There is little question that technology plays an important role in our schools. It is considered to be the wave of the future so, naturally, teachers are encouraged to embrace it. They are encouraged to integrate technology into their lesson plans; they are told that technology is an indispensable tool for learning. And teachers are listening. According to recent surveys, most teachers believe that technology has improved student learning.

But are all teachers ready to use technology in their classrooms? Giving teachers access to computers, software, and the Internet is only part of incorporating technology successfully into schools. A survey conducted by the National Center for Education Statistics (NCES) revealed that 99 percent of full-time regular public school teachers reported that they had access to computers or the Internet somewhere in their schools (NCES 2000). But not all of these teachers were using the technology in their classrooms. Why not? Integrating technology into classrooms depends on the teachers’ readiness to use it. If teachers do not feel comfortable with the technology, they are less inclined to incorporate it into their plans. What is the current state of teacher readiness to use technology in the classroom? And what can be done to improve it?

### Teacher Readiness

Only one-third of teachers responding to the NCES survey reported feeling well prepared or very well prepared to use computers and the Internet in classroom instruction. Less experienced teachers indicated that they felt better prepared to use technology than their experienced colleagues. Other key findings include:

- Among teachers with computers available at home, teachers with the fewest years of experience were more likely than teachers with the most years of experience to use computers or the Internet at home to gather information for planning lessons (76 percent compared with 63 percent) and creating instructional materials (91 percent compared with 82 percent).
- Teachers cited independent learning most frequently as preparing them for technology use (93 percent), followed by professional development activities (88 percent) and their colleagues (87 percent).
- Teachers indicated that follow-up and advanced training and use of other advanced telecommunications were available less frequently than professional development activities.

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**By Cathy Areu Jones**
technology is not easy. It takes time, which teachers often lack. Lack of released time to learn how to use computers and the Internet was one of the most frequently reported barriers to public school teachers using computers and the Internet in instruction (NCES 2000).

Training, preparation, and work environments also play roles in a teacher’s readiness to use technology. Research shows that traditional professional development activities are often short term, devoid of adequate follow up, and do not address school contexts. Traditional education programs for
new teachers have been described as “fragmented, superficial, and unconnected to real classroom experiences” (NCES 2000).

**Places To Turn**

Experienced classroom teachers do not turn to institutions for technology help; the research shows that the first place teachers look for technology help is their peers. Today, a small percentage is doing so online. According to Coley, Cradler, and Engel (1997), 16 percent of teachers currently use telecommunications for professional development. The report states:

> Effective staff development for teachers should take advantage of telecommunications technologies that allow teachers to interact with each other, take online courses, and easily access the latest research in their discipline.

To learn how to incorporate technology into their classrooms, teachers are participating in online discussion groups, forums, e-mail lists, bulletin boards, message boards, and chat rooms. One of the first online communities for teachers is the 21st Century Teacher Network (www.21ct.org), an online network that enables teachers to exchange technology ideas with teachers around the world. According to Wade Mayer, director of the 21st Century Teacher Network, a growing number of teachers are finding support from their peers online. In 1996, the 21st Century Teacher Network had 5,000 members. Today, there are 17,000 teachers, a number that Mayer expects to grow.

Another online resource for teachers seeking technology help is 21st Century Teachers (www.nekesc.org/kids/21tea.html). It was part of President Clinton’s plan to make teachers become “as comfortable with computers as with chalkboards.” The online network was created in 1996 to support one of four pillars (teacher development) in the President’s Technology Literacy Challenge: the three other pillars are computers, connections, and software.

Classroom Connect (www.classroom.net) is an online educational site where K–12 teachers interact in online discussions, message boards, “ask the expert” exchanges, and interactive databases. Currently, over 12,000 teachers are members of the Classroom Connect online community.

**Standards for New Teachers**

Surprisingly, teacher education students do not need courses in educational technology to obtain teaching licenses in 18 states according to a recent study by the Educational Testing Service. Perhaps that is to change soon.

**ONLINE RESOURCES FOR PRINCIPALS**

CEO Forum on Education Technology and its “Teacher Preparation School Technology and Readiness Chart”—known as the StaR Chart, helps principals assess how well they are integrating technology into their schools. The StaR Chart is an online, multiple-choice questionnaire that provides principals with instant feedback. To take the new K–12 interactive StaR assessment online, visit www.ceoforum.org. The self-assessment tool is also designed to “provide schools with the information they need to better integrate technology into their educational process.”

NASSP’s website also provides links to education sites, search engines, chat rooms, and more for secondary school administrators looking for technology help.

In 1997 National Council for Accreditation of Teacher Education (NCATE) formed a task force to examine what teaching candidates should know about technology and what they should be able to do with it. Emerson J. Elliott, director of NCATE’s Program Standards Development Project, says technology is embedded in each NCATE standard, not a stand-alone standard. NCATE is also moving away from requiring technology course credit hours and content and moving toward requiring certain performance skills.

Arthur E. Wise, president of NCATE, explained NCATE’s position on technology training for new teachers:

> NCATE is in a unique position to provide leadership. In 1995, NCATE introduced technology expectations for schools of education. In 1997, NCATE is issuing this report, which recommends that NCATE emphasize technology as central to the teacher preparation process. (Wise 1997)

More funding from the government is expected to help with technology training. In the technology initiative Preparing Tomorrow’s Teachers to Use Technology, the U.S. Department of Education requested $150 million to provide technology training for new teachers.

The FY01 request would support 175 new capacity building awards to stimulate state and local initiatives for campus-wide teaching reform, 120 new implementation and catalyst grants, and 167 implementation and catalyst continuation grants. (U.S. Department of Education 2000)

**A Strong Support System**

Higher program standards, more funding, and online support systems are improving teacher readiness to use technology, but many believe that much more is needed to improve teacher readiness—ensuring that all students have access to technology in school. In his presentation to the U.S. House of Representatives Subcommittee on Early Childhood, ▶
Youth and Families teacher Jeffery Chin explained:

Even in areas where technology is available, software, hardware, and Internet connections often go unused because teachers lack the skills and knowledge necessary to integrate them into their daily classroom activities. Teachers often express frustration that the lack of available training makes it difficult to take full advantage of the wide range of educational technology. (U.S. House 2000)

According to Chin, many teachers have some basic computer instruction, but most have not been trained in multimedia or online activities. He said that everyone in education must make a greater commitment to providing teacher technology training. Teachers’ readiness to use technology in their classrooms will be increased with strong support systems that include communities, parents, business leaders, and administrators.

The leadership that principals give their teachers is one of the most important factors affecting the effectiveness of technology in classrooms. Principals who are role models and understand the technology that is used in their schools enhance the use of technology in the classroom. These principals can provide the added support and guidance teachers are looking for.

There are several essential components that administrators must facilitate if they expect their faculties to embrace the technology movement. Jon-Paul Roden, the recently retired department chair for Computer Science for the Vernon Public Schools in Connecticut and the contact for the Technology Symposiums for the Connecticut Education Association, suggests that principals form strong alliances with their administrative and classroom colleagues. Principals will find that their colleagues understand building management tasks, such as building wiring, network administration, hardware procurement, and software selection. Administrators do not have to be technology experts, but they should know where to find them.

Roden suggests involving teachers in schools’ technology decisions to build their confidence and win their support. Teachers, who are on the front lines delivering and supporting technology instruction, should support it from the start. According to Roden, administrators should become familiar with the instructional strategies necessary for integrating technology into instruction to effectively evaluate teaching practices and to model what they believe to be “best practice.” Teachers will not embrace the technology when their principals have not done so. Using an up-to-date school website as a vehicle for communication, PowerPoint presentations at faculty meetings, and online professional development opportunities are indicators that the administrator is using technology effectively.

Support Systems in Place

Administrators are key to the successful implementation of technology in the classroom and the adoption of technology innovations in schools (Coley, Cradler, and Engle 1997). Principal Diane Payne makes technology a priority in Needham Broughton High School in Raleigh, N.C. She believes that technology training and access for teachers is vital. Fortunately, parents and her school system agree. Payne’s school has received technology support from the PTA and the county, which, she says, understand that technology in education is the wave of the future. The school’s PTA has funded teacher technology training by paying for teachers to go to national technology conferences.

Needham Broughton High School is one of 12 Technology Connections schools in the Wake County Public School System (WCPS) in North Carolina. Technology Connections, the county’s technology program, was developed by the county’s teachers to integrate technology and instruction. It is focused on core subjects, effective teaching practices, and ongoing assessment:

• All students and teachers’ required technology competencies are based on the N.C. Standard Course of Study and WCPS curriculum, which are skills needed for ongoing education and the global information economy
• Competencies include knowledge of all basic software, such as word processing, databases, and e-mail
• Teacher access to technology—laptop workstations, presentation machines, and remote access for working at home—is necessary (WCPS 2000).

As a Technology Connections school, Needham Broughton also benefits by being one of the only schools in the country with laptops for every teacher. The school system provides teachers with free access to the Internet and their e-mail. Teachers are encouraged to use their laptops at home to surf the Internet, create lessons, create PowerPoint presentations, and derive their students’ grades at home. The personal time with the computers will increase the teachers’ comfort level with technology.

Although Payne has noticed that teacher readiness to use technology in her school is improving, more is being done to assist the teachers. Ann Bozek, Needham Broughton’s special education teacher and technology coordinator, says that the biggest problem teachers in her school are having is finding enough time to learn technology skills and plan lessons around them. “Technology is such a great tool to use but teachers have to have the time and knowledge to use it,” Bozek says. Therefore Payne allot time for technology workshops on teacher workdays. She has created a flexible schedule that allows teachers time for learning.
The focus on technology training for teachers also affects the school’s improvement plan, which requires teachers to attend four technology workshops. This year, Wake County joined six other school systems and formed a partnership with the SAS Institute software company. SAS InSchool curriculum courseware helps teachers integrate new technologies and traditional methods. SAS trainers have conducted one workshop this year at Needham Broughton to introduce teachers to the education software. A second is planned as a follow-up workshop. When Bozek wrote Needham Broughton’s staff development plan, she made the integration of SAS technology in the classroom the crux of the plan. To date, Needham Broughton is the only school in Wake County to try to integrate the SAS software in its classrooms.

With parent, county, and administrative support, Bozek believes more and more teachers in her school are going to feel comfortable with technology in their classroom. She has found that those who are still not comfortable with technology simply need more one-to-one help, and as the school’s technology coordinator, Bozek’s been able to fill the role of mentor.

Like Payne, other principals are trying to make technology a priority in their schools—adopting programs and creating work environments to enhance technology training for teachers. For example, Sandburg Middle School, in Fairfax County, Va., holds weekly workshops in which teachers can get short lessons on specific aspects of technology. Special education teacher Melissa Dyckes says that the workshops are working: many of the school’s teachers are embracing technology. Nevertheless, others, she says, are still “scared to death of it.”

What All Teachers Need
To integrate technology into their classrooms, teachers must feel comfortable with technology. Principals who wish to enhance their teachers’ readiness can provide ongoing training, opportunities for teachers to collaborate, and access to technology support, and modeling.

References

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