Technology and Educational Standards:
Crossroads in the Media Center

by Milton J. Warden

"Because raising children is, in a sense, the reason the society exists in the first place.
It's the most important thing that happens, and it's the culmination of all the tools
and language and social structure that has evolved."[1]

A ccording to *Information Power*, media specialists are expected to be on the front line "promoting effective use of instructional technologies," and many fill this role as well as implementing technologies to improve administration of the school library.[2] Automated circulation reduces the time spent on routine circulation chores. Indexes have moved from paper to CD-ROM, and full text that can be printed directly by the patron is becoming common. Electronic catalogs give students and teachers numerous access points to, and more information about, the collection. Media specialists have promoted laserdisc, cable television, integrated media systems, computer networking, and more, all in the name of increased access to information.

In staying current with the ever-changing technology, however, they often find themselves battling teachers who "are still reluctant to either use the technology themselves or to change their learning environments to encompass these new forms of information acquisition."[3] Rapid changes are reflected in new educational standards that embrace the need for students and teachers not only to be familiar with technology, but to grasp the effects of technological changes on everything we do, especially information gathering, analysis, and presentation. Technology, once a deterrent to collaboration between teachers and media spe-

cialists, will help motivate teachers to include the media specialist as a more active member of the curriculum team.

Technological Changes in the Media Center

Working media specialists don't need research to convince themselves of sweeping technological changes over the last few years. They can offer copious anecdotal evidence. For example, technology plans, required in North Carolina, have become common. In 1993, an *Electronic Learning* survey indicated that 64% of United States school districts had a technology plan.[4] More directly verifying the impact of technology on the media center, Miller and Shontz have published periodic reports showing how media centers have spent their money, including information on the availability of technology. In the 1988-89 school year, CD-ROM sources, which are common now, were found in only 4% of the responding schools. Twenty-one percent of respondents did have automated circulation while another 42% had plans to automate that aspect of the media center. Only 6% of the respondents had automated catalogs, while another 29% had plans for one in the future. The most common technology found by the survey was cable

television (including television transmitted by satellite) which was available in nearly two-thirds of the schools.[5]

The follow-up study for the 1993/94 school year shows major changes in technology in the media center, not just by the survey responses but also by the questions on the survey. Cable television was still a popular technology (59.5%), but CD-ROM books/encyclopedias (77.7%) were now more often found in the media centers of the 635 respondents. Schools having both an online catalog and computerized circulation numbered 56.9%. Questions about videodiscs (laserdiscs), local area networks, library networks, telecommunications, Internet, and e-mail show how media centers have changed orientation and focus in just five years. However, some things never change: while over 25% of respondents had Internet and e-mail access, more than 18% did not have a telephone.[6] In the past, technology helped the media spe-

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cialist deliver information to the school in varying formats, but usually the information resided within the school. Newer technologies are taking us outside the school to a broader range of information than can be maintained locally.

The future, while never clear except in hindsight, does seem to offer the continuation of the same technological trends. If we assume that computers have driven the changes in the past ten years, then we would expect to see the power of computers continue to increase as the cost decreases. Moore's Law tells us "the cost of making a semi-conductor drops 50% every 18 months."[7] Therefore, we can afford twice the power we did just eighteen months ago. The same author sees the past ten-year trend of declining prices and faster microchips continuing for another ten years.[8] If these projections are accurate, and there is no reason to doubt them, then technology will continue to be linked inexorably to information and the role of the media specialist. At least one analyst believes "the power of technology is so pervasive in all forms of information — from news and entertainment to bank statements and junk mail — that to understand how current and emerging technologies work has become, to many educators' minds, an imperative for 21st-century teaching."[9]

Changing Standards in Education

Education is about change. The school reform movement, in combination with rapid changes in technology, has driven standard changes that recognize the impact of technology on information gathering and processing. What follows is a brief sampling of standards that relate to the media program's role in the school.

It has been several years since the United States Department of Labor released a report (sometimes referred to as the SCANS report) on what skills or competencies were necessary for students to learn in our changing economy.[10] While the report focuses only on work-related skills, the recommendations are relevant to education and especially to media programs. One competency addressed finding and using information, an activity that closely parallels the role of the media center. Two other competencies identified by the report, also relevant to media programs, were working as a team

member and using technology to solve problems. One way working teams are created in the classroom is through cooperative learning. Using this practice, student teams are given more responsibility for their learning than in the traditionally structured classroom. This new responsibility calls for a broad base of resource materials, and a strong media center and media program are essen-

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tial for students to learn to work successfully as part of a cooperative learning team. The media specialist can help students doing problem solving to learn how technology can quickly retrieve data and how multimedia presentations can be put together. The SCANS Report standards lead teachers and students directly to the media center.

One of the more noteworthy sets of standards dealing with technology and ultimately the role of the media specialist in the curriculum comes from the National Association of Secondary School Principals (NASSP). Significantly, this document was generated by school principals and teachers to address the issue of changing schools in light of the accelerating demand for reform and the pace of change inherent in our society. This is not another call for change from outside the school or within our own profession; it is school leaders, the principals themselves, with an agenda for change, who ultimately recognize the role of the media program. At least three of the recommendations deal directly with technology and the media center role in the school. They are

"The content of the curriculum, where practical, will connect itself to real-life applications of knowledge and skills to help students link their education to the future."[11]

"Schools will make technology integral to curriculum, instruction, and assessment, accommodating different learning styles and helping teachers to individualize the learning

process."[12]

"Teachers will be adept at acting as coaches and as facilitators of learning to promote more active involvement of students in their own learning."[13]

These standards inherently recognize the role of the media center. Information skills taught in the media center are techniques that can be used in many settings, including public and academic libraries and on the Internet. Teachers seeking real-life applications will find that they abound in the media center. Statistics classes can use general almanacs, sports almanacs, or current periodicals to find data to analyze. History classes can study election campaigns from news reports and periodicals, while biology classes can read articles about current research relevant to their studies. Those media centers with Internet access can make more direct connections to the real world as later examples will demonstrate.

Different learning styles are recognized by media centers when students require information in different formats. The media center historically has promoted media in many forms, from books to video to electronic media. Just as cooperative learning requires more resource-based teaching, teachers serving as coaches or facilitators need many resources and an active media center. All these activities fit the NASSP guidelines and engage the media program as a partner in the learning process.

Individual subject standards recently have gone through a transformation as the effects of technology and school reform ripple through various professional organizations. National history standards, for example, focus primarily upon content knowledge. One author observed, however, that the standards can be met "only through systematic implementation of a well-designed curriculum; one that indicates what to teach and how to obtain the support needed to fulfill that responsibility."[14]

This support brings to mind the role the media specialist could play in history lessons. The author apparently agrees; he calls for using children's literature, various forms of media, and various activities that would involve the media center, including "historical simulations ..., historical craft and model-building experiences, in-depth National History Day projects, and the experience of constructing an oral history of some local 'big event.'"[15]

Luring Teachers to the Media Center with Technology

The media specialist has tried to keep the media center a modern place for information retrieval and technological applications. Teachers may be hesitant to visit the media center to do independent research, to bring a class to do research, or to share lesson plan ideas that could lead to a visit. Perhaps the technology we model so well in running our media centers and have implemented for information gathering discourages some teachers. The media specialist who keeps up with new technology and educational standards will have a tool to reach teachers. It won't be easy, but each technological advance and new standard offer a lure to bring one more teacher within reach of the media program.

One way to do this is to convince teachers that media center technology can give them and their students "access to a wide array of information (e.g., through Internet searches), capabilities for communicating with content experts and other investigators (e.g., through electronic networks), and representations that give tangible form to concepts that are otherwise difficult to visualize (e.g., interactive graphic representations of such variables as acceleration)."[16] While these descriptions seem somewhat limited as to what technology can do for us, they are certainly within the grasp of a well-equipped media center.

Good examples of connecting the media coordinator to the teaching team via technology abound, and the media specialist seeking ideas would be wise to check the professional literature. Searching the literature of the specific subject field and finding good examples of using the media center to integrate technology into the curriculum would be an effective demonstration for a teacher.

One area of great interest (but also caution) for media specialists is the Internet. A national demonstration project in New Jersey focused on using the Internet to supplement conventional information available in the school in the science classroom. As previously discussed, students are now expected to work in teams and collaborate with others. The Internet extends that exercise to students worldwide as partners in data collection and analysis. The New Jersey project used something as simple as temperature measurement compared to distance from the equator as a collaborative project for students. Students from each school sent information identifying their location, which was then marked on a map by all other schools. Temperature data for a particular time period was exchanged.[17]

When standards call for real-life applications of knowledge, the New Jersey project has an answer. Various other scientific laboratories also are putting information from their research on the Internet. For example, the Plasma Physics Laboratory at Princeton University is working to create energy from controlled fusion and is putting data on the Internet, letting students "enter one of the world's leading research facilities and gain access to the data that is being studied there as quickly and easily as its own scientists."[18] Similar projects could work at various school levels, teaming a media specialist with a science teacher to teach not only the subject area material, but information literacy skills. (Visit the project Web site at *http://k12science.stevens-tech.edu* or *http://njnie.dl.stevens-tech.edu* for more information and specific Internet sites used in the article.)

With the increasing interest in the Internet, new users easily can be overwhelmed by the amount of information available. A wonderful way to introduce Internet searching that is adaptable to any curriculum or grade level is the Internet Scavenger Hunt. A series of questions are asked, and after each question an Internet site address is given where the answer can be found.[19] Since the Internet offers so many sites, the questions can be structured for different subjects or even as an introduction to the Internet itself. The media specialist could use this tool to introduce teachers to the Internet resources or help a teacher structure a hunt in a particular subject area. This exercise brings the student into contact with the newest information technologies and offers ways for the media specialist to introduce other information skills to classrooms.

While changing technology and new educational standards will give us new ways to bring students and teachers into the media center, they are not a panacea. Regardless of what technology and standards we work with, there is a place for the media program in the curriculum. We support information literacy whether through books, television, or the Internet. The push for students to become active learners and have sources beyond the textbook is frequently called resource-based learning and the media center is at the heart of such a program. If our programs are to be successful, we must become more active partners in the curriculum using whatever tools we have at hand.

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