and gaining assistance for librarians developing teaching portfolios.

Use of the Center by Instruction Librarians

Teaching librarians who have a teaching center on their campus find it to be a valuable resource and make use of its resources in a variety of ways. Twelve mentioned attending workshops offered by the center, and eight more noted that they use the center staff as resources (several respondents specifically noted that they look for advice on assessment and instructional design). Three people mentioned reading teaching center publications and newsletters (and sharing them with other librarians), and two borrow teaching materials from their centers. The following uses were each listed by one respondent: attending meetings to help plan new programs and services, consulting with the center director on information literacy initiatives, serving on an advisory committee, getting feedback on user evaluations, participating in a reading group, applying for center grants, soliciting feedback from students, having discussions with TAs who work in the center, having individual consultations to improve teaching, requesting assistance in developing a student evaluation tool, and conducting student focus group sessions.

Conclusion

This article documents a wide range of interactions between instruction librarians and teaching centers occurring at ARL institutions. Doubtless, similar types of partnerships are happening on other campuses as well. The goal of centers is to improve teaching, a goal generally sought by instruction librarians as well. But beyond this rather obvious connection, centers provide a variety of venues valuable to instruction librarians. They often provide an established outlet for library workshops aimed toward faculty members. They may fund grants to allow new projects and programs to come into existence. Teaching center staff members are eager to work with librarians, to the benefit of both groups.

Some partnerships may be initiated directly by instruction librarians and coordinators, whereas others may require action on the part of a library director or a university administrator. Instruction librarians should make known their desire to work more closely with center staff and should volunteer to help with or apply to participate in center programs. Informal meetings with the center's director may lead to starting new partnerships or soliciting librarian involvement in current programs. The projects enumerated in this article may provide inspirations for similar programs on other campuses.

Acknowlegment: My thanks to Cory Laverty (Queen's University), Abbie Loomis (University of Wisconsin-Madison), Nan Seamans (Virginia Tech), and Diana Shonrock (Iowa State University) for the time they generously granted to enhance this article.

Notes and References

1. Kathleen M. Quinlan, "About Teaching & Learning Centers," *AAHE Bulletin* 44 (October 1991): 11–16.
2. Arlene Pickett Bakutes, "An Examination of Faculty Development Centers," *Contemporary Education* 69 (Spring 1998): 168–171.
3. Lil Brannon, "Reflections: On the Work of CETL," *Focus on Teaching* 1 (Fall 1995): 1, 3.
4. Ibid., p. 3.
5. The survey instrument. [Online]. Available: http://intercom.virginia.edu/SurveySuite/Surveys/TeachingCenters (accessed July 27, 2000).
6. Association of Research Libraries, *ARL Statistics 1998–99* (Washington, D.C.: Association of Research Libraries, 2000), p. 57.
8. Trudi E. Jacobson, "A Renaissance in Evaluation Skills: Teaching Students to Evaluate Information in a General Education Program," in *All That Glitters: Prospecting for Information in the Changing Library World*, edited by Steven Vincent & Sue K. Norman (Stamford, CT: JAI Press, 1999), pp. 91–99; Trudi E. Jacobson & Beth L. Mark, "Separating Wheat from Chaff: Helping First Year Students Become Information Savvy," *The Journal of General Education*, 49 (2000):256–278.
9. More information about the Summer Institute. [Online]. Available: http://wiscinfo.doit.wisc.edu/teaching-academy/Summer%20Institute/summergen.htm (accessed November 10, 2000).
10. More information. [Online]. Available: http://www.wisc.edu/ccae/ccle/index.html (accessed November 10, 2000).
11. Volume 3, issue number 5 of the Informational Flyer Series. [Online]. Available: http://www.edtech.vt.edu/uwp/ (accessed November 3, 2000).
12. Information on the fall institute. [Online]. Available: http://www.its.queensu.ca/ltu/fall2000.html (accessed October 3, 2000).
13. The tutorial, Researching 101. [Online]. Available: http://library.albany.edu/divs/usered/tut/ (accessed May 24, 2001). Information on Project Renaissance. [Online]. Available: http://www.albany.edu/projren/. (accessed November 6, 2000).

Integration of Information Resources and Collection Development Strategy

by Sam Brooks

With so many places to look for information and the uncertainty surrounding the credibility of many free Web resources, academic libraries face the challenge of determining which information will add value when integrated with their current collections. Further still, these libraries must decipher methods of combining information of varying formats into useful, effective research tools. The need for a simplified method of conducting in-depth, appropriate research is apparent.

The Web offers this type of research environment to a certain extent, but as mentioned, information credibility and plentiful irrelevancy are causes for concern. In a *Library Trends* article authored by James H. Sweetland, the validity of Web sites as reference resources was examined. This study, the first of its kind to analyze a Web search engine as if it were a ready reference tool, found that the vast majority of sites obtained by an experienced searcher were irrelevant to the question, and a fourth of the sites that did contain relevant information, provided incorrect information.[1] Students should have the ability to search simultaneously relevant Web resources and the diverse content of the library's col-

Sam Brooks is Senior Vice President, Sales & Marketing, EBSCO Information Services, 10 Estes St., Ipswich, Massachusetts 01938<sbrooks@epnet.com>.

lection. Approaching research in a simple manner can yield powerful, effective results. Why "re-invent the wheel" when its strengths can be advantageous? Properly combining library resources to function collectively as a cohesive, efficient unit is the basis of information integration.

Before integration can take place, components need to be established. So, where to begin when implementing these resources? Concentrate on content. The bells and whistles of fancy software can cushion a lack of integrity in information, but the fact remains that content is the basis, and final result, of any research. Whether beginning electronic collection development from scratch, or seeking to supplement existing resources, the process of selecting quality, appropriate materials demands thorough investigation and attention to detail. With such an array of available materials, this process can be extremely detailed and time-consuming, however vital.

Some vendors of electronic information have the ability to simplify this process for librarians. For example, as a leading subscription agent, EBSCO has a thorough understanding of the journals purchased by academic libraries. This information, as well as feedback from academic advisory boards, focus groups, and other sources is used in developing reference databases. It is all too commonplace for providers of reference resources to include inappropriate periodicals and other information sources in databases with the intention of depicting a database as having "more full text." Does more equal better? In some cases, yes, but look closely at the content. Some databases deemed "academic" or "scholarly" may appear so at first glance, but further investigation may reveal conclusions to the contrary. Exercising caution in choosing which materials to include in each database is a critical element in the process of developing proper, first-class information resources. This research and attention to (content) detail by vendors facilitates the process whereby libraries seek to create complete, accurate research environments. Furthermore, each component of an integrated electronic collection should stand on its own in terms of value. This "chain" is only as strong as its weakest link. In other words, one solid, reputable reference resource may prove far more valuable than several mediocre, reference sources, even when content "numbers" seem more significant in the latter.

The quantity of peer-reviewed, or refereed, content is a simple indication of the level of scholarly materials contained in databases. Although not all scholarly content is peer-reviewed, it is certainly a good starting point when determining the validity of an academic reference resource.

Comparing electronic content to print materials already held in the library is a helpful step in determining the value of a database. Recognize that the greatest value of a full-text database is its ability to bring new, quality sources into a library's collection. Full-text databases complement existing resources by incorporating information sources that were not previously available to researchers. Articles from many important journals would never be available as part of a library's collection, if not for these databases.

It is critical for academic librarians to understand exactly how full-text databases should impact their collections. Full-text databases are not substitutes for journals purchased in print or as e-journals. Most full-text database vendors do not make this clear to their customers. As a result, there has been significant turmoil (loss of important full-text journals) in full-text databases, thereby negatively impacting the collections of libraries that used these databases as a replacement for print subscriptions or as a substitute for e-journals. This turmoil has occurred for reasons that are obvious to journal publishers and journal aggregators. These reasons, however, may not be as obvious to many librarians at first glance, yet they are simple to understand once details are ascertained.

A publisher may charge $2,000 per year for a paper subscription to a journal. Yet, that same journal may be available through a full-text database containing a total of 1,000 journals. If the library pays $20,000 for that database, its cost per journal is only $20. If academic libraries used these databases as a substitute for the print versions, even if the journal aggregator shared every penny collected with the publishers, it would be nearly impossible for any publisher to stay in business. This would mean that the publisher would collect 1% of their actual subscription price (an infeasible 99% discount).

Being unaware of the consequences, some academic librarians have canceled print subscriptions in favor of database access. In many cases, these librarians have later found that the journal is no longer available in full-text through the same database previously relied on as its substitute. This content removal occurs as the publisher experiences a loss of revenue simply because its journal was made available via this database. Hence, the publisher reconsiders its license agreement with the aggregator. In many cases, only abstracts for that journal remain in the database, leaving the library with no coverage from what has often been an important source. Even if the library re-subscribes to the journal in print, it will have an unfortunate gap in coverage. In a recent article depicting the examination of electronic resources with regard to serial cancellations, Janice M. Jaguszewski and Laura K. Probst stated that if a resource is leased but not owned, and an archive is not made available, then on cancellation, not only is the collection lost, but so is the historical record of (said) resource that was, at one time, important to the collection. In addition, if research were ever renewed in that subject, the archive would be difficult and costly to reconstruct.[2]

Additionally, two other scenarios exist that could pose problems for libraries and their researchers. In the first case, the publisher may not remove all full-text backfiles from databases, but may still halt coverage for the journal. Some aggregators have not been quick to announce such situations, resulting in coverage gaps for libraries that used their full-text database as a replacement for the print. The second scenario is also quite common. Many publications have embargo periods in full-text databases. This means that the publisher requires the aggregator to delay the release of full text for a particular journal for a specific period of time. The length of embargo periods varies by publisher and by publication, but tends to range from three months to a full year. Even if a database does not currently have an embargo period, it does not mean that one will not be applied in the future. Some vendors make it challenging for their customers to learn which full-text journals have embargoes, which full-text journals are ceased at the publisher's request, and which have been removed entirely.

These three cases are affecting more and more journals in

full-text databases. Being aware of the situations that can create holes or gaps in library collections is very important. Although some vendors are up-front with imposed coverage restrictions, other vendors have made it necessary to look beneath the surface for actual journal coverage offered in their full-text databases. Uncovering specific information with regard to embargoes and halted and removed content will make database evaluation simpler and more accurate.

So, how can this aggravation and turmoil be avoided? For one, seek vendors that are open about these issues. It is likely that companies offering both print and e-journal subscriptions stand in good favor with publishers because their core businesses are aligned. Above all, ask questions about content such as:

- How many full-text academic journals have been halted or removed from your products in the last year, two years, three years?
- How many full-text academic journals have been added in that time?
- How many of the full-text titles in your database are peer-reviewed?
- Which full-text, peer-reviewed journals are unique to your database?

Although much can be said regarding the lack of credibility of much information available free on the World Wide Web, this tremendous resource should not be overlooked. The difficulty comes in refining or extracting proper information. Again, companies can expedite this process for library researchers. Some companies locate valuable Web sites on an ongoing basis for inclusion in appropriate databases. In some more detailed and sophisticated services, these sites are assigned (Library of Congress) subject headings and appear (separately listed) as search results. This method of extracting critical information gives "definition" to the Web and affords researchers the luxury of searching only credible sites. Ask vendors if they offer these services.

As situations differ from library to library, the availability of features such as "Web Links" may or may not be appropriate. So, should a particular feature deemed valuable by one librarian be the cause of another to find the database inappropriate for his or her library? In many cases, that happens. Hence, customizable resources are more valuable than are rigid offerings. The more adaptable a database is, the more it can be suited to specifically meet the needs of a particular library. This ability to customize falls under the categories of content and software with equal importance. Again, difficulty arises when comparing the administrative modules offered by different vendors. Ask questions about these "behind the scenes" functions such as:

- Can we create subsets of information or specific collections?
- Can we link to our Web-based Online Public Access Catalogs (OPAC) for the most detailed holdings information?
- Can we add "notes" to the database with regard to specific journals?
- Can we customize the search pages?
- Can we choose appropriate search limiters and search expanders?
- Can we choose default search screens?
- Can we establish different methods of user authentication, including remote?
- Can we link from our full-text databases to our collection of e-journals?

What is typically deemed an essential component of the administrative capabilities of an online reference resource is the vendor's ability to provide accurate and detailed statistical information. To gain a strong understanding of the value and importance offered in these necessary components, it is a good idea to consult the "Guidelines for Statistical Measures of Usage of Web-based Indexed, Abstracted, and Full Text Resources" set forth by the International Coalition of Library Consortia (ICOLC).[3] In this document, ICOLC states as part of its introduction:

> The use of licensed electronic information resources will continue to expand and in some cases become the sole or dominant means of access to content. The electronic environment, as manifested by the World Wide Web, provides an opportunity to improve the measurement of the use of these resources. In the electronic arena, we can more accurately determine which information is being accessed and used. Without violating any issues of privacy or confidentiality, we can dramatically enhance our understanding of information use.[4]

The full document depicts these necessary guidelines and should undoubtedly be referenced.

Further developing and enhancing electronic collections may not only involve aggregated databases and the Web, but also e-journals, e-books, the integration of OPACs, and more. Again, quality and appropriateness are the keys in this development. As independent resources, these materials are valuable but, when working together in a seamless search environment, they become indispensable. Once the proper materials are in place, it is this idea of a "one-stop" reference system that promotes efficiency and effectiveness in research. However, complications and limitations may arise when a variety of resources and formats share a common search mechanism. Harnessing the power of engines designed to search specific data-types bypasses this predicament.

As professionals (e.g., doctors, lawyers, teachers, librarians) specialize in their work, so, too, must information providers. This specialization is essential in ensuring quality. An emerging example of this is e-books. Leading providers of these electronic books, such as netLibrary™, have developed not only vast collections of available books, but also powerful mechanisms for searching this material. The same can be said for e-journals. Does it make more sense to recreate a method for searching these individual collections or to seamlessly tap into the existing search devices? One system designed to *initiate* searches across many different search engines and databases while compiling a single result list optimizes efficiency while maintaining quality.

This type of integrated searching capability is slowly making its mark. Periodicals are often the primary reference resource used in academic and other library types. Many aggregated databases not only include periodical content, but also encyclopedias, dictionaries, almanacs, newswires, biographies, primary source documents, and more. Because these databases may be the center of the academic reference resources, these same tools may also be considered the "hub" and catalyst in the development of an integrated information search environment. Some vendors are now developing these

databases such that further integration of other electronic information is a turnkey operation.

The ability to search simultaneously several databases that are offered by the same vendor has been available for quite some time. Links from results retrieved in citation-only databases (e.g., *Sociological Abstracts*) to corresponding full text in other databases are now available as well. However, furthering the concept of integration beyond those databases available from a single vendor's platform is when a true "one-stop" research environment is achieved. Linking to OPAC records is essential in the process of integrating resources. It is a critical element in researchers gaining an understanding of a library's collection. It is also redundant and time-consuming for library administrators to "load local collections" into each separate reference tool that might be used in the library. Instead, users link directly to the OPAC, gain access to the information by using the system's own functionality, and quickly link back to the search starting point or result list. It is possible to launch a search and have active links to appropriate results in an aggregated database or databases, e-journals, e-books, the Web, and more. Not only is this searching possible, but it is efficient, effective, and increasingly necessary.

As the process of information integration becomes more and more refined, additional electronic resources will inevitably be made available as components in this important chain. The idea makes perfect sense; individual components working together seamlessly can create a more complete reference solution than any might provide on its own.

Notes and References

1. James H. Sweetland, "Reviewing the World Wide Web—Theory versus Reality," *Library Trends* 48 (4) (Spring 2000): 748.
2. Janice M. Jaguszewski & Laura K. Probst, "The Impact of Electronic Resources on Serial Cancellations and Remote Storage Decisions in Academic Research Libraries," *Library Trends* 48 (4) (Spring 2000): 799.
3. International Coalition of Library Consortia (ICOLC), "Guidelines for Statistical Measures of Usage of Web-Based Indexed, Abstracted and Full-Text Resources" (November 1998). [Online]. Available: http://www.library.yale.edu/consortia/webstats.html. (accessed January 13, 2001).
4. Ibid.