reviewed the library's strategic plan. On the basis of this review, the team decided to create a work plan that would guide the library in its efforts to improve services and to enhance the user's service experience at all stages—from prearrival to departure.

The approach to the project was based on three principles: key process identification and improvement, stakeholder collaboration, and improved communications. The team anticipated that these principles would become institutionalized within the organization as the project moved forward. Project First Choice was guided not only by the priorities established in the RWWL strategic plan but also by feedback from a student focus group representative of the four institutions supported, recommendations from previous consultants' reports, and the RWWL library advisory council (LAC).

Key participants in the assessment and redesign process were as follows:

- AUC student focus group: Undergraduate and graduate students representing member institutions.
- Library advisory council: Faculty (two per member institution) representing the interests of academic departments and disciplines.
- Library management team: Department heads representing ar-

chives and special collections, information and research services, information technology, access and technical support (including periodicals and government documents), circulation, human resources, security, shuttle, and finance.
- Service improvement teams: Composed of staff from service areas across the library and responsible for assessing improvement needs. Chaired by members of the LMT.
- Service improvement implementation teams: Composed of RWWL staff responsible for implementing specific service improvement plans. Chaired by members of the LMT.

Project Methodology

Woodruff Library Service Value Chain Development

Project First Choice service improvement initiative was a seven-month, in-depth project using the principles of value chain development (Porter 1985). The value chain model is a useful tool for analyzing an organization's core competencies and activities. Its goal in the business world is to gain a competitive edge. For the purposes of this project, the goal was performance excellence.

As a starting point, the value chain model required that the library identify the value-generating activities unique to its vision. The project began with a holistic examination of the critical processes and activities of the library that were of value to its users. Workshops were conducted by Caleris Consulting and the LMT to discuss team expectations and project approach, to conduct a leadership-and-change exercise ("Who Moved My Cheese?"), to validate service components of the value chain, and to determine the functional units critical to value chain effectiveness for service redesign. A team comprised of LMT members was assembled to identify, set priorities for, and recommend steps to improve those processes identified as critical to achieving the library's vision. Processes, activities, and tasks that were working acceptably were excluded from consideration.

The service value chain targeted its improvement efforts on four processes and the key activities associated with them.
- *Prearrival* focused on events and activities that occur before a user enters the library. This area was important because of the existence of issues that had historically discouraged users from coming to the library. Members of the student focus groups brought up a range of concerns, from security to parking. It was felt that addressing these concerns and creating an effective marketing campaign would remove many of the barriers that kept users from coming to the library. Key activities to be addressed included security, parking, hours of operation, phone calls, marketing (scope of services), and shuttle service.
- *User Interaction* considered all points of interaction with users as they entered the library or interacted with the library, whether face-to-face, on the phone, or through signage. Particular emphasis was directed to activities that relied on personal contact and to improving the way in which these services were provided. Key ac-

tivities examined included entry into the library; phone requests; explanations, consultations, and signage; staffing; study space; communication of library services; and implementation of feedback.

- *Education and Orientation* examined education and orientation of users to library services. Collaboration and teaming between faculty and library subject specialists emerged as the highest priority for improving the quality of information service delivery. Key activities identified included user and staff training, library tours and library orientation, outreach to faculty, "how tos" (user-guidance tools), consultation, information literacy, Web-based instruction, and training labs.
- *Information Search and Retrieval* focused on improvements in the information acquired, in where it is acquired, and on best practices used to retrieve it. Key activities were collection development (books, articles and journals, and electronic information), collection acquisition, reserves, archives, finding aids, remote access, Web site, ILL, audiovisual usage, copy machines, and checkout.

Setting Priorities for Improvement

Priority matrices were developed for key activities of functional areas in the value chain, based on their current effectiveness and their impact on the critical process in question. For example, marketing, security, and shuttle service were rated to be the most critical to pre-arrival; orientation/tours, outreach to faculty, and user/staff training were most critical to education and orientation. Each activity was ranked into one of three categories of concern: primary, secondary, and tertiary. The highest-priority areas in each service value chain activity were addressed first. Major tasks for high-priority activities were examined to understand what happens during service delivery. The teams analyzed each step within the major tasks to identify problem areas.

The customer-supplier model was used to determine users' current satisfaction levels. This model requires that for each major task associated with a key activity, the team identify the key customer, customer requirements, how the organization currently meets those requirements, and the deliverable. Each of these factors contributes to a determination of customer satisfaction. During problem analysis, the team discussed and documented reasons for customer dissatisfaction and applied root-cause analysis to find and address the source of the problem. Each step in the customer-supplier model provided the teams with data that they could use to develop service-improvement strategies. This process was also informed by feedback from the AUC student focus group, consultants' reports, and the LAC.

Service Improvement Teams and Staff Participation

The LMT considered the value chain as it applied to activities across all services and support areas in the library. By taking this broad view, the group determined which functional areas within the library would best work together to improve overall key processes. This

perspective provided guidance in selecting service improvement team members and chairs. Each team developed goals, an operating vision, and objectives. The objectives linked each of the activities (e.g., hours of operation, study space, library tours/orientation, remote access) to specific goals.

Service improvement implementation teams were formed to execute action plans. These teams were chaired by members of the LMT along functional lines. The teams met twice a week to work on specific tasks and convened collectively on a weekly basis to share outcomes and to incorporate feedback across functions. Caleris facilitated the cross-functional workshops and provided support to individual team meetings as needed. RWWL staff members were kept informed of team progress at every phase of the project. More than 80 percent of the RWWL staff participated in the project from development to implementation. This high level of staff involvement fostered commitment and library-wide buy-in. A part-time librarian was employed to help manage reference services while the subject specialists participated in the service assessment and redesign project.

Development of an Improvement Strategy

The service improvement teams took a probative look at the activities identified as dysfunctional or not working effectively and brainstormed ways to accomplish the key activities. During this process, three primary improvement strategies emerged. These strategies were the most critical elements of the library's overall service approach. They included all the critical tasks and the desired outcomes that became the primary focus of the implementation teams and ultimately guided the development of the implementation plans. The three strategies were as follows:

- An *information services strategy* was used to improve the quality of information in the library and user's ability to access that information. The key results included subject specialist/faculty partnerships, a faculty/student orientation plan, and a revised collection development policy.
- An *operations improvement strategy* was used to identify and improve the most critical service processes. Key results were a joint campus security plan, an automated ILL process, reduction of the archive backlog, and a parking plan.
- An *administrative and support strategy* was used to identify and improve functions, with special attention to those that require cross-departmental support. The key results included a performance management system, a comprehensive training agenda, a communications plan, Web site assessment and recommendations, a complaint-management process, and security policies and procedures.

Implementation Planning

In preparing to move to the implementation phase, the service improvement teams looked at all service processes (key activities and associated tasks) across the library to determine how the various tasks fit together. Seven common categories of tasks were identified

(see table 1). Service improvement implementation teams, responsible for executing action plans for service redesign, were then formed. Team composition was based on the seven common categories of task groupings. Detailed information on task groupings is provided at http://www.clir.org/pubs/reports/pub139/RWWLappx1.pdf.

Task Category	Composition of Service Improvement Implementation Teams
Strengthening linkage with faculty	Subject specialists
Communication, marketing, and public relations	Public service librarians Marketing and communications expertise
Policies and procedures	Security officers All departments
Training	Human Resources Department Department heads
Information technology	Information Technology Department Archives and Special Collections Department Multimedia librarian (Web committee chair) Web consultant
Operational improvement	Cross-functional, process-minded public services staff and subject specialists
Human resources and staffing	Human resources hiring managers Department heads

Table 1. Service Implementation Team Composition and Task Categories

Development of Action Plan for Service Redesign

Specific problems with service inefficiencies and user dissatisfaction were summarized, and solutions were recommended. Each service improvement implementation team articulated what was to be accomplished, who would accomplish it, and how success would be measured. The teams also provided a timeline. Review of work completed in previous phases of the project (customer-supplier model, root-cause analysis, improvement ideas, etc.) and the output of strategic planning and user surveys informed this process. Action plans were developed for implementation in alignment with improvement strategies. A detailed implementation plan is available at http://www.clir.org/pubs/reports/pub139/RWWLappx2.pdf.

Key Outcomes

Outcomes realized by fall 2006 for each of the primary improvement strategies are summarized below.

Information Services Improvements

- Strengthened outreach to faculty
- Revised the collection development policy
- Developed a structured library orientation for new students and faculty created an RWWL institutional repository

- Introduced *Top Shelf*, an RWWL newsletter (http://www2.auctr.edu/pdfs/August2006.pdf)
- Established a pilot information literacy program (http://www2.auctr.edu/services/information-literacy.asp)

Operations Improvements

- Enhanced security around the perimeter of and within the library, including installation of a closed-circuit TV monitoring system
- Improved the management and appearance of library parking lot
- Automated a reserve-request process and piloted an eReserves system
- Automated the ILL; deployed ILLIAD
- Converted to a new telephone system and revised the auto attendant script
- Merged archives and special collections onto one floor and implemented new staff model
- Developed "Envisioning the Robert W. Woodruff Library: A Master Plan for the 21st Century," an ambitious plan for space redesign
- Doubled group-study spaces
- Deployed new, multifunctional copiers throughout the library

Administrative and Support Improvements

- Developed an evening/weekend rotation model and included all public service librarians in the schedule
- Deployed a new online performance-appraisal system using newly defined competencies
- Expanded library hours, standardized opening and closing hours, piloted a 24/7 operation schedule
- Developed comment/suggestion forms for complaint management and made them available at public service points and via library's Web site
- Revised the library's Web site twice
- Updated the human resources handbook
- Provided remote access with user authentication available through EZproxy
- Established *Inside Woodruff*, an employee newsletter
- Established a library intranet site
- Planned a student/faculty laptop loan program for spring 2007

Postproject Evaluation–Online User Survey

During the spring 2005 semester, RWWL conducted an online survey of AUC faculty and students to assess the effectiveness of its resources and services. Survey responses will be used as a baseline for future surveys and to target areas for improvement. Key findings are listed below.

Faculty concerns centered overwhelmingly on library collections. For example:

- Less than half of faculty (41 percent) reported that the library's collections adequately supported their needs.

- Eighty-three percent of faculty reported they used the library collections.
- Sixty percent accessed the collection through the library's Web site, and 81 percent accessed it from the library.
- Ninety-four percent of faculty would recommend RWWL to their students, but only 66 percent indicated use of any area (metropolitan Atlanta) libraries for their own research.
- Twenty-three percent of faculty reported there were no barriers to using the library, 55 percent reported barriers to library resources, and 35 percent indicated that parking was a barrier.
- Faculty members used the Web site and ILL (65 percent and 56 percent, respectively) more often than any other services.
- Two-thirds of faculty knew the names of their subject specialists.
- Eighty-one percent of faculty members stated that they were completely satisfied with RWWL orientation and instruction service, but only 46 percent had used the service.

Student responses were more favorable than those of faculty; nonetheless, they showed clear room for improvement.

- Students rated their overall experience in accomplishing tasks at RWWL very high (94 percent), but only 56 percent considered RWWL their first place to go for information to complete class assignments.
- Students' top five reasons for visiting the library were a quiet study place (28 percent), computer lab (15 percent), circulation desk (13 percent), reference desk (12 percent), and e-mail/Internet use (10 percent).
- Eighty-four percent of students visited the library Web site. The top three reasons were to search databases (78 percent), to check for a book or publication (55 percent), or to check hours of operation (48 percent).
- One-third of students reported there were no barriers to visiting the RWWL. Forty-eight percent reported that hours of operation were a barrier, and 31 percent indicated library resources were a barrier.

Implications

Project First Choice provided a solid framework for future strategic planning within the RWWL. With robust participation from key stakeholders throughout the project, many lessons were learned.

First, it was essential to continually seek feedback to identify gaps in service delivery and service expectations. This initiative illustrated the power of designing organizational structures and processes that allow immediate, effective, and appropriate response to expressed and emerging needs of users. As of April 2005, more than 90 percent (30 of 33) of the action items outlined in the Project First Choice plan were completed. Although the 2005 online survey and informal feedback from students and faculty indicated that the newly implemented initiatives had made a difference in how the li-

brary was used and perceived, it reinforced the need for continuous assessment and for development of a formal library assessment plan and strategy. The library will use the ARL LibQual+ assessment for students and faculty of all four member schools in the spring of 2007.

Continuing to build on the momentum created by Project First Choice, the library has established a staff position dedicated to organizational planning and assessment. In addition, RWWL recently held its first strategic planning retreats, initially with the board of trustees to develop strategic priorities and then with Woodruff staff to identify goals and objectives for the library's strategic plan. Annual action plans will be used to guide and evaluate efforts and accomplishments.

As a result of the work completed through Project First Choice and the strategic initiatives implemented under the leadership of a new CEO/library director, the Robert W. Woodruff Library is better positioned to reflect the excellence of its member institutions and to realize its vision of being "the first and best choice" to meet the information needs of the students, faculty, and staff of the Atlanta University Center.

Reference

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