Handbook of Research on Instructional Systems and Technology

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Chapter XIII
Leveraging Libraries to Support Academic Technology

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ABSTRACT

Through leveraging the relationship between libraries and technology, colleges and universities can make the best use of the skills that librarians bring to the table. At DePaul University, three positions have been created, which report to two campus units: The University Libraries and Instructional Technology Development. The consolidation of both library and instructional technology perspectives to create this first group of blended positions at DePaul has been successful, due in large part to the fact that the primary responsibilities of these positions are in areas of mutual interest: instruction, collection development, and technology support for faculty and students, whether on a consulting basis or at the reference desk. As libraries and librarians become ever more closely and actively aligned with the teaching mission of the university, universities and colleges can transform librarians' roles within the academy by leveraging their skills to enhance teaching and learning in today's online environment.

INTRODUCTION

As more and more library services and resources are delivered online, libraries and technology become increasingly intertwined. In their article "*Merging Library and Computing Services at Kenyon College: A Progress Report,*" Oden Jr. et al. (2001) describe the phenomenon as follows:

...the era when computers largely performed repetitive and otherwise tedious tasks (such as data processing) transformed to an era when computers served equally to store, retrieve, and manipulate information. The transformation has meant an increasing overlap between library services and computing services, making an integrated approach seem sensible. (Oden Jr. et al., 2001)

More and more institutions are exploring this model of combined library and IT services in various ways. Ferguson, Spencer, and Metz (2004) give brief descriptions of similar undertakings at Bucknell University, Pacific Lutheran University, and Wheaton College, and note "the need for the library and IT organizations to work together to support today's scholars and students in a much more seamless fashion."

Jerry D. Campbell, CIO and Dean of University Libraries at the University of Southern California, Los Angeles, points to initiatives undertaken "within academic libraries in the digital age: providing quality learning spaces; creating metadata; offering virtual reference services; teaching information literacy; choosing resources and managing resource licenses; collecting and digitizing archival materials; and maintaining digital repositories." (Campbell, 2006) These are just a few examples of how libraries have expanded services and resources using technology. To make the best use of the skills that librarians bring to the table, colleges and universities must continue to explore further avenues to leverage the relationship between libraries and technology.

In some environments as at Kenyon College, described by Oden Jr. et al. (2001), the integration occurs not only at the departmental or administrative level, but also within individual positions, requiring staff with expertise in both arenas. Barth and Cottrell (2002) describe in some depth the Librarian Technology Consultant model adopted at Kenyon College, in which positions serve as liaisons to specific departments and schools. They state, "This type of cross-focus began to build bridges with constituents, notably faculty, to better serve the user by bringing a more holistic approach to service through focusing on the patrons rather than the collections."

BLENDING LIBRARY AND INSTRUCTIONAL TECHNOLOGY POSITIONS

Library mission statements generally speak to providing support for the instructional and research programs at a given university. DePaul University's library mission is no exception to this rule, and states that "as an integral part of the academic function of DePaul University, the libraries' mission is to support the current and anticipated instructional and research programs of the University by providing collections, services, facilities, and personnel to satisfy the information and research needs of DePaul students, faculty, and staff." (Brown, 2002)

To serve this mission, the libraries have facilities on all six DePaul campuses, with paper, microform, video, and audio collections as well as extensive electronic collections available $24\times7\times365$ to university affiliates from anywhere in the world via the Internet. Each library facility also has public access computers, and all students, faculty, and staff have electronic access to reference services, document delivery, and course reserves. As libraries increasingly deliver their services online, our patrons begin to expect this type of access, and are beginning to demand the same type of access to their other course materials. Because libraries have led in this area, librarians become natural advocates for electronic access to materials.

According to its mission, the University's department of Instructional Technology Development (ITD) "advocates for students and collaborates with faculty and university departments in developing a learning environment enriched through effective use of technology in the curriculum." The compatible missions of ITD and the libraries make these academic support units natural collaborators. Guan and Morrissett (2006) emphasize the importance of "taking advantage of the long-established trust relationship between librarians and faculty." As they point out, librarians are already seen as trusted members of the academic community. Faculty are accustomed to asking for assistance in finding library resources for their classes and in acquiring materials for their research, as well as inviting librarians to provide library research instruction for their students. Expanding this role so that librarians show faculty how to integrate library resources entirely into their online course sites, or into course sites complementing in-person instruction, is a natural place to begin the consultation. Leveraging this relationship allows instructional technology departments a way to reach faculty in a non-threatening way.

Librarians also bring an understanding of the organization of information, including experience with indexing and database construction. These skills, along with librarianship's emphasis on user-centered services, are valuable skills and can be applied in many arenas, from online course organization to assisting with the creation of database-driven Web sites.

At DePaul, the blending of librarian/instructional technology consultant positions began in 2003 with the hiring of a suburban campus coordinator who also served as instructional technology consultant for the suburban campuses. Two additional librarian-consultant positions were developed in summer 2005 and resulted in the changing of job duties for two existing assistant coordinators of library instruction positions. As DePaul increases the numbers of these dual positions, it has become important to look at the personalities and skill sets of the individuals who

are either hired or reorganized into them.

Though specific job titles vary widely, this type of position is referred to within the library world as a "hybrid" or "blended" librarian, which Steven J. Bell and John Shank (2004) define as "an academic librarian who combines the traditional skill set of librarianship with the information technologist's hardware/software skills, and the instructional or educational designer's ability to apply technology appropriately in the teaching-learning process." While the skills themselves are important, of equal if not more importance is the way in which the blended or hybrid librarian executes his or her work—to be able to communicate genuine enthusiasm for the potential uses of technology in the teaching environment. It is the combination of enthusiasm with the library background, subject knowledge, and technical and teaching skills that truly transform and reframe the way faculty perceive the use of technology in their classes.

Librarians who report to both the Libraries and Instructional Technology Development are not only enthusiastic promoters of teaching with technology, but are also able to draw connections between the activities of both units from a unique perspective. At DePaul University these blended librarians have aided in the development of, and participated in, a number of cooperative projects and cross-departmental trainings.

COLLABORATIVE TRAINING: BLACKBOARD

The earliest training collaboration, "*Linking to Resources in Blackboard*," began as a day-long workshop to teach faculty how to use the Blackboard course management system at the University's newest and smallest residential campus. In addition to learning the functionality of the Blackboard course management system from an instructional technology consultant (ITC), a librarian instructed faculty in linking to content contained in library databases. In the course of delivering the workshop, it was discovered that

faculty could also benefit from a more basic overview of library resources. In time, the combined library and instructional technology development staff also recognized there was an audience for a more intensive Blackboard training workshop.

The *Blackboard Institute* (BI) evolved as an endeavor to offer brief, intensive training in Blackboard. Existing instructional programs offered by instructional technology development were structured over a five-week period, and many faculty members balked at this extended time commitment. Coordinated by one of the blended librarians, the hands-on workshop is offered over three consecutive days to faculty members interested in building a Blackboard course site to complement classroom instruction. When the inaugural Blackboard Institute filled to capacity within a few days, a second institute was added, which also filled to capacity. Future institutes are planned during academic breaks with two more to follow immediately prior to the fall term. An additional *Advanced Blackboard Institute* is also planned, designed to expand the skills of the initial institute participants.

During the Institute, participants develop and/or upload a course syllabus, structure course information, identify and link to online resources, and create learning activities to engage learners. Hands-on activities are complemented by showcases, discussions, and critiques among the participants. As different instructional technology consultants and librarians present, other staff members are available, roaming to assist faculty members as needed. This helps to build the role of librarian as technology expert.

A presentation on linking to library resources takes place during the morning of the second day. The benefits of the online course reserve system are demonstrated first. Faculty need only to submit citations for items to be put on reserve for their courses. The library determines whether the item may be linked through an existing database subscription, and if not, scans the relevant articles or chapters. Items which cannot be placed on electronic reserves due to limitations of format or of copyright are placed on print reserve and a link is created to the catalog record. Faculty are also taken through the process of creating stable, persistent links to articles of their choice in the library's online database collection, and are taught how to include those links in their course sites or course Web sites. Faculty appreciate being able to recommend online full-text articles, and provide links to them to at a moment's notice.

In addition to the blended librarians leading the session, librarians representing the subject areas of the participants are invited to the presentation and encouraged to continue the discussion over lunch. The positive outcome of this training endeavor supports Bell's finding that when "library staff is involved in managing the course management system (CMS) or providing training for new users …[t]hat is a favorable condition for librarians to influence faculty to create links to the library." (Bell, 2002)

Faculty awareness of, and facility with, electronic reserves and linking should lead to inclusion and promotion of resources already purchased by the libraries. These outgrowths can improve student work as well—when faculty know how easy it is to include an article from the day's newspaper, they are more likely to add that link into their course site. In turn, students are more likely to read and access items that are immediately available. Cohen agrees: "Integrating course-management software with the library's digital offerings is essential for getting the maximum value from the institutional investments of both money and expertise." (Cohen, 2002) Gibbons also argues that integrating library resources into course management systems makes students regard them more favorably, and thus increases the likelihood those students would turn to the linked electronic resources provided by the library. (Gibbons, 2005a) Furthermore, according to studies cited by Gibbons, it is the convenience and efficiency of course management systems that appeal most to students. (Gibbons, 2005b) Students rated being able to access syllabi and course readings as the most attractive and useful features.

ADDITIONAL FACULTY TRAINING OPPORTUNITIES

Librarian members of the instructional technology consultant staff also assist with the development and delivery of instructional technology development workshops on using word processing applications, developing presentations, and building Web sites, as well as on homegrown applications such as QuickData, instructional technology development's online survey development tool. Aside from the obvious point-of-service opportunities to promote and recommend related library resources, librarians working with faculty in this capacity increase the possibility that faculty will think of the library when designing their assignments.

Instructional technology development workshops provide an ideal forum for promoting the library's "Just for Faculty" section of the library's Web site. (DePaul University Libraries, n.d.) This page includes information about course reserves, the library's instruction program, suggestions for purchase, and interlibrary loan. It also includes step-by-step directions for linking to library resources and provides a tool that wraps code around each link to enable proxy access for off-campus university affiliates.

TECHNOLOGY COLLABORATIONS: LEARNING CONTENT MANAGEMENT SYSTEM

Several additional outgrowths of the library-ITD collaboration exist, resulting in technical solutions primarily utilized or supported by the library. Ranging across functional units in the libraries and instructional technology development, these applications are critical to the delivery of library services and resources. The successful use by the library of one jointly developed application has led to its adoption by other university units.

The first and most established of these is instruction builder (IB), a learning content management system (LCMS). This tool can be used to build interactive lessons by creating and linking together instructional elements such as animations, and assessment elements such as quizzes, tests, and assignments. All of these objects can be shared with other users of the application and used or re-used in multiple contexts. The library's instruction program makes heavy use of IB, currently delivering nine targeted, class-specific workshops to four schools or units across the University. In sum, over 7,000 students have taken at least one of the ten workshops that have been available over the life of the application. Additionally, the University's Office of Institutional Compliance utilized the application to deliver training to all employees.

Instruction Builder 3.0 was released in August 2005, the third version release in the project's five year lifespan. This release of the product was the culmination of a multi-year joint development process between the University Libraries and Instructional Technology Development, undertaken by a cross-functional team of stakeholders, including the library instruction coordinator, the head of library Web services, Instructional Technology Development's lead developer, and three of the Library/Instructional Technology Development joint-report positions, one of whom served as project manager. For the two previous releases, the same collaborative model has been used to generate system requirements, test beta versions, and compile lists of enhancements.

Feedback collected from the development team, librarian graders, and student users of the system has led to a number of changes to the application over its lifespan. In conjunction with the library-driven enhancements in the third release, the project manager worked with the Office of Institutional Compliance within the University, for which a separate instance of the IB application was established to integrate their requirements and feedback. Interface changes, restructuring of user permissions, and enhanced functionality are a few results of this iterative, collaborative design process.

INSTRUCTION BUILDER: CURRENT STRUCTURE AND FUNCTIONALITY

The instruction builder (IB) system is flexible and allows instructional objects created within it to be linked together into one of two delivery methods:

- Workshops, which are built using a combination of instructional elements and assessment elements, and which are linked to specific DePaul courses via the University's student information system
- Tutorials, which may be freely accessed (i.e., they are not linked to any course) and which are primarily composed of instructional elements, with no required assessments

IB is role-based; display options and permissions are assigned according to role. The three major categories of roles are student, instructor (faculty), and administrator. All three log in to a common interface to access workshops and other data. Students complete workshops at their convenience, and are not required to complete them in one sitting. Once submitted, depending on their content, workshops may be graded automatically by the system or interactively by a faculty member, librarian, or instructional designer.

Instructors may view workshop content and class roster data from their login screen. Additionally, they are provided with a direct URL to each workshop, which they may add to their course within a course management system, or send via e-mail.

Administrative access to the system is managed at several tiers. Most users have access to view published content and to grade submitted workshops. A smaller group of users have the ability to build individual content items, to combine them to form workshops or tutorials, and to "publish" or release them to students and instructors. Higher-level administrative tasks such as activating and deactivating users, assigning user permissions, creating and populating groups, and editing released content, are restricted to only a few select users.

ELECTRONIC RESOURCE MANAGEMENT

The two units also work collaboratively on an application for managing electronic resources. The University initially contracted with a vendor providing aggregated, single-entry access to library electronic subscriptions over five years ago. This vendor also provides a link resolver, which uses the OpenURL protocol to provide more seamless access to electronic full-text content across all library databases and vendors. At the time of inception, the library's Web services department was maintaining its own database of information on library subscriptions to online journals and databases. Over time, the library Web services department worked with the vendor to customize the look and feel of search and results screens so that they blended seamlessly with the library's Web site.

In July 2005, reorganization consolidated several positions with technical or Web site management responsibilities from both the libraries and instructional technology development into a single department, responsible for all systems and development projects for the larger teaching and learning resources unit. At this time, day-to-day maintenance of technical and interface issues for these services is managed by the new, merged systems and applications development department, with assistance from collection development on a case by case basis for subscription/vendor contacts.

FUTURE DIRECTIONS AND POSSIBLE APPLICATIONS

With each year bringing more integration of technology across the whole of higher education, and with the technology landscape constantly changing, it is likely that more and more of the services offered and resources provided by libraries and instructional technology support units will be inextricably intertwined with the online world.

Most important, though, must be the examination of why this effort will prosper. It is already immediately apparent that some of the areas most profoundly impacted by technology include:

- Instruction, whether in-class or online, and whether conducted by faculty or by academic support units such as the libraries or instructional technology development
- Library collections, including online databases and indexes, electronic journals, and books
- Technology support for faculty, staff, and students, as new technologies are adopted and integrated into the curriculum (recent examples include streaming multimedia, podcasting, and blogging)

The consolidation of both library and instructional technology perspectives and responsibilities to create this first group of blended positions at DePaul has been successful, due in large part to the focus of these positions on the areas previously listed. The Institute of Museum and Library Services (IMLS) recent white paper publication, "*The Future of Librarians in the Workforce Project—University Libraries*" confirms this:

Faculty will still expect librarians to understand their intellectual needs and to anticipate those needs in the works they acquire and license (including GIS and other non-traditional resources). More than ever faculty look and will look to librarians to deliver instruction to the community in the productive use of all manner of resources. (Institute of Museum and Library Services, 2006)

Further, the organizational structure at this institution supports such an arrangement, since both the libraries and instructional technology development are part of the same overarching administrative unit, teaching and learning resources.

In addition, as previously mentioned, the success of these and similar positions is affected by other, less quantifiable factors related to the personal characteristics of the individual filling the position; it is essential that the individual possess appropriate technical skills and discipline background, as well as certain elements of personality (e.g., enthusiasm, self-direction, flexibility, curiosity/interest in technology), which are the most difficult to quantify when developing "hybrid" or "blended" positions.

It is also important to remember that although many of the trends and forces in the current environment indicate a shift toward an environment where more and more "blended" positions exist, the audience for library services and resources remains rich and varied in its interests, needs, and approaches. "Traditional" library services such as reference, cataloging, circulation, archives, and preservation have become neither superfluous nor outmoded, as evidenced by their continued utilization, and they retain their importance to the support of teaching and learning within the academic enterprise. This carryover of skills and values, albeit with new and different methods of delivery, is recognized within the IMLS paper: "…There is also a need to assure that the basics of library work do not change in the electronic age." (Institute of Museum and Library Services, 2006) In fact, circulation of DePaul's print collections increased 23% for the 2005 fiscal year, despite yearly increases in e-book and electronic journal subscription access, illustrating the continuing impact of one the library's most basic resources: books.

Campbell grapples with these issues of transition in his article "*Changing a Cultural Icon: The Academic Library as a Virtual Destination*." The library is still seen as a cultural icon, but it has become increasingly apparent that the public face of the icon needs to be updated to better reflect the ideals of a new society. If libraries fail to take advantage of opportunities to change their image, their role in the academy may be threatened by the impact of technology and its perceived ease of use. Libraries will always be keepers of information, but their previous service model, primarily passive, will need to shift in order to retain its importance in a society that values desktop- and doorstep-delivery services. He concludes, "Over the next decade, colleges and universities will have to make critically important practical and policy

decisions about the future of libraries, about the space devoted to libraries, and about the roles of librarians." (Campbell, 2006).

It is clear that a crossroads has been reached. We argue that these decisions can be made easier as libraries and librarians become ever more closely and more actively aligned with the teaching mission of the university, and as universities and colleges look at transforming the librarians' roles within the academy by leveraging their skills to enhance teaching and learning in today's online environment.

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KEY TERMS

Blended or Hybrid Librarian: A librarian with a skill set consisting of traditional library skills, facility with hardware and educational software, and the ability to communicate the appropriate use of technology in a teaching and learning environment.

Course Management System (CMS): An online learning environment, which bundles teaching and communications tools. These tools can

be used to supplement classroom learning or can stand alone as an online learning experience.

Learning Content Management System: A system where instructional designers and other instructional content developers can create, store, reuse, manage, and deliver digital learning content using a central learning object repository.

Link Resolver: A software application that uses the OpenURL protocol to provide more seamless access to electronic full-text content across all databases and vendors for a desired citation.

OpenURL: An ANSI standard (Z39.88) used to transport metadata and/or other identifiers about a source object to a target object. In libraries, this standard is used by link resolvers to connect patrons to resources and services.

Persistent Links: Links provided by a database that allow direct and stable access to a particular document or item.

Reference Services: Service provided by libraries whereby patrons are assisted in the location and retrieval of information relevant to their information needs.

Student Information System: Often part of enterprise solutions that also manage human resources and financial services, student information systems are responsible for maintaining the records of course enrollment, grades, course history, and other data related to a student's academic career.