

Knowledge Quest
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Column: Real Questions, Good Answers
Title: What Technology Skills Do All Students Need?
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Real Questions, Good Answers provides answers to those absolutely right-on questions we repeatedly get from outside our profession. The editor, Doug Johnson, Director of Media and Technology in the Mankato Public Schools invites readers to submit actual questions and write those articulate answers needed for Board members, principals, teachers and others who question the role of the school library and media specialists. Direct submissions to: Doug Johnson johnsd9@mail.mankato.msus.edu

In a survey released in 1996 by the Public Agenda group, 80% of parents surveyed ranked “computer skills and media technology” as important curricula for schools to be teaching. This rank is only slightly less than “basic reading, writing and math skills” at 92% and “good work habits” at 83%. And it beat the socks off the traditional subjects of American history (63%), biology, chemistry and physics (59%), and classic works like Shakespeare (23%).

Surprised? I wasn’t really. I hear on a regular basis from parents, business leaders, and post-secondary folks that all graduates need to be “computer literate.” However, while districts are spending a great deal of money on hardware, there seems to be only a vague notion of what “computer literacy” really means.

Parents may not be sure of what things they want their children to be able to do with technology, but they see co-workers advance because they have mastered computer applications. Parents are proud, but also mystified and even frightened by the things their children can do with technology. Many teachers and administrators share the same confusion.

New standards

Two sets of standards have recently been published by three well-known and respected organizations to help reduce the confusion about what “computer literacy” really means. With different, but reasonable views, these professional organizations tackle describing the new skills and knowledge needed to thrive in a technologically advanced world.

The International Society for Technology in Education (ISTE) has released “The National

Educational Technology Standards” <<http://cnets.iste.org/>>. ISTE’s technology skills are divided into six broad categories of application:

1. Basic operations and concepts
2. Social, ethical, and human issues
3. Technology productivity tools
4. Technology communications tools
5. Technology research tools
6. Technology problem-solving and decision-making tools

The focus on these clear and well-written standards is on the *use of the technology itself*. And while technology is sufficiently novel, difficult, and mystifying, special standards like these will be necessary.

But technology gurus like Donald Norman are beginning to see that the “how to use technology” skills are becoming less important. In his book *The Invisible Computer*, Norman argues that no one really wants to use a computer or even use a word processor. What one really wants to do is write a letter. He predicts that “information appliances” are rapidly being developed that will do a single task simply with minimal technical expertise on the part of the user. Just think how little training is associated with using an AlphaSmart compared to using Microsoft *Word*. And for most beginning writers, the AlphaSmart does 90% of the drafting and editing that can be done with *Word*.

While the ISTE standards focus on the technology itself, “Information Literacy Standards for Student Learning” <http://www.ala.org/aasl/ip_nine.html> acknowledges technology as one of broader set of skills needed by students to be successful information problem solvers. Released as part of the American Association of School Librarians (AASL) and Association for Educational Communications and Technology’s (AECT) new guidelines, *Information Power: Building Partnerships for Student Learning*, these standards have three major divisions:

1. Information Literacy
2. Independent Learning
3. Social Responsibility

Unfortunately, technology is often implied, rather than explicitly stated as one of the resources needed to master these skills. But even as word processors and on-line encyclopedias become as commonplace and simple to use as pencils and the print set of *World Books*, these standards will still remain valid and valuable.

My dad used to say that no one’s ever bought a quarter-inch drill bit because he wanted a quarter-inch drill bit. What everyone’s really wanted was a quarter-inch hole. Schools shouldn’t invest in technology because they want technology, or teach kids how to use it because they want computer-savvy students. They must invest in technology because they want students who can use technology to find, analyze, and communicate information in order to solve genuine problems. Just like technology is used in the real world. Imagine that.

Teaching skills through a process

Regardless of which set of standards a school district decides to adopt, the process through which these skills are taught will be critical. Skills taught in isolation in either the media center or computer lab and never applied are quickly forgotten. (Quick, what’s the formula for finding the

volume of a cylinder? I bet you knew it once!)

That's why it is becoming increasingly popular for educational technologists to advocate integrating computers into the content areas. Teachers and administrators recognize that separate "computer classes" do not really allow students learn to apply skills in meaningful ways. This is an important shift in approach and emphasis. And it's a shift with which library media specialists have a great deal of familiarity. Projects like these use technology as tool to complete a educationally meaningful task, and computer skills become a sub-set of the total learning outcomes of the project:

- Fifth-grade students use a multi media program to communicate their findings about early immigrants in the state lived and worked.
- Eight grades students use a spreadsheet and graphing program to analyze the results of a survey on their fellow students attitudes about smoking and drinking.
- High school juniors use probes attached to a computer graphing program to test the effect of salinity on the freezing properties of water.

Library media specialists know that moving from isolated skills instruction to an integrated approach is an important step that takes a great deal of planning and effort. Over the past 30 years, library media professionals have worked diligently to move from teaching isolated "library skills" to teaching integrated information skills. In doing so they have found that "effective integration of information skills has two requirements:

- (1) the skills must directly relate to the content area curriculum and to classroom assignments, and
- (2) the skills themselves need to be tied together in a logical and systematic information process model."

(Eisenberg and Johnson, "Computer Literacy and Information Literacy: A Natural Combination." *The Emergency Librarian*, May/June 1996)

Schools seeking to move from isolated computer skills instruction need to focus on both of these requirements as well. Successful integrated information skills programs are designed around collaborative projects jointly planned and taught by teachers and library media professionals. Computer skills instruction must follow the same approach. Library media specialists, computer teachers, and classroom teachers need to work together to develop units and lessons that will include both computer skills, general information skills, and content-area curriculum outcomes.

In working to insure that all our students are gaining critical technology skills, it's apparent that how we teach the skills is as important as what skills we teach.