



TECH NOTES

Carrie Gardner, Column Editor

School library media specialists with Internet access are now asking what resources they can use to enhance the services offered. Randall M. MacDonald provides us with a brief history of the Internet, explanations of the services available and valuable addresses for resources of interest to school library media specialists. MacDonald is a Reference Librarian at Florida Southern College.

USING INTERNET RESOURCES TO ENHANCE SCHOOL MEDIA CENTER SERVICES

Randall M. MacDonald

The Internet contains a wealth of information that has special relevance for educators. Students and teachers must develop familiarity with the Internet and other emerging technologies if they are to contribute to our changing world. Media specialists can provide leadership in the incorporation of the Internet into the life of a school. Learning how to navigate the Internet and locating resources that provide curricular support for your school will expand the services of your media program. Specific goals for instruction in use of the Internet will allow you to make effective use of online time and teach skills that are beneficial to beginning users.

The changes brought about by emerging instructional technologies have dramatically altered the way media specialists provide services to students and teachers. Media specialists are counted on to provide "expert" interpretation of technological services, from instructional television to multimedia products, to the expanding frontier of the Internet.

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Effective utilization of the Internet requires a knowledge of its terminology, tools, and resources. Providing instruction in the use of Internet resources requires a great deal of practice and the opportunity to spend many online hours exploring. How may you make the most of your online time? Which resources will be beneficial to your students?

- What techniques can you use to enhance the services and image of the school media center?
- What is the Internet?

Simply defined, the Internet is a world-wide group of interconnected computer networks; a "network of networks." The origins of the Internet can be traced to a late-1960s United States Defense Department network called the ARPAnet (Advanced Research Projects Agency Network). The ARPAnet linked strategic defense locations and other networks, and was designed to survive nuclear attack. The technology which enabled disparate remote networks to operate with a seamless interface was eventually brought to other government agencies, government contractors, and major academic institutions. Development of a number of regional networks made Internet access more affordable for smaller academic institutions. As personal computers became increasingly commonplace, network software was adapted to make resources available for a variety of individual needs, and the rapid growth of the Internet began.¹

Access to the Internet varies depending on your location and availability of local computer resources. Many colleges and universities maintain Internet-connected networks, and an increasing number of state-wide education networks allow educators to "get connected." Commercial providers such as America Online, CompuServe, and Delphi make Internet-type services available for a monthly fee. Community-based "freenets" have been developed in many large cities, each with thousands of users. Estimates on the number of

Internet users range from ten million to twenty million.

THE INTERNET AND THE MEDIA SPECIALIST

A universal role of the school media specialist is to gather resources that directly benefit students and faculty, satisfying their curricular needs and generating an interest in lifelong learning. Instructional techniques combining print and electronic resources help prepare students for our dynamic world. Utilization of CD-ROM resources, computer-assisted instruction, hypermedia, instructional television, multimedia, and videodisc are essential components of this teaching/learning process.

The Internet provides almost limitless access to a wide range of educational resources and provides unprecedented opportunities for the exchange of ideas. Students with Internet access have the opportunity to develop computer and communication skills that their counterparts at other schools may not have—to experience the proverbial "media center without walls." Teachers with Internet access have new opportunities to communicate with colleagues worldwide, and to contribute to and benefit from newsgroups in many disciplines.

An important first step in your learning process is to read introductory articles about the Internet in professional journals. District- or school-level training sessions will teach you the basics of Internet navigation, a vital component in your continuing professional development. Identify colleagues with Internet experience and ask them for assistance in getting started. Most experienced users are quite willing to help "newbies" learn basic Internet survival techniques. Find another beginner and practice sending electronic mail to one another. Electronic mail correspondence across town or around the globe encourages free exchange of ideas with colleagues and is a helpful mechanism for developing comfort and competence with networking.

Media specialists are in a unique position, providing curricular assistance across grade levels and subject areas. With planning and an interest in exploration, your knowledge and use of Internet resources can make you indispensable to the faculty.

PLANNING

Essential to the success of any media center service is support from school administrators, teachers, and the media center committee. Work with these shareholders to develop specific goals for the use of technology, including the Internet, in the media center. Publicize these goals at faculty meetings and open-house events and seek input from other community members. Students can provide useful and timely feedback on the effectiveness of your instruction and should be consulted.

Goals for incorporation of the Internet into your media program will vary based on scheduling, grade level, and curricular concerns. As you develop goals, consider the following: What are your intended outcomes? Is your use of the Internet consistent with the mission of your school? How do your goals relate to the curriculum? Are your goals shared and supported by the teachers and administrators? How will you measure adequate progress towards meeting your goals?

The following are each attainable goals:

- providing instruction on electronic mail correspondence;
- locating electronic "keypals" with similar interests in other states or nations;
- providing instruction on using gophers, including search tools for identifying remote server files;
- identifying and using reference resources to supplement media center collections;
- assisting teachers identify professional listservs;
- inviting outside experts to demonstrate how the Internet may be used in various disciplines;
- identifying "fun" Internet resources.

Help students and teachers find materials related to a hobby or other leisure activity. When shown that the Internet has relevance to personal interests, their enthusiasm for learning the how's and why's of network navigation will increase.

Instruction will be most effective with small groups of eight to ten pupils. Hands-on learning and individual assistance in locating resources will further

cultivate a productive teacher-student relationship and will help students develop as independent learners.

Strategies for Developing Teacher Support

Perhaps most importantly, allow teachers to develop a self-defined comfort level with emerging technologies. Some will enthusiastically cruise the Internet, while others are reluctant to use computers for any instructional purpose. Do not condemn those that are recalcitrant, but gently work with them over a sustained period of time to assure them that you are working for the good of the students.

Your allies in promoting effective media instruction are those teachers who make frequent use of your program. Allow word-of-mouth advertising to draw teachers who underutilize your services into your circle of satisfied customers. Students recognize the value teachers place on media center services, and the enthusiasm you generate through sincere interest in the teachers' work will benefit the students.

Periodically review and internalize your school's mission. Look for ways the media center can contribute to the school's curricular programs and educational goals. Participate on planning committees. It demonstrates to colleagues your commitment to school programs, and keeps you current on curricular concerns.

Maintain lists of internet-accessible resources, including lesson plans and similar materials, and share this information with your fellow educators. A Rolodex makes a convenient paper database of beneficial sites and files. Ask teachers and administrators for a brief list of professional and personal interests. Establish a simple current awareness program, informing colleagues of Internet resources related to those interests. Informal discussions, inservice sessions, and media center newsletters are effective channels to disseminate helpful information and foster a productive relationship with classroom teachers and administrators.

Learn how to contribute your own plans and ideas to newsgroups or gopher sites, and assist teachers in contributing materials they have developed. If your Internet access allows, consider developing a World Wide Web home page for your school. There are few things more gratifying than seeing your name up in lights on the Internet. A sense of individual and school pride can motivate you and your fellow teachers to become active Internet contributors and helps build the databases of knowledge available to your peers.

Cosponsor a "Technology Night" in collaboration with your school's computer teachers. Invite parents to see firsthand what the Internet has to offer. Provide specific examples of its utility: weather reports, e-mail exchanges with penpals, collections of historical documents, and other resources that may be consulted quickly for demonstration purposes. At the high school level, demonstrate the manner in which colleges and universities make institutional information available through gophers and the World Wide Web.

LOCATING INTERNET RESOURCES

One of the challenges the Internet brings to school media specialists is the need to assimilate a number of dissimilar programs used to gather information from remote locations. As proactive information professionals, media specialists are among the first exposed to the tools of the Internet. Use the knowledge gained from this exposure to assist teachers as they incorporate the Internet into the classroom.

Gopher

Gopher servers are menu-driven programs which offer access to various Internet-connected computers and to files or services on those machines. Gopher servers provide direct connections to library catalogs, news and education resources, presidential speeches, electronic journals and newsletters; some of the most valuable information to be mined from the 'net (see table 1).

Jughead and Veronica are gopher search tools that facilitate keyword-in-title searching of gopher servers. Jughead searches host gopher menus, and Veronica searches most of the world's gopher servers—over 5,050—and nearly 5,000 other information servers, for title and directory names. Approximately fifteen million information resources are indexed.

To make often-used sites easily accessible, set "bookmarks" of favorite gopher menu items. To establish a bookmark from the gopher server on your host system, locate the menu selection you wish to add and use your arrow keys to point to the item. Press "a" then press <RETURN> after selecting a name for the bookmark. From that point, you may view your bookmarks by pressing "v" from any gopher menu. To delete a bookmark, point to the item and press "d." When you locate items on other gopher servers, add them as bookmarks in the same manner.

Early in your Internet travels, consider completing an online training workshop such as Patrick Crispen's Internet Roadmap. Crispen, an undergraduate student at the University of Alabama, developed a six-week listserv-distributed course covering basic resources and techniques of Internet navigation. By fall 1994, over 62,000 people from seventy-seven countries had received the Roadmap lessons, which are now accessible for self-paced instruction from the University's main gopher: ualvm.ua.edu at the path: /Local UAIVM Listserv Archives/Roadmap Workshop Lessons.

Want to locate lesson plans? Gopher servers provide access to collections of lesson plans for classroom teachers and

media specialists. Connect to the Educational Resources Information Center (ERIC) gopher: ericir.syr.edu at the path: /Lesson Plans. Lesson plans are arranged by general subject and may be searched by keyword. Media center plans are reprinted from School Library Media Activities Monthly and provide suggestions for coordinating library skills instruction with classroom subject instruction.

A number of projects have been initiated to make document texts available via the Internet. Alex, a catalog of electronic texts on the Internet, provides connections to hundreds of full-text documents on the Internet. Alex is accessible at the gopher site: rsl.ox.ac.uk at the path: /Librarians Corner/Alex. Texts

may be located by author, date, host, language, subject, title, or keyword. Your media center may not have a copy of Boccaccio Giovanni's *The Decameron* (1350), but it is available via Alex.

An increasing number of electronic journals and newsletters are available over the Internet, many through gopher servers. Journals available both in print and electronic forms are often available sooner via the Internet. The CICNet E-Serials Archive project was initiated in early 1992, and includes links to other journal collections. Access to nearly nine hundred electronic serials is available through gopher: gopher.cic.net at the path: /Electronic Serials.

Hundreds of library catalogs are Internet-accessible. Catalogs may be consulted to verify citations, identify authors' works, and for various other purposes. You may have occasion to consult catalogs to determine how books have been cataloged, saving valuable time in the processing of new materials. The Library of Congress online systems are accessible through gopher server: marvel.loc.gov. In addition to the online catalog, this site provides information on copyright, the United States Congressional gophers, and current legislative documentation.

The University of California, Irvine, Virtual Reference Desk provides connections with files and systems of all types. Gopher to: peg.cwis.uci.edu and follow the path /Library/Virtual Reference Desk. Your home gopher server may provide a connection to this most useful service. Need to know the present time in Tokyo? The latest news headlines? Locate the periodic table of the elements? Travel advisories for foreign countries? Gopher it!

Table 1

Gophers with Educational Resources

Gopher	Host Name and Location
ericir.syr.edu	ERIC, Syracuse University, New York
gopher.ed.gov	United States Department of Education
gopher.micro.umn.edu	University of Minnesota
gopher.stolaf.edu	St. Olaf College, Minnesota
gopher.undp.org	United Nations
gopher.voa.gov	Voice of America and Worldnet TV
informs.k12.mn.us	Internet for Minnesota Schools
k12.ucs.umass.edu	University of Massachusetts
kids.ccit.duq.edu	Duquesne University, Pennsylvania
marvel.loc.gov	Library of Congress (LC MARVEL)
nic.merit.net	Merit Network Information Center, Michigan
nysernet.org	NYSERNet, New York State Educational Network
pps.pgh.pa.us	Common Knowledge: Pittsburgh
services.more.net	Missouri Education & Research Network
sjvum.stjohns.edu	St. John's University, New York
snoopy.tbclib.fl.us	Tampa Bay Library Consortium

Table 2

FTP Sites

Site Address	Resources
ftp.apple.com	The Apple Computer anonymous ftp site. Includes some Apple system software and other Macintosh-related files.
ftp.ij.ad.jp	Mirrors for the popular University of Michigan site, other systems.
ftp.msstate.edu	Mississippi State University archive site. Includes text of numerous historical documents, picture files, song lyrics.
nic.merit.edu	Merit Network Information Center Services ftp site. Includes a wealth of information about the Internet—statistics, acceptable use policies, newsletters, and other documents pertaining to NSFNET, the National Science Foundation Network.
photo1.si.edu	Smithsonian photo archive.

FTP

Another of the beneficial uses of the Internet lies in the wealth of information available through file transfer protocol (ftp). Anonymous ftp, the process used to connect to remote host machines and download files for use on your personal computer, is another of the services made available by many Internet service providers. Table 2 lists several anonymous ftp sites of interest to educators.

To make the most of ftp, it is necessary to know a machine address, and to have some idea that the files you want are available there. These addresses are often listed in journal articles about the Internet, and are available through "archie" searches. Archie servers help pinpoint file locations at anonymous ftp sites around the world, and straightforward ftp procedures copy these files to

Table 3**Useful USEET Groups**

Name	Topic
k12.chat.teacher	miscellaneous issues in education
k12.ed.comp.literacy	discussion on computer learning in education
k12.ed.life-skills	helping teachers and students develop life-skills
misc.education.multimedia	multimedia in education
misc.kids.computer	ideas for students learning new technologies
soc.penpals	forum for establishing global contacts

Table 4**Education listservs—A Small Sampling**

listserv	Address	Topic
ACSOFT-L	listserv@wuvmd.wustl.edu	academic software development
AEDNET	listproc@pulsar.acast.nova.edu	adult education
ALTLEARN	listserv@sjuvn.stjohns.edu	alternative learning methods
AMTEC	mailserv@camosun.bc.ca	media, technology
BGEDU-L	listserv@ukcc.uky.edu	quality of education issues
CHATBACK	listserv@sjuvn.stjohns.edu	special education
EDNET	listserv@lists.umass.edu	communication on the Internet
EDTECH	listserv@msu.edu	educational technology
ELED-L	listserv@ksuvm.bitnet	elementary education list
IECC	iecc-request@stolaf.edu	e-mail cultural exchange
KIDCAFE	listserv@vml.nodak.edu	student discussion forum
KIDZMAIL	listserv@asuvm.inre.asu.edu	students explore issues and interests
LM_NET	listserv@listserv.syr.edu	school media specialists
MULTI-L	listserv@barilvm.bitnet	multilingual education
SCHOOL-L	listserv@irlearn.ucd.ie	primary and secondary schools
TALKBALK	listserv@sjuvn.stjohns.edu	student news exchange

your home directory. From your home directory, files may be easily downloaded using your personal computer's communications software.

Additional software may be required to translate files into applications, and will vary depending on your machine type (Apple or IBM). Much of this software is available over the Internet as shareware and may be obtained from anonymous ftp sites.

USENET Newsgroups

Want to discuss the impact of technology on learning? Current events? Cultural issues? Find an electronic pen-pal? USENET newsgroups cover over 7,000 topics, some more unusual than others (see table 3). Your local system may offer a USENET news feed. If not, the Tallahassee, Youngstown, and Cleveland freenets are among those that do.

Frequently Asked Questions (FAQ) files have been developed for many newsgroups. They offer insight into group structure and purpose, are usually posted at least monthly in the newsgroup, and should be read prior to posting messages to the group. It is advisable to "lurk" for a week or two to observe the tenor of the discussions in a newsgroup, as each has characteristics and traditions make it unique.

Another important consideration must be observed prior to posting messages to newsgroups or other international forums. Netiquette—using courtesy and common sense in your electronic communications is taken seriously by most Internet users. Stop and think about what you are about to broadcast; once you have posted a message, it cannot be erased or retrieved from the thousands of interconnected machines around the globe. Use the same discretion in speaking via the Internet as you

would in speaking with someone face-to-face.

Listservs

Prefer to have your favorite USENET newsgroups come to you? There may be a corresponding listserv that will deliver articles directly to your e-mail box. Listservs are special-interest mailing lists, many of a professional nature. Listservs on education abound (see table 4). Some are notoriously active forums, and it is prudent to limit the number you receive. If you find that your online time is limited and that you cannot keep pace with the volume of the listserv, consider accessing the same discussions through a corresponding newsgroup or in digest form, if available.

A popular use of the Internet is to locate electronic penpals, or "keypals," for student correspondence. What better way to promote a sense of global awareness than for students to meet and greet their peers from around the world? The listserv IECC is a marvelous starting point for establishing international classroom e-mail partnerships for cooperative ventures such as this. The listserv address is included in table 4.

One of the most widely read listservs among media specialists is LM_NET, operated by Mike Eisenberg of Syracuse University and media specialist Peter Milbury, Chico, California. LM_NET topics are related to the school media center field. It is quite instructional to learn how others deal with media center issues, and you may find yourself contributing to those discussions before long.²

To subscribe to LM_NET, send an e-mail message to listserv@listserv.syr.edu with the message SUBSCRIBE LM_NET "your name," replacing "your name" with your first and last names, without quotes. A response to your request will be generated. This response will include information about activating your listserv subscription and will list commands including instructions for suspending, resuming, and unsubscribing to the list. Other listservs are subscribed to in the same manner.

World Wide Web (WWW)

The World Wide Web (WWW) offers links to virtually any file or network-accessible resource, regardless of type. Displays accessible through the Web vary depending on your connection to the Internet, but range from plain text to a full graphic user interface. Mosaic, developed by the National Center for Supercomputing Applications (NCSA), offers a graphic interface to the Internet.

Displays of text, graphics, movies, and sound are all supported by Mosaic.

The basic starting point in your Web travels is the home page—either a local system page or personally created home page. Home pages tell the world who you are and let you connect to favorite sites instantly.

A Universal Resource Locator (URL) is a specific protocol and address descriptor that your Web browser uses to connect to sites or files. Your browser will prompt you for a URL when connecting to a remote site.³ To display examples of outstanding school home pages, connect to: <http://mac94.ralphbunche.rbs.edu> (Ralph Bunche School, Harlem, New York), and <http://www.hipark.austin.isd.tenet.edu/home/main.html> (Highland Park Elementary School, Austin, Texas). A comprehensive list of more than 500 school home pages is maintained by Web66, sponsored by the University of Minnesota College of Education. Web66 also provides links to documentation for creating school home pages, and establishing mail and ftp servers: <http://web66.coled.umn.edu/schools.html>. For links to noteworthy pages and resources created by students across the Internet: <http://sln.fi.edu/tfi/hotlists/kids.html>.

EVALUATION

Evaluation of your media programs is as important as effective planning. Maintain records of what you have accomplished and use these indicators to gauge how completely your goals have been met. Share your successes with others and seek feedback on ways to improve your programs. Do not hesitate to modify your goals in response to patron needs and as your familiarity with the Internet increases. Use strategies that work, redesign programs that are ineffective.

CONCLUSION

Common misconceptions about technology are that it will make our lives infinitely more exciting, allow us to do everything more quickly and more cost-effectively, and that technology "makes everything better." The reality is that computer-based technologies such as the Internet are expensive to fund and require extensive training and hands-on practice.

The Internet contains a wealth of information generally not available at school media centers. Get out and explore! Learn the basic terminology and functions, subscribe to a listserv or two,

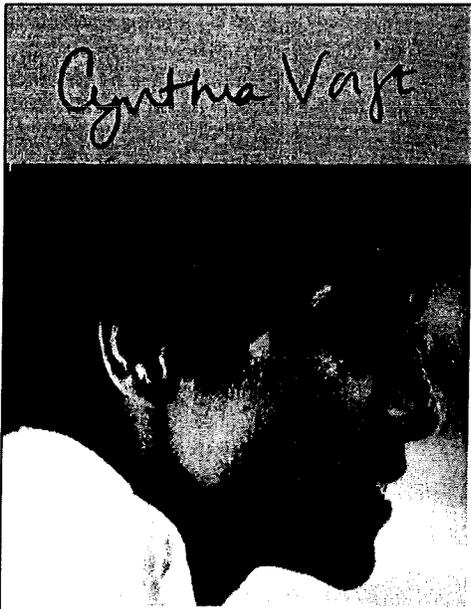
and determine how what you find will benefit your students. Initiate a strategy and routine to make effective use of your online time, generate ideas to incorporate this technology into your curriculum, and to use your developing expertise as a selling point for other media services. ▼

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Cynthia Voigt

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