HORACE

Information, Literacy, and The Essential School Library

Active learning requires students to ask the right questions—then to find, evaluate, and use information from a flood of newly accessible resources. Coaching in those skills lies at the heart of a thoughtful and rigorous curriculum, and gives the school library an important new role.

BY KATHLEEN CUSHMAN

THE MOMENT OF TRUTH for one New Hampshire student came with "moose hunting," when he tried using his school library's electronic resources to dig out material for a biology paper on symbiosis. His search strategy just hadn't been working, he told Souhegan High School's information specialist Kim Carter. He wasn't interested in articles about and for sports hunters, but using the key word "moose" triggered an onslaught of such pieces—and using "moose" combined with "symbiosis" got him exactly nowhere.

"But then he realized that he could instruct the computer to search 'moose *not* hunting' and a light went on in his head," Carter says. The logical methods of a Boolean search began to shape this student's inquiry process as he watched his once unmanageable list of sources reduced to a size he could deal with.

Like it or not, we are teaching and learning in the midst of a total information revolution, and no one feels it more keenly than the Essential school librarian. Where once Carter's student might have searched an encyclopedia, a textbook, and his library's backlog of science magazines, now every moose in the media universe, it seems, can show up on his reference list. In the inquiry-based curriculum that characterizes a good Essential school, this poses problems both practical and philosophical.
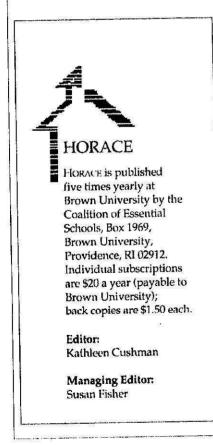
Not only do students and their teachers need steady coaching in how and where to grasp all this stuff, which is so often obscured by electronic codes. They also need, more than ever, the critical skills of sorting, evaluating, and using the unprecedented amount of information that confronts them.

Moreover, because schools are designed to conserve and pass on a culture rather than to break away from it, this transformation plunges many into a crisis of anxiety. It took centuries for reading and writing to displace the Homeric oral tradition in the earliest comparable shift, and for Gutenberg's invention of movable type to shift people's everyday patterns and habits of sharing information. In contrast, our lurch into the electronic millennium is happening so fast that we have barely time to reflect on its implications, much less to adjust how we school our children accordingly.

Today as the old print culture inescapably erodes, how can schools keep students reading, writing, and listening well? Can we use information-age technology as a powerful tool in the development of thoughtfulness and reflection, or must these qualities, once nurtured by the slow, linear accretions of the printed page, vanish into the instantaneous present of electronic networking circuitry?

Such questions arrive, ironically, just at the point when Essential Schools are confronting the hard work of deepening, not broadening, the curriculum. "Less is more," as Ted Sizer asserts, but a fearsome avalanche of "more" is thundering toward schools that must distill it into a meaningful "less."

As teachers strive to make connections among the disciplines, to involve students more actively in their own learning, and to focus and frame the curriculum using "essential questions," library media specialists often find themselves with not only the new title of "information specialist" but also a new role and a new set of challenges.

At worst, they are marginalized and excluded, treated as expensive luxuries in a utilitarian climate with no time for the messy processes of thinking things through. At best, they become the true generalists at the heart of reform. They can continue to nurture and advocate the contemplative, private act of

reading literature, which is a crucial step in becoming a thoughtful adult. And they can coach both faculty and students in the new "information literacy," an inquiry process that combines old-fashioned rigor with the slickest resources ever.

Framing the Questions

The first and most important step to this ideal, information specialists in Essential schools agree, involves working with teachers as they plan the curriculum, and helping frame questions that lend themselves to meaningful inquiry.

"A member of our media staff attends every possible department, grade level, team, and faculty meeting," says Sarah Sanford, one of two media specialists for the 1,400 students at Salem High School in Conyers, Georgia. "We want to avoid the situation of a teacher coming in having already made the assignment, and finding out too late that the library's resources either don't support it well or could have shifted the task in a different direction."

Both from a practical standpoint and an intellectual one, a good assignment will generate enough avenues of inquiry that every student is not pursuing the same few sources on, say, the speeches of Andrew Jackson. "I had students looking up everything from fleas on dogs to microscopic organisms," says Kim Carter, praising the project on symbiosis.

And it will prompt students to browse through a variety of library materials along the way. "Lots of teachers ask students to write about their heroes," says Gail Ellsted, the librarian at Piner High School in Santa Rosa, California. "But many students haven't had enough experience even to know who their heroes might be, aside from sports or media stars." Before students get wrapped up in the project, Ellsted suggests, they should get to know key biographical reference sources that categorize and describe every-

one from artists to scientists by time period or area of endeavor.

What materials students will have access to is only part of the scenario, Sanford notes. "I talk with teachers about why they are doing the particular task, what they want kids to learn, what kind of background lessons students may need in order to do this investigation. We refine the question, exploring all the topics that might be touched on. And we think through where kids will look for the information, how they will record and evaluate what they find, and how to assess what they have done with it."

As they explore these questions, teachers and information specialists are laying a crucial foundation for deeper student learning, according to the research of Judy M. Pitts (see page 8). Thoughtful inquiry, she observed, depends on identifying what kids already think they know, then confronting and challenging that mental model by offering an overview of new perspectives and information.

The teacher-coach can then prompt students to think out loud about the knotty problems that emerge from the contrast between their previous ideas and the new ideas. These conversations will spark compelling research topics, not tiresome "reports" that merely reprocess old material.

Teachers and librarians can next coach students to frame a good question and identify the key words that would help locate information on a topic. They can answer students' questions not with answers but with other questions, prompting them to search for and discover the answers on their own. And they can model through brainstorming and discussion how a question undergoes revision as new information surfaces in the research process.

The Thoughtful Search

Finally, they can coach the student through the search process in both an evaluative and a technical way.

What sources—whether they be people, print, non-print media, directly observable phenomena, or electronic databases—might shed light on the question, and how might they be found? Which information technologies—CD-ROM, laser disks, online databases, online public access catalogs, satellite, telephone—will help supply useful information?

Once data is in hand, matters of judgment take center stage. Which sources are relevant to the inquiry, which reliable and credible? Does new information change the focus of the inquiry topic? Establishing checkpoints in the research process for students to reflect on their findings is a critical and often overlooked step, librarians observe.

Teachers can encourage this process by asking students to organize a "research log"—in which they not only record, paraphrase, and attribute what they come up with, but also make notes on how it connects with or challenges what they already know. Talking through their progress with peers or teachers at some midpoint also helps clarify their thinking. So does making a visual model (like a concept map, a web, or a timeline) of where the research is going, and what new questions or conclusions it suggests.

On a more technical level, students need coaching in the practices of ethical research methods. Which sources require permission to use, and who should be credited? Is it best to paraphrase a particular finding, or to quote it directly?

So important are all these skills, librarians assert, that they should be included among the assessed outcomes in which every student must demonstrate proficiency. Souhegan teacher Dan Bisaccio's symbiosis project, for example, called for a multimedia presentation that would give students practice in the skills needed for their upcoming graduation exhibition. Among the specific objectives of the task were not only to define and identify examples of symbiosis but to apply search

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What Students Should be Able to Do:
Seven Steps to Solving Information Problems

1. Define the need for information. What are you going to use the information for: work, play, or academics? Provide a frame of reference: whom do you need information about, what, when, where, how, why? What do you already know? Frame and focus your question.

2. Initiate the search strategy. Determine what information you will search for, often by dividing your question into a number of subquestions. Brainstorm ideas and organize them visually using lists, outlines, webs, or concept maps. List key words or concepts. Identify a number of potential sources and decide how to evaluate them.

3. Locate the resources. Using catalogs and other tools, search for print, audiovisual, and computerized resources in the school library. Using on-line databases, interlibrary loan, the phone, and the fax, look for information outside the school library, including through community resources, government offices, and people who know the subject. Using keywords, indexes, cross-references, and other search strategies, find specific information in the resources you have located.

4. Assess and comprehend the information. Skim and scan to identify relevant information. Differentiate between primary and secondary sources, identify what is fact and what opinion, and determine the point of view of each source and how current and authoritative it is. Recognize logical errors and omissions, as well as interrelated concepts, cause and effect, and points of agreement and disagreement. Classify, group, or label the information, and obtain it in the formats that best suit your learning style. Revise and redefine your information problem if necessary.

5. Interpret the information. Summarize information in your own words, paraphrasing or quoting important facts and details. Synthesize new information with what you know already. Organize and analyze it in a new way. Does this information address your original problem? Get new information or adjust your search strategy if necessary. Then draw conclusions based on the information you located.

6. Communicate the information. What is your conclusion or the resolution to your problem? What audience are you trying to reach, and will your approach be informative, persuasive, or entertaining? What format (written, spoken, visual) will work best in presenting the information? Create your presentation, providing appropriate attribution and documentation of your sources.

7. Evaluate the product and process. How well did you do? What could you or should you have done differently? How can you do better in the future? Ask yourself and others—classmates, teachers, library staff, and parents—how well your final product resolved your information problem and if the steps you took to do so were appropriate and efficient.

Adapted from "Information Literacy: A Position Paper on Information Problem Solving," by the American Association of School Librarians, 50 East Huron Street, Chicago, IL 60611; telephone 800-545-2433.

strategies to locate information, to take and attribute notes in "point form," to use CD-ROM materials to track information down, and to communicate information using the most appropriate electronic means.

Scientific topics, Gail Ellsted observes, provide particularly good practice in generating key words and in analyzing the point of view and reliability of sources. "Health class is a great way to teach younger students research skills," she says. "In looking up something like 'chicken pox,' they will encounter a lot of very accessible tools and different ways to approach a topic."

On the most fundamental level, students also need practice in reading and interpreting bibliographic citations, taking notes from sources, and organizing and reflecting on their notes so that they lead to new conclusions.

The American Association of School Librarians (AASL), a branch of the American Library Association, considers such outcomes important enough that in 1989 they issued formal guidelines describing their standards. (See sidebar, page 3.) And one can hear echoes of them throughout the curriculum standards published in recent years by national groups in areas ranging from science and mathematics to social studies.

Pitfalls of Library Assignments

by George Merrill, Librarian, Montgomery High School, Santa Rosa, California

1. Teacher overemphasizes form, especially when making the assignment. Matters of length, number of sources, width of margins, or placement of footnotes take precedence over developing a thoughtful approach to meaningful research.

2. Evaluation is based solely on the final product rather than on the process, a demonstration of the skills and concepts of information literacy.

3. Students lack basic information-gathering and information-processing skills. Students who cannot use a catalog entry to locate a book or who cannot interpret a periodical citation, let alone understand concepts like key words, controlled vocabulary, and Boolean searching, cannot even make a start. A term paper assignment is not the time to cram in three or four years' worth of instruction and practice.

4. Students are not engaged by the subject matter of the assignment. A good research paper creates a question in the student's mind that he or she wants to answer. That is not an easy task, although a teacher can remind students of the assignment at the beginning of the course, encourage them to look for suitable areas of interest, and point out appropriate questions that arise during the course.

5. The assignment is seen as something peripheral to the central concerns of the course. Ideally a research project should be integral, one of the ways students explore the essential question(s) of the course.

6. A topic is so emotional that students begin not with investigation and reflection but with simplistic conclusions that they attempt to "prove," making no attempt to evaluate whatever they uncover.

7. Students lack the skills needed to manage a lengthy, complex assignment. They procrastinate, then slap together a mush of undigested material from a few obvious sources. A series of graded checkpoints in the research process can discourage this, but better is to provide frequent practice in the earlier grades while making students conscious of how they work and how to manage their time.

8. Without sufficient planning time, the teacher falls into the accustomed role of assigner and the librarian becomes the resource finder. Worse still, the assignment is made without consulting the librarian at all. Even if appropriate sources are available, students are unprepared to use them and must be led individually to what they require.

9. Students receive too little time and guidance. A class is brought to the library with minimal or no preparation, usually at the exploratory phase of the research process, and then left to its own devices. Students never discuss their findings with the teacher or the librarian, or the conversations are limited to "Why didn't you turn this in?" or "Where can I find something about . . . ?" Students need to be coached out of false starts and directed toward appropriate resources.

11. Students are instructed in "using the library" before beginning the research process. Extended lessons taught in a vacuum make little or no impression. "Mini-lessons" taught as the need arises are more effective.

12. Teacher and librarian never discuss the completed project to see how students fared and to identify areas where they need to take a different approach or give greater emphasis.

13. No audience beyond the teacher is created for the product. Students need feedback from peers, other faculty, community representatives, officials, and so forth who can evaluate it from a different perspective.

Some of these points are adapted, George Merrill notes, from Teaching the Library Research Process, *by Carol C. Kuhlthau (out of print).*

Access, Training, Attitude

Many teachers, however, neither understand the new information technologies nor have practice in using them. Though most schools these days have computer equipment, the field is changing so quickly that much of their hardware and wiring is obsolete and inadequate. Rare is the school where every classroom has an Internet connection, for example, or where every teacher is comfortable in CD-ROM search strategies. If we are to expect students to master the tools of the new era, supplying access and training for teachers must come first.

The cost of making schools data-friendly has prohibited many from embracing new technologies, but people's attitudes toward them pose at least as great a problem. The first decade of widespread data searching has been marked by daunting protocols of complex access codes, incompatible computer "platforms," and other technical difficulties that can make information transfer seem more trouble than it's worth.

Even school librarians themselves often resist moving from the comfortable traditions of the print era into the demanding new realities of the information age. Rather than trying to keep up with the field's lightning advances, they argue, schools should emphasize fundamental habits of mind like reading, writing, and textual analysis.

But the new skills do not elbow out the old, say librarians in the vanguard of the new era. "We must not let information displace wisdom," declares Mark Gordon, who heads the library at Oceana High School in Pacifica, California and whose 1993 monograph *The Essential Library* is available through the Coalition's publications office. "If you approach information without good habits of mind you only become its victim." To balk at a tool that has become the currency of our time is shortsighted, he contends.

"Thirty years ago, an educated person needed to become familiar

Weaving the Library Program into the Curriculum

The work of Barbara K. Stripling and the late Judy M. Pitts lends both theoretical and practical weight to library media specialists and teachers who regard thoughtful research skills as a crucial part of a curriculum. They urge schools to include librarians in school planning from top to bottom, as described in this chart reprinted with permission from their useful book, *Brainstorms and Blueprints: Teaching Library Research as a Thinking Process* (Colorado: Libraries Unlimited, 1988).

Person or Group	Activity
Laying the Foundation	
Library Media Specialist [LMS] with advisory committee	Develop preliminary ideas for philosophy and goals of research.
LMS with advisory committee	Prepare philosophy and research.
Achieving Support	
District curriculum committee and/or Building curriculum committee and/or Building faculty	Accept philosophy and goals of research.
LMS	Develops skills continuum based on research philosophy and goals.
LMS and department heads or faculty advisory committee	Make tentative assignment of skills to appropriate departments.
LMS	Presents simplified list or matrix of skills to faculty.
LMS	May present workshop about research to faculty.
LMS and faculty and/or departments	Finalize skills assignments.
Implementing the Program	
With departments LMS and departments	Insert skills into specific departments.
With individual teachers	Plan and schedule unit activities.
With administrators LMS	Communicates information about the research program.
Evaluating the Program	
LMS	Evaluates class performance, quantity and quality of research units.
LMS and teachers	Change research units to respond to evaluation results.

with the resources available at that time," he says. "Today's students need the power to negotiate the world in which *they* will live, to be comfortable making connections in ways that were unheard of then."

Information age technology is not just an adjunct to teaching, Gordon argues, but a powerful force that shapes everything we do. "We may rue it or hate it," he says, "but we still stick our bank cards into the automatic teller machine. If schools are in fundamental disharmony with the culture, we can expect kids to begin to ignore us, and to educate themselves in ways that do reflect the culture. This is a human dilemma in any transitional period."

A key role of the school library media specialist, Gordon and other Essential school leaders in the field say, is that of coach and consultant to both staff and students in the new technologies. Gordon himself teaches a "computer links" course in Internet research, in which Oceana student learn to search, retrieve, and evaluate information on a typical school research topic.

Pressed for money, some schools combine the positions of technology coordinator and librarian. Unless the technology coordinator has a solid grasp of the way students learn and of the habits of mind they need in order to make effective use of the information they retrieve, this choice may fail to help students and teachers achieve the fundamental goals of information literacy. Instead, schools might encourage librarians to upgrade their skills in the new technologies, or encourage master teachers to become librarians. When

Searching, Synthesizing, Analyzing in the 21st Century 'Stacks'
by Mark Gordon, Librarian, Oceana High School, Pacifica, California

For his Senior Exhibition, Oleg wanted to explore the ethical and practical issues surrounding the privacy issue on the Internet. He realized after a talk with me that this was a fast-breaking, currently evolving issue. It was likely that there would be few books on it, because of the typical long lag time from writing to publication involved in book publishing. Likewise for reference books.

He decided to check the periodicals indexes to try to find background information, and he found many references. He was able to use our back files of magazines, and also our online CD-ROM full-text magazine index. It seemed to him, though, that the best information on this topic might be located on the Internet itself. So he logged on to the World Wide Web. He did a search using a service called "Web Crawler." This "search engine" actually examines the text of all items stored on all computers currently connected to the World Wide Web and seeks matches to the words entered for searching. The term "privacy" yielded a vast list of items. From the list it was not immediately possible to evaluate the merits of each listing, but eventually Oleg found the Electronic Freedom Foundation (EFF) and the Electronic Privacy Information Center (EPIC). He also found government documents examining privacy versus legitimate investigative work in criminal cases.

Next, he found the address of a leading commentator in computer magazines on the issue of privacy. Oleg was able to arrange an interview with this person (who was based, luckily, in a large city near our school). The interview was thrilling for him. The writer was very opinionated and gave him a lens through which to look at the information he was finding on-line and in the periodicals.

The problem Oleg was facing as he developed his exhibition was the classic problem all scholars face. How could he tell the validity of the information he was encountering? Was it harebrained or reasonable? What was the point of view of the various authors? Did they have an axe to grind? How could he link the current controversy with similar issues in the past involving, for example, government eavesdropping? These concerns led Oleg deeper into his research.

The exhibition was a great success. In the end Oleg was able to come to his own conclusion: encryption to prevent access should be supported, even though the government would be somewhat hampered when investigating criminal activities. He defended his ideas based on real understanding of the issues. He was able to represent the contending positions and the tradeoffs implicit in the resolution of the controversy one way or the other.

Oleg's exhibition demonstrated some of the strengths of merging traditional with new library activities. The librarian's role was key from the beginning of the project. He or she is an information manager, selecting and organizing materials and providing access. He or she empowers students to design a strategy for locating information they need based on the type of query they have. The librarian and the teachers both assist in the development of habits of mind the student can use in determining the value of the information they uncover. Finally, the librarian supports the student's use of the Internet to locate people knowledgable about something of value to the student, and then allowing an exchange between the student and this individual. Powerful stuff!

Oleg left the process pleased with himself. He learned a tremendous amount about Constitutional protections and about the issues surrounding this particular controversy. He has confidence that he can tackle any query with the structure for inquiry he has developed. He is aware that he can begin to uncover the hidden "stuff" behind an idea, because he knows the questions he should be asking himself.

Without the librarian in the school serving as information manager and information mentor, could Oleg's triumph have occurred?

hiring for new positions, graduate library programs that emphasize information services or educational technology, such as that at New York's Syracuse University, are a good place to look.

A Rudder in the Deluge

Across the disciplines, then, library media specialists serve a critical support role in the Essential school. "I consider supporting faculty and students to be my most important task," says Sanford. But an even larger job is typically theirs alone: to keep up with the ever-increasing information resources available to schools, and to review and select from them based on a thorough understanding of the faculty's teaching needs.

This means navigating a complicated network of shared resources that may range from the Library of Congress to state and local government archives and state university collections. No-cost services such as the American Bar Association's Web site (offering a rich field of primary-source information on court decisions) can vastly improve on the typical school library's resources. Full-text versions of classic works in the public domain, from Chaucer to Shakespeare, can be had through the Gutenberg Project. The National Gallery in Washington lets students access images directly through the Internet. Swarthmore College's Geometry Forum allows kids to query some of the country's top mathematicians on problems and projects. Students can play a role in collecting data for scholarly projects studying everything from global warming to archaeology, or they can enter into e-mail correspondence with peers in other countries and languages.

At the same time, school information specialists must be familiar with copyright and "fair use" issues that confuse even experts in this emerging legal area. Can student multimedia projects be shared over the district's education channel, for

example, even though they contain copyrighted materials? (Yes, but only within the district and for school use, and only with student permission.) Do students need permission from copyright holders to compile a multimedia presentation? (They do; look for "stock" images in the public domain instead.)

And they must coach students to distinguish between academically useful sources and an endless array of chat groups, news groups, and list-serves that can flood students with overwhelming amounts of ill-founded or trivial information without a way to evaluate its validity.

Most teachers at reform-minded schools are far too overburdened to keep up with these demands, or to

evaluate the onslaught of "educational" offerings that besiege the lucrative school market. But forward-looking state and national associations of library media specialists have forged important links with each other so that guidance and consultation is readily available.

The American Association of School Librarians, for example, runs a technology initiative that provides training in Internet use to librarians and teachers. Beginning in 1996 it will also offer help to students via the Internet, in a question-and-answer service staffed by library media professional ready to coach them through the search process.

How to Conduct a Boolean Search

by Kim Carter, Librarian, Souhegan High School, Amherst, NH

Computers search information databases by looking for the exact string of characters entered by the user. In other words, if the user asks the computer to look for "coaching soccer," the computer scans for entries where those two words appear *exactly* as typed. Therefore, searching for "rainforest" would yield different results than searching for "rain forest." By using special words that serve as commands to the computer's search *program*, the user can narrow or broaden the range of information retrieved. This is referred to as a "Boolean search," after the 19th-century British logician George Boole.

The most common Boolean search operators are *and*, *or*, and *not*.

When *and* is used to connect two search words or phrases, the computer is instructed to find articles where both words or phrases are contained in the text. (Note: the words or phrases are not necessarily adjacent to each other. Example: "coaching and soccer" would retrieve more articles than "coaching soccer.")

The connector *or* asks that the computer retrieve articles that contain *either* word or phrase. (Example: "rainforest or rain forest" would ensure both forms were accessed.)

Using *not* to connect words or phrases instructs the computer to consider articles that contain the word or phrase specified before the *not* operator, eliminating any that also contain the word or phrase that follows the *not* designation. (Example: "coaching not soccer" would retrieve articles about coaching that are *not* concerned with soccer.)

Most electronic information programs support additional, more sophisticated Boolean search techniques. One of these is *truncation*, the ability to instruct the computer to search for words that begin with certain letters, regardless of their ending. (Example: "environ?" would retrieve "environment," "environmental," "environmentalist," and so forth.) Some programs use an "*" instead of the "?" to indicate truncation. Check the program manual or the "help" feature in the program to determine what Boolean commands are available.

Around the time of Socrates, as the oral tradition faded and the new technology of reading and writing took over, ordinary people lost the tremendous capacity for memorization that had until then sustained their cultures. As the electronic millennium dawns, a similarly profound dislocation is already well under way.

Whether we will lose our sense of history to the flattened perspectives of the hyperstack, lose the richness of the language to the memorandic casualness of electronic messaging, lose our ability to analyze facts and evaluate opinions in the overload of media stimulants may in large part depend on how schools choose to teach in the information age. If the new literacy is "information literacy," its tasks must include not only navigating the new flood of content but also situating the "old literacies" of reading, writing, and thoughtful investigation at the heart of classroom practice, and in the library at the heart of the Essential School. ❏

More Information about Information Literacy

Brainstorms and Blueprints: Teaching Library Research as a Thinking Process, by Barbara K. Stripling and Judy M. Pitts. $22.50 from Libraries Unlimited /Teacher Ideas Press; 800-237-6124.

From Library Skills to Information Literacy: A Handbook for the 21st Century, by the California Media and Library Educator Association (1994). $20 from Libraries Unlimited/ Teacher Ideas Press; 800-237-6124.

CD-ROM for Schools, by Pam Berger and Susan Kinnell. $29.95 from Online Inc., 462 Danbury Road, Wilton, CT 06897-2126; 800-248-8466.

Information Power: Guidelines for School Library Media Programs, by the American Association of School Librarians (Chicago, 1988). AASL, 50 E. Huron, Chicago, IL 60611.

Information Searcher, quarterly newsletter for CD-ROM, on-line searching, and the Internet in schools. Subscription is $34 from Datasearch Group, Inc., 14 Hadden Road, Scarsdale, NY 10583; 914-723-1995.

The Essential Library: Partner in School Design, by Mark Gordon. Available from the Coalition of Essential Schools publications office; 401-863-3384.

The Gutenberg Elegies: The Fate of Reading in an Electronic Age, by Sven Birkerts (Boston: Faber and Faber, 1994).

ICONnect, a technology initiative of the American Association of School Librarians (AASL), offers resources that help students develop information literacy skills and provides Internet training for teachers and library media specialists. For information, write ICONnect, AASL, 50 E. Huron, Chicago, IL 60611 or contact the Gopher address: ericir.syr.edu: 7070 or Home Page address: http://ericir. syr.edu /ICONN / ihome.html.

"Learning-Centered Libraries: Implications from Research," by Barbara K. Stripling, in *School Library Media Quarterly* (Vol. 23 No. 3, Spring 1995).

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