ARTICLES

Issues in Electronic Resource Services in K-12 School Library Settings

By Lesley S. J. Farmer

Dept. of EdPAC, California State University Long Beach, CA

Abstract

School libraries constitute a unique niche in librarianship relative to electronic resource collection development for several reasons:

- *loco parentis* status
- need for free access and services
- adherence to institutional demands and priorities
- educational mission.

This article focuses on the unique factors that online electronic resources pose in school library settings relative to professional issues of planning and administration, selection and acquisition, organization, instruction, and appropriate use. Underlying considerations in addressing these factors and examples of best practices are offered to help librarians provide effective service using these materials.

Introduction

A few years ago, a California high school librarian had his budget slashed. He could barely buy any paper backs, let alone reference. But he was clever, and realized that the telephone bill was *not* part of his budget Neither were computers. So he networked the computers and used a free university account to enable students to log onto the Internet. Using *Lynx*, his students could find documents for their research projects. Access was slow, and the text was not glamorous, but useful information was available. At the time, his practices were considered controversial, not only because he seemed to be putting the library's permanent collection in jeopardy but also because he was perhaps practicing less that truly fair financial habits.

As of fall 2000, 98 percent of U. S. public schools (Cattagni) and over 80 percent of high school libraries (Miller) provided access to multimedia electronic resources through the Internet. The issue is not so much, can it be done, but do all students have equitable access to these important sources? For students can find images, sound and videos clips as well as text. The Web's GUI interface enables students to explore hyperlinks in accordance to their own interests and needs; they control the learning environment more than ever before in ways that reflect their individual learning styles. Web-based resources particularly address the needs of English learners. They can take advantage of visual clues to help them comprehend the text, access documents in world languages, and use translation programs such as Altavista's *Babelfish* to change English into their primary language.

The benefits seem obvious. Even more obvious is the interest that many students display relative to electronic resources. The author has observed high schoolers standing in a line twenty minutes to use an electronic encyclopedia rather than consult a current print encyclopedia right behind the computer station. At the same time, some students may be lulled into a false sense of competency as they happily locate a thousand "hits" on the Internet, only to find that none has exactly the desired information.

No, the actual picture of electronic resources is not as simple as plugging in a computer and clicking on Internet connection. Many costs are associated with this service, and intellectual and even psychological considerations make these resources a complex set of issues. Indeed, school libraries constitute a unique niche in librarianship relative to electronic resources for several reasons:

- *loco parentis* status, which impacts access to inappropriate sites and staff supervision issues
- need for free access and services
- adherence to institutional demands and priorities
- educational mission

While other types of libraries share some of these features, school librarians must deal with their combination.This article focuses on the unique factors that electronic resources pose in school library settings. Underlying considerations in addressing these factors and examples of best practices are offered for librarians providing service using these materials.

Appropriateness

The very first question that needs to be posed is: are online electronic resources appropriate for all schools? Within this population, the librarian needs to consider both students and staff. Some educators, such as Jane Healy (Minkel) do not think that primary students should use Web-based resources at school. They contend that youngsters need to touch actual books and work with materials first hand (i.e., crayons, clay, plants). They point to the difficulties that small hands have with adult keyboards (although child-size keyboards are obtained easily these days) and typing techniques. They assert that the Internet does not have a sufficient number of good sites that are educational sound and developmentally appropriate for young minds. They note the preponderance of text-based materials that are difficult to read, and suggest that youngsters do not have sufficient experience or analytical skills to ferret out untruths or biased information.

Furthermore, the issue of protecting youth from pornographic or otherwise inappropriate material can discourage the school librarian who either tries to locate an effective filtering program or has to figure out the technical means to limit access to inquisitive minds.The majority of educators favor Internet access for children (Leu; *Children's Partnership*) asserting that the resulting access to worldwide resources broadens and enrichs the child's world. With the increasing number of sites that incorporate visuals and sound, children can enjoy and understand more concepts than previously possible. Particularly with the baby boomlet, educational and commercial producers see the increased interest in child-oriented Web sites.

Mass media routinely support Web links to complement their principle products: *discoveryschool*, *pbs*, *scholastic*, and *timeforkids* are just a few of the thousands of child-sensitive resources. Youth organizations and professional groups also use the Internet to offer materials for children. From these and many other supplies, school librarians and their classroom teacher peers can select age-appropriate Web site that support the curriculum. Additionally, librarians and other entities have organized these links.

The American Library Association, for example, maintains a list of more than 700 URLs for children and families. Librarians at the University of California, Berkeley, have developed a well-indexed directory of children's sites:*KidsClick*, which even assigns Dewey Decimal Classification numbers to the links. Commercial enterprises such as AOL and Britannica also index child-centered Web sites. To combat fears of unbridled access, school librarians in elementary settings often create secure Web portals that list selected resources. The school and district may also reinforce security by installing proxy servers that limit Internet access. On a more constructive note, school librarians teach the entire school community – students, staff and parents – how to evaluate electronic resources. They show exemplary sites, and point out the critical features that the user should consider. Thus, the uneven quality of Internet documents is turned into a learning opportunity.

In the final analysis, the decision to provide Web-based electronic resources remains an educational decision. In the broad scheme, the main academic issues become:

- content
- incorporation into the curriculum
- access.

Naturally, these decisions also have to be predicated on the availability of fiscal and facility resources as well as staff training and support.

Strategic Planning

School libraries exist within the construct of the school itself and the legal entity of the school district. As such, the library's program must align and support the school's mission. Electronic resources, unlike print materials, rely on the school's and district's technological infrastructure. Administration and school boards typically select the Internet service provider (ISP) and also determine the kind of access both within the school site as well as remote access for families. While school libraries constitute a logical facility for Internet access, since they act as information centers, school librarians cannot assume that such will be the case, so they need to participate in strategic planning meetings. Just in terms of equipment and lines, several decisions need to be made that have impact on the school library:

- *How will Internet-ready equipment be distributed: in computer labs, single systems in classrooms, "pods" of thin-client systems throughout the school? Will the library contain a computer lab or be situated alongside a lab?* If Internet access is limited to the library, then scheduling issues will arise (*Who has priority? How often can a class use the library's systems?*). In this scenario, the librarian will probably have the responsibility of teaching students and faculty how to use the Internet effectively. On the other hand, if Internet access is ubiquitous, then teachers may bypass the library, assuming that their students can "get everything they need" off the 'Net. Teachers will likely have to teach navigation skills, and some do not have the expertise or see the need for such instruction (*"Aren't today's kids born computer-ready?"*)

- *How will the Internet access be distributed: from an instructional server in a separate room, through the library server, or confined to one room or portion of the school?* This issue points out the need for network management, and the possible demands put upon the librarian to maintain the system. In other cases, when the library node must go through the site server to access the router and outside services, some resources may be blocked – and if the main system crashes, the library too suffers.

- *Will the school maintain a Web server? Will it allow remote access to electronic resources?* A corollary of the prior issue, the answer impacts student use of electronic resources from home. If remote access is possible, then the school library Web page should take advantage of family participation to extend information literacy learning.

Internet access also involves control issues:

- *Will stations be configured to allow, or forbid, telecommunications (i.e., email and chats)?* The school librarian can encourage students to send downloaded files or original documents to their email accounts if email is possible, and students can contact experts in the field if telecommunications is available. However, such access is a two-edged sword: anonymous email preference makes it difficult for students to get responses, and adult chat rooms can weary the supervising school librarian.

- *Can hard drives be accessed for installation, troubleshooting, and storing documents?* For security reasons, systems may need to be locked down. If school librarians can access the systems, then they can make changes independently – if they know how. Yet if those systems are closed to librarians, then they have to rely on others to do that work whenever it fits into their workload.

- *What security exists: firewalls, passwords, acceptable use policies (AUP)? Who is responsible for handling passwords and AUP?* In some cases, a technician handles these processes; in other cases, the librarian must assume that task.

- *Who has Internet access for Web page development and maintenance?* In some districts or schools, one person is authorized to make changes. While this approach limits possible mishaps, it can stifle timely changes for library Web pages, particularly as Web links come and go. Alternatively, it may be the librarian who gets that "honor" to maintain the Web, which can take away valuable time from other professional duties.

Administrative Issues

While not a central aspect of collection development, library catalogs interface with school administrative programs, such as SASI, becomes an integral part of library service since maintaining accurate records of student materials also includes accounting for overdue and lost materials. Additionally, the library's Web portal usually links with the school's Web page. As librarians (and schools) permit remote access to electronic

resources, then technical protocols about passwords and dynamic IP addresses need to be determined.

Site licensing agreements need to address these issues, particularly if the agreement is based on the number of users. Without robust measures to limit access to the intended school community, the library's resources may be accessed worldwide with thousands of users on the other end of the line overwhelming local access lines.

Selection and Acquisition

Because the school library needs to support the school's mission, curricular needs constitute the core selection criterion. When locating useful reference sources that are available for free on the Internet, then the same selection criteria can be used as apply to print resources, taking into account technological features such as navigation ease and compatibility with existing hardware and operating systems.

School librarians also consider the reading ability of their clientele/ thus, multimedia sites are attractive because students can access the information using visual and sound cues alongside text. Particularly since schools need to serve *all* their students, language and learning style differences must be considered in selecting these resources.

The real challenge occurs when selecting those resources that may cost thousands of dollars. Particularly since school library budgets tend to be limited – and online databases can be costly – only the most accessible and high-use resources are likely to be selected. Particularly since all resources need to be accessed *gratis* by the school community, funding must come from the school and its supporters. Thus, school librarians look for products that span subject areas and formats, such as e-Library and the *NICI Virtual Library* (rather like a "mutual funds" of resources). As with other libraries, electronic collection selection includes basic reference materials such as encyclopedias, serials and databases, and citation tools. In each case, the issue of format must be addressed. CD-ROMs are appealing because they are permanent, and work even when the Internet crashes. However, they require additional work installing and maintaining them (both in terms of updates as well as keeping them secure).

Additionally, questions of networking technicalities and legalities may seem daunting to many school librarians. The Internet, on the other hand, provides easy access and immediate timeliness. For the remainder of this article, emphasis will be placed on online resources.
Librarians also have to weigh full text databases against citation databases; usually school librarians opt for full text because the two-step process of finding the citation and then locating the periodical can frustrate students.

Also, space constraints also makes online periodical databases an attractive solution; many school libraries subscribe to few print magazines except for general news titles (i.e., *Time*) and high-interest browsing titles (i.e., *Sports Illustrated, Seventeen, etc.*) Of course, such a decision may backfire when funding is scarce and online subscriptions have to be curtailed; the library is left with a dearth of access to periodicals. Particularly since librarians usually cannot download databases permanently, they have nothing to show for their years of access fees.

Since the selection process should be done collaboratively with the rest of the school community, school librarians need to seek input from faculty, in particular. This task, however, is two-edged, since most classroom teachers do not have a broad knowledge of electronic resources. In some cases, faculty may remember university collections and suggest databases such as *Psych Abstracts*, which are generally too advanced for high school students (as well as too expensive).

Furthermore, if school faculty are unaware of high-quality online databases that *are* appropriate to K-12 settings, such as *SIRS*, then they will need to be trained in their use – and usefulness – by the librarian in order to optimize that expenditure. Fortunately, many suppliers allow librarians to preview their products for 30 days by using a time-sensitive guest password or demo disk; school librarians can then publicize the potential electronic resource and have the school community assess its value.

Not only does the school site community get involved in selection, but in some cases, school districts, regions and even states enter into the equation. The Los Angeles Unified School District (the nation's second largest district) leveraged its student population and financial coffers to entice database producers to provide access to their products for a semester to test their usage. Then the most highly used products would be chosen as part of a district-wide resource "package." This practice, now considered commonplace in higher education, is increasingly done in K-12 settings. The California State Department of Education now has agreements with major electronic resource providers so schools can get deep discount subscriptions. In fact, libraries of different types have been forming consortiums for years. One of the most recent efforts was a statewide set of electronic databases for all libraries in Nevada. By pooling funds, libraries have gained power in numbers. The price they pay is less control in the selection process.

As with other libraries, another major factor in selection and acquisition is the equipment to access these materials. Schools sometimes must settle for older hardware and slower Internet connections. They might not have ongoing technical help, particularly in terms of networking oversight, so products need to be easy to access or install. Fortunately, e-rate provisions facilitate Internet connectivity, especially in impoverished school district. However, long-term governmental support still cannot be guaranteed, so school librarians need to keep lobbying for reasonable access costs.

Organization

On one level, organization of electronic resources is easy if the school library has few titles. Typically, a basic school library would have an online library catalog, subscribe to an online magazine index service such as ProQuest, own a CD-ROM networked or subscribe to an online encyclopedia, link to a local or regional library system, and have access to the Internet through a commercial or educational service provider. Thus, a simple library Web page could handle these links.However, if the school librarian wishes to organize aspects of the Internet itself; that is, choose appropriate URLs and organize them for easy access, the task can become much more complex. The following reflect the most common solutions:

- Provide a megasite or a screenful of "rich" links to other libraries with strong indexes pages, such as the University of Michigan or the University of California Riverside (which actually catalogs and indexes educational Web sites).

- Use the Dewey Decimal Classification system to offer a digital collection of URLs. This approach reinforces the rest of the library's organizational system, but if those sites are not fully catalogued or given metatags, then some students may find the arrangement artificial and abstract.

- Index selected URLs by curriculum area, often one linked "page" per topic. Teachers tend to prefer this approach. However, one Web site may be appropriate for several academic areas, so duplication may increase. Some librarians balance this approach by providing a list of general sites, such as the American Library Association's list, the equivalent of general reference sources such as a dictionary, a short list of major search engines and directories,and subject-specific sites.

Increasingly, school librarians develop library Web portals that include the following elements:

- general library information (hours, services, staff, facilities)
- current library news (recent acquisitions, programs, events)
- interactive service (homework help, online book club, reserves, scheduling)
- links to other aspects of the school and district
- community outreach (with parents, local libraries, government agencies)
- *as well as* electronic resources (catalog, magazines, curricular and personal interest Web sites).

As with traditional resources, organization of electronic resources must be maintained. Particularly since URLs change frequently, providing a lengthy list of specialized Web sites in a timely fashion can absorb an amazing amount of time unless that task can be delegated to trained volunteers. Therefore, school librarians need to think carefully before making that decision and ascertain the amount of support the school is willing to allocate to this function. A safe approach is to develop a highly focused, highly selective set of stable resources on a clean page using simple Web scripting.

Intellectual Access: Instruction

Physical access to electronic reference tools does not guarantee their use. Therefore, instruction in the use of electronic reference resources is a key function of school librarians. They are, after all, teachers. Both students and staff need this training because these electronic tools were not part of the educational preparation of some veteran teachers.

In an era where school instruction is largely driven by standards, it should come as no surprise that information literacy and technology literacy standards exist for K-12 students. The American Association of School Librarians (AASL) and the Association for Educational Communications and Technology (AECT) developed information literacy standards (*Information Power*, 1998) that focus on the effective and efficient access, evaluation and use of information in socially responsible ways. The International Society of Technology in Education (ISTE) developed national technology standards (2000) for students so they can use technology effectively in research, problem-solving, production and communication.

Just as a print reference section represents just one part of the library's total collection, so too does the electronic resource "section" potentially constitute just one part of a library's Web presence.

Thus, standards-based instruction that partners school librarians and classroom teachers helps students intellectually access these electronic references.

Two major factors differentiate traditional library skills training and work in the electronic realm: **evaluation** and **navigation**. The Internet, examined in its entirety, does not have the some quality controls as print-based publishing. Thus, the school community has to learn how to critically evaluate online information; no longer does the school librarian have exhaustive selection control. However, those electronic reference resources purposefully chosen by the school librarian *continue* the concept of high-quality collection development, and, as such, should be publicized. Parents, in particular, can rest at ease knowing that a professional has located appropriate materials for their children. For that reason, school librarians should provide links to these sources on the opening screen of library Web portals.

If that issue is resolved, the issue of navigation becomes paramount. Some students still struggle with the concept of an index volume to an encyclopedia. Now they have to understand and use a variety of electronic search strategies.

"Which box do I type in?"

"What's the difference between a browser and a search engine or a directory?"

"Can't I just type in a question and have the computer find it?"

*"**Boolean** ???"*

Powerful search engines and algorithms facilitate quick access to the specific information desired, but they also require careful attention to key terms, alone and in combination. Interestingly, early technology nay-sayers thought that children would not need to spell or read well with the advent of the Internet; if anything, students have to be even more accurate in their spelling and reading habits these days. Indeed, the entire research process becomes a more conscious, deliberate act in the electronic age. School librarians can use technology as a motivator to engage students in thorough and thoughtful practice throughout the process:

1. *What is the task or assignment? What information do you need – in what format and to what extent?* Librarians need to teach the concept of key words and controlled vocabulary. They also need to emphasize that different resources use different terminology.

2. *Where will the information be found? What kind of electronic resource will be the most fruitful?* Librarians need to point out the key features of different kinds of resources, just as they would in the print world.

3. *How credible is the information? Does it pertain to the assignment? Is it appropriate in depth and readability?* Even within authoritative databases, perspectives differ across sources.

4. *What is the meaning of the information? What conclusions may be drawn?* Librarians can show students how to take reflective notes using the computer, moving effectively between software applications. Some online encyclopedias such as *Encarta* incorporate note-taking features into the product.

5. *How should the findings be organized and synthesized? In what format should the findings be presented?* Electronic resources may include tables and charts that show students how to present information in an organized way. Students can also export reference elements (i.e., diagrams, video clips) into original multimedia presentations.

6. *How will the process and product be evaluated?* Librarians and teachers need to use rubrics, or other assessment tools, that focus on content as well as on technology – as well as process of both researching and presenting.

School librarians have to decide whether to develop these aids themselves or locate existing high-quality products. Teaching aids might be produced commercially, developed by educator or library professionals, or created by students. As with other selection processes, choosing a product depends on objective, quality and budget. *Will a generic tutorial work, or does it need to be customized for the specific library? What time and human resources are available to create an original instructional aid?* The more that school librarians can collaborate with others in this endeavor, the more the results will be cost-effective and time-efficient .

The advent of electronic reference sources opens new possibilities – and issues – for school librarians. This article does not detail the comparative issues of electronic resources in different formats, i.e., CD-ROM,

DVD or digital video. It does not explore the issue of in-house produced electronic reference information or 24/7 online reference help.

Nor does it delve into all the ramifications of the digital divide. Electronic reference collection development and its associated services is an ever-widening, open-ended field. Certainly, today's professionals need to keep current about technology trends and practices. Particularly as the student population in the United States also becomes more diverse, school librarians need additional support to insure that *all* students have the physical and intellectual access to high-quality, relevant electronic resources that a global society can provide. Anything less constitutes a failure to educate the future.

References

American Association of School Librarians and the Association of Educational Communications and Technology. (1998). *Information power: Building partnerships for learning.* Chicago: American Library Association.

Cattagni, A. & Farris, E. (May, 2001). Internet access in U. S. public schools and classrooms: 1994- 2000. *Statistics in Brief.* Washington, DC: GPO.

Eisenberg, M. & Johnson, D. (1996). *Computer skills for information problem-solving: Learning and teaching technology in context.* Syracuse, NY: ERIC Clearinghouse on Information andTechnology.

Farmer, L. & Fowler, W. (1999). *More than information:The role of the library media center in the multimedia classroom.* Worthington, OH:Linworth.

International Society for Technology in Education.(2000). *National educational technology standards for teachers.* Eugene, OR: ISTE.

Lathrop, A. & Foss, K. (2000). *Student cheating and plagiarism in the Internet era: A wake-up call.*Englewood, CO: Libraries Unlimited.

Leu, Jr., D. (2001) Internet Project: Preparingstudents for new literacies in a global village. *Reading Teacher, 54*, 6, 568-573.

Miller, M. & Shontz, M. 2000). Location is everything. *School Library Journal, 46:*11, 50-61.

Minkel, W. (2000). Tech comes later. *School Library Journal, 47,* 5, 39.

Nolan, C. (1999). *Managing the reference collection.*Chicago: American Library Association.

Online content for low-income and underserved Americans: The digital divide's new frontier (2000). Santa Monica, CA: The Children's Partnership.

Dr. Lesley S. J. Farmer is Associate Professor, Dept. of EdPAC,California State University, Long Beach, CA.
E-mail:lfarmer@csulb.edu / 562.985.4509