

Help Them Get IT: Infusing Technology in Instruction

by Janet Murray

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A significant percentage of teachers and administrators have yet to be convinced that the Internet—or indeed, any technology—is a useful addition to their instructional repertoire. How can we help them "get it"?

School library media specialists are ideally suited for the task. We have the training and experience to introduce new materials and make teachers comfortable using them. We have a vision of the technology-based future of information access and a mission to transform our image from stodgy curators of dusty books to lively teaching partners in a dynamic instructional technology center.

Introduce the Internet as an Instructional Tool

Focusing on the World Wide Web as the content for a professional development effort delivered by the library media specialist accomplishes several goals. As a high profile application of instructional technology, it is likely to attract participants who have been made aware of its potential through the media or the enthusiasm of their colleagues and students. The Web's hypertext structure supports a nonlinear instructional approach, allowing you to introduce techniques like collaborative learning and inquiry-based projects. Finally, as an obvious source for supplementary curricular materials, it provides you with a vehicle to form teaching partnerships with your classroom teachers and to establish yourself as an instructional leader.

For the past four years, I have been helping to develop and refine the resources of the Online Innovation Institute (<http://oii.org>) to structure teachers' introduction to the Internet. During those four years, my audience has shifted dramatically—from enthusiastic early adopters who came with some Internet experience to novices who are curious about the focus of all this media hype, but less confident in their capacity for independent exploration. As an Oregonian, I often used the analogy of westward expansion to describe this phenomenon. The trappers, fur traders, and pioneers have already arrived in the new frontier; now we are like the guides for wagon trains of settlers. And there are still those who prefer to stay "back East" in the comfort of their traditional, self-contained classrooms.

Provide a Comfortable Learning Environment

Many teachers have told me that they have been intimidated by technology-based instruction because of its heavy reliance on technical language and the tendency of computer "gurus" to focus on the tools rather than the participants. Internet novices, who may be timid about approaching the mysteries of cyberspace and anxious about their technical skills, need the encouragement and reassurance you can provide. It is critical that they receive timely responses to their inquiries and continuing support for their explorations.

Just as we endeavor to make our library media centers attractive and inviting, we can create a welcoming environment for participants in an Internet or technology-based course. Food is the centerpiece of many familiar social interactions. Since most professional development activities are offered evenings and weekends, I provide treats for the first meeting, and then encourage participants to contribute at future sessions. Some of the most valuable community-building occurs away from the computers!

FOUR DIRECTIONS FOR LIFELONG LEARNING

As school library media specialists, we are committed to the goals of fostering a love of learning, an appreciation of literature, and an enthusiasm for pursuing information. New technologies may provide us with a broader range of sources and allow us to gather information more efficiently, but the research strategies we have always taught can be readily adapted to the electronic environment.

The Online Innovation Institute (OII) symbolizes lifelong learning as the four directions of the compass, with each cardinal point representing a pair of attributes. In order to participate in online collaboration, teachers must acquire

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online communication skills. In order to evaluate online resources, we must develop a systematic method of exploration. To accomplish research on the Internet, we must learn to navigate skillfully. To share what we have learned and make the learning our own, we must employ a method of inquiry which requires synthesis. Using the four directions as an organizing principle, we begin with the skills needed in the first of each pair to master the applications of the second.

Individualize Learning Opportunities

One of the biggest challenges facing technology instructors is the wide variety of backgrounds and prior knowledge of the participants. Sharing the task with a co-facilitator can allow you to provide more individualized instruction as well as balance your own strengths. It is also important to facilitate independent learning opportunities, encouraging participants to choose from multiple starting points and various levels of activities depending on their own needs. The personalized content evolves from individual self-assessments; I tell participants that "they are responsible for their own learning." With adults who are accustomed to syllabi and course requirements, this statement can be daunting at first. Just like students, though, they benefit from inquiry-based, self-directed learning enhanced by technology. The experience may also foster personal professional growth by contributing to their appreciation of this instructional strategy.

Participants articulate individual goals for incorporating technology in their instruction. As they acquire more skills and learn more about available Internet resources, they may refine their goals, but my purpose is to provide teachers with the online tools to achieve their personal missions. Therefore, content and presentation vary with every session, depending on the backgrounds and needs of the participants.

COMMUNICATION AND COLLABORATION

The power of online collaboration can enrich classroom instruction in significant ways which extend beyond simple "keypal" or "ask an expert" projects. In order to collaborate with other teachers and classes located far away, teachers must acquire online communication skills. In my sessions, I begin with e-mail and find that even teachers who have been using it comfortably can benefit from learning some of the advanced features of the application they use. I also establish a closed listserv which provides a safe environment in which to practice new skills and ask questions of fellow participants before we proceed to national lists or online forums.

Build a Learning Community

Many teachers preface their computer-related inquiries with, "This is a dumb question, but . . .," even though they would discourage their students from doing the same. Fostering a spirit of inquiry requires that we respect each individual's desire to learn, but we've all seen scathing messages like "read the FAQ" in response to simple inquiries. Nothing is more likely to discourage a novice to whom "FAQ" is an impenetrable acronym. "Habits of Community" (http://oii.org/html/habits_of_community.html) guide our interactions with fellow participants whose previous learning may be at a different place on the technological continuum from our own.

In fact, one of the most valuable benefits of such a professional development experience may be the collaboration which evolves among participants. When I conscientiously act as a facilitator and coach rather than as an instructor and lecturer, participants learn from each other as well as from me. At the same time, I am modelling an instructional technique that teachers might adopt with students in their own classrooms. What a welcome change from the "imported expert lecturer" model of professional development!

Developing online communication skills also empowers teachers to persist in their personal growth after the class has ended. Continuing online support is a critical component of our professional development model. The sense of community encourages past participants to mentor current participants; in New Mexico, Celia Einhorn reports that teachers are "Ollers for life."

EXPLORATION AND EVALUATION

Structure Initial Exploration

Exploring the Internet can be compared to "browsing" the library stacks. Patrons often select a book based on a colorful cover or enticing publisher's blurb only to discover that the book is not what they expected. Internet novices frequently throw up their hands in disgust or despair when their first attempts to locate information result in

an overwhelming array of sources which are only minimally relevant to their inquiry.

In order to evaluate online resources, teachers must develop a systematic method of exploration. I encourage participants to share "one great source" and map the route they used to locate it. It's harder than you think. I often hear teachers report enthusiastically about an online resource which they cannot find again!

Learning to use and organize bookmarks (or favorites) is an important first step in Internet exploration. Web pages hierarchically organized by subject are also useful for new explorers. Although most search engines also feature topic approaches, I have found Kathy Schrock's Guide for Educators (<http://www.capecod.net/schrockguide>) to be particularly useful for K-12 teachers.

Encourage Thoughtful Evaluation of Resources

We've all had experiences with students who believe a statement to be true because they've seen it in print. Evaluation of the reliability, currency, authority, objectivity, and relevance of resources has always been part of our media skills instruction. This challenge is compounded on the World Wide Web because there is literally no control over electronic publication. Anyone can publish on the Internet.

I encourage participants to evaluate as they explore, by reviewing some evaluation guidelines (such as "Thinking Critically About World Wide Web Resources," <http://www.library.ucla.edu/libraries/college/instruct/critical.htm>) and using one of the many excellent checklists available on the Web. CyberGuides (<http://www.cyberbee.com/guides.html>) help teachers focus on pertinent questions they can use to evaluate Web resources for use with their students. Additional resources are listed on the OII site.

NAVIGATION AND RESEARCH

Apply Internet Skills to Student Research

As teachers discover the wealth of educationally useful resources available on the World Wide Web, they begin to imagine how they might use them in student research. To accomplish research on the Internet, they must learn to navigate it skillfully by using search engines. Skillful navigation requires an awareness of the different results likely to be obtained from different search engines. I often use a simple quantitative comparison: how many results do you obtain from the same query entered in different search engines? The variation is obviously significant. This realization leads to an investigation into how different search engines structure their queries and compile their results. Of course, these conclusions change frequently, but Web articles evaluating search engines appear almost as frequently. Kathy Schrock's presentation at the National Educational Computing Conference (<http://www.capecod.net/schrockguide/neccsrch/searchingnec2/sld001.htm>) provides a valuable overview.

The language we use to construct our inquiries affects the pertinence of the results we obtain. Using concept mapping may help Internet navigators to refine their topics. We need to understand how to use Boolean logic (and especially the default conditions observed by different search engines) as well as truncation and synonyms to conduct an efficient and satisfactory search. "Searching the 'Net,'" an OII Oregon project, provides introductory exercises to use with students as well as links to other searching guidelines (<http://www.teleport.com/~janetm/oii/search.html>).

Select Appropriate Resources

Selecting resources appropriate to the task is also an essential element of effective information gathering. Library media specialists will recognize that print resources are still valuable, but you may have trouble convincing your students! Help teachers understand the limitations of the Internet as an information resource: While it is ideally suited for explorations of subjects which change rapidly (e.g., science and current events), it is less comprehensive in its coverage of historical and literary topics. Primary source material may be more readily available on the World Wide Web than in our school libraries, but I have yet to see a monitor which reproduces fine art as well as a book.

SYNTHESIS AND PRESENTATION

We know that constructivist learning requires reflection on the process as well as the product. Teachers who have designed their own learning pathways based on self-assessment and kept a journal of their Internet explorations and discoveries can apply this process by implementing self-reflective activities in their classrooms.

Promote Information Literacy

Information Power (American Association of School Librarians and Association for Educational Communications and Technology, 1998, http://www.ala.org/aasl/ip_toc.html) delineates information literacy standards (http://www.ala.org/aasl/ip_nine.html) which provide a philosophical framework for the systems integration recommended by school improvement theorists. The standards describe students who are information literate, independent learners, and socially responsible consumers and producers of information. By adopting and promoting these standards, school library media specialists can clearly demonstrate their primary role in an interdisciplinary learning environment centered on information gathering and processing.

When we consider using Internet resources to supplement student research, we must also consider the design of our research assignment so that it promotes original thinking through synthesizing a variety of materials.

We can advance information literacy by supplying teachers with research organizers that promote critical thinking (like the BigSix Skills, <http://www.big6.com>) and encouraging them to develop inquiry-based projects (like WebQuests, <http://edweb.sdsu.edu/webquest/overview.htm>).

Educators today are rarely satisfied with a traditional research paper. There are many presentation alternatives for students to share what they have learned. If we choose wisely, student projects will reflect their learning process as well as their conclusions.

CONCLUSION

It has been relatively easy to transfer the work I began in Oregon to my new position on a U.S. Naval Base in Japan because electronic telecommunications truly enables a "global village" where teachers can collaborate successfully despite geographic distance. In the spring of 1998, we conducted simultaneous OII sessions in Oregon and Japan, thanks to Patty Sorenson, my former co-facilitator, who accepted the mantle of leadership in Oregon. Originally a 1995 participant, Patty is an ideal example of the power of this professional development model to generate new instructional leaders in your school or district.

Introducing teachers to the Internet brings them into your library media center and establishes your new role as an instructional technology leader. Supporting their initial efforts with student use of the Web allows you to function as a teaching partner. Encouraging collaboration enables you to model the role of facilitator and contribute to their professional development. Exhibiting patience and tolerance toward their discomfort with new technologies will strengthen your image as a vital contributor to the instructional process.

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