Techno Teamwork:

Involving All Staff in Library Automation

by *Tim Bucknall*

It is axiomatic among today's librarians that an understanding of the emerging electronic information environment is crucial to shaping the direction of libraries and librarianship as we enter the Information Age. Yet the staffs of today's libraries frequently feel so overwhelmed by the requirements of day-to-day operations that they have little time to devote to mastering the new information technologies. The manifold difficulties associated with developing technological expertise among staff have been exacerbated in many libraries by an organizational structure which has historically concentrated technical knowledge within a single unit and inadequately supported the development of technical knowledge within departments librarywide.

The traditional organizational model for most libraries was predicated in part upon the idea that it was the systems office (or its functional equivalent) that dealt with the majority of the technology within the library. At the time many systems offices were established, mainframes sited in nonlibrary campus computing centers were often the norm, the personal computer was a nascent technology, and the vast majority of automated processes involved the manipulation of bibliographic records in a large, centralized database. In that environment, it made sense to focus technical knowledge within a single unit with primary responsibility for the design and maintenance of the technical aspects of the online catalog and circulation system.

But trends (especially the widespread adoption of PCs, the popularity of CD-ROM and online journal indexes, the continual enhancement of electronic personal productivity tools, increased access to remote data, and growing patron demand for access to a wide variety of electronic tools) have led to increased automation at the departmental level, where technology has been applied to a broad variety of processes and functions, many of which have little to do with the OPAC that was often the *raison d'être* for the librarywide automation mandate of most systems offices. (And with the advent of client/server OPAC interfaces and the introduction of nonlocal resource access, even the library's catalog has begun to move away from the centralized computing model upon which the original conception of the systems office was largely founded.) Technology within libraries is no longer focused almost solely upon the OPAC, but has pervaded almost every department within the library, where it has been adapted to local needs and become an indispensable tool in daily operations.

Many libraries increasingly recognize that administrative and organizational structures must adapt to this new reality. A centralized organizational structure for managing technology becomes less effective as the technology itself becomes more decentralized.

Those libraries which have not adapted are facing increasingly significant problems stemming from a growing discontinuity between those with knowledge of the technology and those with knowledge of departmental processes. Adherence to the traditional organizational model concentrating technical knowledge within the systems office has in many instances resulted in the polarization of the library's knowledge base. It is often the staff of the systems office who maintain the most extensive knowledge of operating systems, networking, hardware, communications protocols, software, and other information relating to the library's computing infrastructure. They know how to use the new technologies and what is needed to implement them. They do not, however, have familiarity with the detailed workings of each department. On the other hand, the staff within each department have an intimate understanding of its work flow and processes, but often has a more limited understanding of the technological tools that might be used to augment departmental productivity. This segregation of knowledge within the library can result

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in enormous inefficiencies, as well as a marked underutilization of new information technology.

As the knowledge gap between the two groups has grown, many libraries have realized that, to automate processes within the library effectively and efficiently, there must be a thorough understanding both of the processes to be automated and of the technological tools used to automate them. Many libraries have chosen to confront this issue by altering their organizational structures. Most of these efforts fall into one of three categories — task forces, departmental electronic experts, and teams. These methods are not mutually exclusive — some libraries have adopted all three or some combination thereof, while others have not implemented any.

Perhaps the most common of the three organizational models is the task force. In this model, groups are created that are comprised of systems staff and members of the department where a specific technological solution is to be implemented. The task force stays together only until the immediate goal is accomplished. Then the group is disbanded and another is formed later to deal with the next issue. And therein lies the problem. The "techies" are constantly working with different units and rarely get to spend enough time with any single unit to achieve more than a superficial understanding of its work flow and local concerns. The departmental staff gets exposed to only selected technological issues and concepts but only for a relatively brief period of time. Then staff members return to their normal work, where there is often no formal mechanism to maintain and expand their recently acquired technical knowledge. The primary problem with this method is that, although it provides a solution to the problem at hand, it does not provide for any long-term interaction between the two groups. So the task force may come up with ideas for handling electronic serials, or document delivery, or any other current problem; but the "techies" go away not greatly enlightened as to what goes on in the department, while the departmental staff gains little long-term understanding of technology.

A second common method of bridging the gap between systems staff and departments is the development of departmental electronic experts. While the task force model seeks to bring together staff with technical knowledge and staff with knowledge of departmental processes and needs, this model seeks to consolidate both types of knowledge within a single individual in each department. That individual is then available within the department to handle a wide range of technology needs. This approach lends itself readily to job enrichment and empowerment of departments, but can also result in a radically uneven distribution of technological expertise among departments (depending on departmental attitudes towards technology and the availability of staff with an aptitude for working with computers). The departmental expert model is often plagued by insufficient administrative support, which is commonly manifested by a dearth of formal technical training opportunities for the departmental experts, a lack of release time from other responsibilities, and the inadequate representation of new technical responsibilities within job descriptions. In addition, relationships with primary technical support staff are apt to be vague. Without departmental support, the departmental electronic expert can in fact occupy an essentially nominal position.

The third approach is team-based. This approach, utilized by both Duke and North Carolina State University, adopts elements of the previous two models. The team is somewhat similar to the task force, in that it is comprised of staff from various departments and brings together people from different units with diverse perspectives on library automation. Unlike the task force model, however, the team's mission is ongoing, which reduces some of the inefficiency of the task force model. The team approach also tends to support the development of electronic experts within departments because that is where the individual team members have offices. And because the team is a formal, librarywide, administrative entity, the team usually receives more substantive administrative support than do departmental electronic experts unaffiliated with a formal team or task force. Additionally, the team can collaborate on intradepartmental concerns and may effectively assist in establishing priorities for librarywide projects, especially when funding or staffing is an issue.

Jackson Library's Local Technical Expert Program

At the University of North Carolina at Greensboro's Jackson Library, we had over the years developed two basic approaches to technological implementation and innovation. We utilized a short term approach; task forces were called into being until their mission was accomplished and then they were disbanded. We also had a strictly volunteer departmental expert approach, which resulted in a few departments having individuals with some degree of technical expertise, while other departments literally had no one who could even format a floppy disk. But we had no formal, long-range vision for fostering enhanced understanding and use of information technologies librarywide. In March 1995, we decided that the selection, implementation, and management of new technologies were simply too important to rely solely on temporary and *ad hoc* measures. We decided to implement a new approach which would provide for a permanent and ongoing solution. Our idea was to combine the best elements of all three of the common models by formally training, supporting, and developing electronic expertise at the departmental level through a team approach. To achieve this goal, we asked each department head within the library to select an individual to serve as that department's Local Technical Expert (or LTE). We asked that the team be representative of the overall library staff and were pleased that the thirteen-member team included both para-professionals and librarians. Positions ranged the full gamut from library clerks to members of the library administration. Actual computer experience varied widely from significant to virtually none.

A key to the success of the new initiative was the development of goals and expectations for the LTE Team. These were presented by the team leader at the first meeting and were discussed by the entire group. At the end of the first year, these goals were reviewed by the entire team and were reinstituted by consensus.

The Goals of the LTE Team

1. The team will get together on a regular basis to exchange ideas and information and conduct practical hands-on training sessions in the use of computers and electronic technologies.
2. LTEs will be the local department's first recourse for technical problems.
3. The LTEs will be a primary mechanism for delivering technical news

and information to their department.
4. The LTEs will help to identify departmental training needs, will determine which departmental processes are in need of automation, and will assist in implementation.
5. The LTE team will raise the general level of technical knowledge within the library.

Achieving our Goals

Our first goal was to meet regularly to exchange information and expertise. The team members meet at least once per month and discuss any technical problems and solutions which have occurred within their departments. The LTEs have also undergone a good deal of training. Given the wide disparity in computing experience within the group, at the first meeting we sought to ensure that all team members had a fundamental grounding in our local computing environment. To achieve this, we started by demystifying the computer by taking it apart, identifying the function of each of the components, and then reassembling it. Then we defined essential computing terminology so that barriers to communication would be minimized, and we mapped the key components of our campus network and discussed their functions.

At subsequent meetings of the team we established core computing competencies for the LTEs and, relying on the expertise of various members within the team, we trained each other in the following areas:

- Windows 3.1, Windows 95, and basic Windows applications
- Internet use, World Wide Web browsers, basic UNIX, and HTML
- Databases accessible through our OPAC
- Diagnosis and resolution of basic hardware problems
- File management, data recovery, and back-ups
- Support for a wide variety of staff applications

Once the LTEs had developed sufficient expertise, we were able to implement our second goal, which was to make each LTE the first recourse for technical problems occurring within his/her department. This was a significant change from our previous system of problem resolution, under which virtually all technical questions went directly to either the Systems Office or the Electronic Information Resources Unit. Now, any technical questions go to the departmental LTE first. Unresolved questions are referred to Systems or Electronic Information Resources. When these "techies" come to fix the problem, the LTE is encouraged either to observe, or to participate actively in, the problem resolution. This enables the LTE to fix the problem independently if it recurs. Problems and solutions are then reported to the entire LTE team at the next meeting so that everyone will know what to do if the same problem arises with computers in individual departments.

The third goal of the Local Technical Experts team was to have each LTE disseminate technical news and information to his/her department (especially as part of regular departmental meetings). Because each LTE has both an understanding of technical issues and a strong familiarity with departmental concerns, we thought that the LTEs could prove uniquely effective in conveying technical information by placing it in a departmental context .

The fourth goal was to involve the team in the ongoing identification of new electronic initiatives and innovations which could prove important to the library's various departments. In discussing this goal, we recognized that departments don't all have the same needs and requirements, so it would make little sense to adopt a single librarywide standard for computer knowledge and expertise. For example, is the Web as crucial to acquisitions as it is to reference? Are spreadsheets as important for reference as they are for acquisitions? We wanted the LTEs to help us figure out who needed to know what, and it seemed that someone who had both technical knowledge and knowledge of a department's needs would be most capable of making that determination.

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The fifth goal of the LTE team was to raise the general level of electronic expertise throughout the library. We feel that this is absolutely crucial as our libraries move rapidly into an increas-

ingly automated environment. Our first step to achieving this goal was the training of the LTEs themselves, which brought a base level of technical knowledge to every department within the library. The second step was an extensive librarywide training initiative conducted in July 1995. All of the LTEs contributed their time and expertise to offer fifty hands-on staff training sessions on a variety of topics relating to the use of computers within Jackson Library. In July 1996, the LTE team collaborated on the development of a curriculum of over twenty computing courses to be offered to the library staff on an ongoing basis. These courses are taught by the LTEs and cover such things as HTML, UNIX, advanced word-processing tips, Excel, file management, and "Inside the Computer."

Successes and Problems

During our first year, the team has made significant progress in achieving most of its stated goals. Many of the accomplishments stem from the library's move from centralized computing support to a much more decentralized model. For example, visits to departments by systems staff to resolve technical problems have dropped significantly, because the LTEs are able to solve a steadily increasing array of problems on a local level. This has improved response time, and highly- trained "techies" are now freed from much of the burden of resolving relatively mundane day-to-day technical problems and allowed instead to concentrate on more complex issues. This decentralization has also had the desired effect of raising electronic awareness and expertise librarywide and has empowered departments to have greater input into the selection, adoption, and implementation of information technology within the library.

These general, librarywide advances have been matched by concrete initiatives at the departmental level. During the first year of the team's existence, LTEs have been involved in numerous projects, including:

- All LTEs have their own Web pages; have written departmental Web pages; and created personal home pages for all interested library staff.
- LTE's have been paired with subject specialists in an initiative involving the creation of subject-oriented Web pages for use by the campus community.
- Personnel evaluation forms have been set up online as templates.
- Library news, events, internal publications, online documentation, and committee information are maintained as a Web site.
- All library committee and departmental e-mail mailing lists have been centralized.
- Over 50 computer-oriented staff training sessions were taught by members of the team.
- A new project involving the cataloging of selected resources on the Internet was developed and implemented.
- The cataloging of some "virtual holdings" of full text electronic journal articles was proposed, investigated, and implemented.
- Telnet Passport access to OCLC was installed librarywide.
- The Government Documents Department set up patron access stations for Internet resources. This marked the first time a public service unit had provided public access to the Internet through a "point and click" interface.
- Office automation needs were identified, resulting in the development of shared spreadsheets for payroll, library statistics, and the annual report.
- Portions of three collections from the Special Collections Division have been digitized and made available via the World Wide Web.
- The deployment of Windows 95 was scheduled and supported.
- Ongoing "Computer Skills Enhancement Classes" for staff were designed and are being taught by volunteers from the LTE team.

While the librarywide dissemination of technical knowledge and distribution of technological responsibility have yielded many benefits, they have not been without their problems. Many of these are the direct result of wide variation in departmental interest in information technology, manifested by varying levels of commitment to team efforts among the LTEs and by differing degrees of departmental support for its LTE. In addition, the line authority of department heads over their departmental LTE occasionally has caused long-term, librarywide technological initiatives to become subordinated to immediate, individual departmental concerns. Finally, the reluctance of some departments to reexamine more traditional services and responsibilities has meant that most of the LTEs have been asked to assume the not inconsiderable duties of being a Local Technical Expert without any commensurate reduction of their workloads in other areas of responsibility.

Conclusion

After a year of work, the LTE program at Jackson Library has achieved its stated goals and has implemented a number of innovative services and programs in departments throughout the library. In fact, the overall concept of developing departmental technical expertise has proven so popular that many of the training sessions initially developed to train the LTE team are now being made available to all library staff. This staff training component has become a major focus of the group's responsibilities. Other future directions include more work on interdepartmental projects, expanded use of a collaborative work space, and an even more active role in project development and implementation.

Overall, Jackson Library's team-oriented approach to redesigning technical support and developing local electronic expertise at the departmental level has proven effective in removing many of the barriers between departmental staff and the staff of the Systems Office and the Electronic Information Resources unit. The emphasis on librarywide collaboration, combined with the empowerment of departments to have a greater influence over the adoption and implementation of new information technologies, has allayed some of the inevitable concerns attendant on the imposition of new administrative structures. Perhaps most importantly, however, the staff of Jackson Library have a greater understanding of the issues, problems, and benefits of the new information technologies and are now better equipped to manage change, rather than to be managed by it.
