Because of technological advances and federal funding policies such as the school E-Rate program, the Internet has now reached almost all schools in the United States (more than 98%). This connectivity represents the technological infrastructure that is a prerequisite for instructional use—the technological railway. Until now, the majority of studies on school Internet use have surveyed levels of access rather than how that access is employed. A recent study in the Pew Internet and American Life series has found that students are typically Internet-savvy, while their teachers often are not.

As a consequence, we are not realizing the full instructional benefits of the technological infrastructure that has been constructed. The study concludes that leadership by school administrators is a crucial factor in distinguishing schools that are using the Internet effectively for instruction, and schools that are not. L&L readers are well positioned to provide leadership and to bring the information contained in the Pew report to the attention of school administrators.

The Digital Disconnect: The Widening Gap between Internet-Savvy Students and Their Schools is one of a series of Pew foundation reports on ways in which the Internet is affecting American life and society. The study reports that nearly four-fifths of students in the United States between the ages of 12 and 17 now use the Internet. The in-depth survey found that these students routinely use the Internet as a virtual:

- textbook and reference library
- tutor and study shortcut
- study group
- guidance counselor
- locker, backpack, and notebook

The most common use of the Internet is as a reference library to acquire source materials. Students also use the Internet to collaborate on project work and study for examinations. A variety of online tools allow them to store notes, papers, syllabi, and assignments. They use the Internet to obtain more information about material that interests them, or to gain a better understanding of concepts that confuse them. The study concludes, “Internet-savvy students rely on the Internet to help them do their schoolwork—and for good reason. … the Internet helps them navigate their way through school and spend more time learning in depth about what is most important to them personally.”

In short, today’s students have become expert at “mining the Internet.” This is a heartening finding, suggesting that students quickly take advantage of the academic capabilities of the Internet as they gain access to them.

A Widening Gap between Students and Schools

In contrast, the quality of Internet-based assignments devised by teachers was often judged to be poor. Students who participated in the study viewed assignments as contrived in many instances—devised essentially as an excuse to employ technology, rather than for intrinsic instructional
reasons. One student participating in a focus group characterized this type of use in the following manner: “Sometimes teachers just want you to use the Internet because it’s the Internet—let’s integrate it into schools. … Sometimes teachers just don’t know … when it’s easier to read a book and when it’s easier to use the Internet.”

Effective instructional uses were also reported (though less frequently)—instances in which the objectives could not have been accomplished more effectively in other ways. Pew Foundation researchers reported that students “repeatedly told us that they wanted to be assigned more—and more engaging—Internet activities that were relevant to their lives.” The types of activities that students regarded as effective will be familiar to L&L readers: use of the Internet for well-designed WebQuests, for acquisition of information that could not have been readily acquired in other ways, and to access well-designed instructional materials. One high school student commented about effective uses, “For chemistry, we actually go to these sites. Some of them are actually helpful. There are interactive movies that explained things. It was really a good way to study.”

In 1999, a group of educational leaders gathered at the first National Technology Leadership Summit (NTLS I) and devised a set of guidelines for appropriate integration of technology into instruction. We conceived and organized this series of technology leadership meetings, initially co-sponsored by the U.S. Department of Education, and currently sponsored by SITE and ISTE in concert with the national teacher educator associations representing the core content areas (math, science, English, and social studies). The results of this summit were published in the first issue of Contemporary Issues in Technology and Teacher Education. (Editor’s note: Find this and other resources on p. 31.) In the article “Promoting Appropriate Uses of Technology in Mathematics Education,” Joe Garofalo and colleagues employed language very similar to the students’ comments in the Pew report:

Activities should take advantage of the capabilities of technology, and hence should extend beyond or significantly enhance what could be done without technology. Technology enables users to explore topics in more depth and in more interactive ways. Technology also makes accessible the study of topics that were previously impractical. …

Using technology to teach the same topics in fundamentally the same ways that could be taught without technology does not strengthen students’ learning and belies the usefulness of technology. Furthermore, using technology to perform tasks that are just as easily carried out without technology may actually be a hindrance to learning. Such uses of technology may convince teachers and administrators that preparing teachers to use technology is not worth the considerable effort and expense necessary to do so.
The students themselves appear to have arrived at the same conclusions. The Pew researchers reported, “it is interesting to note that students are uniformly more interested in—and saw more value in—doing schoolwork that challenged and excited them than in simply using the Internet for its own sake.” The students also offered recommendations for addressing uses of the Internet that have dubious value. For example, the students surveyed collectively recommended professional development for teachers as “crucial for effective integration of the Internet into curricula.”

We agree with the conclusions of the students and the Pew report. In our experience, development of assignments that take advantage of the rich instructional potential of the Internet and simultaneously address academic standards is challenging. This cannot be accomplished by teachers working in isolation, but requires collaboration. Programs such as the U.S. Teacher Quality initiative and the Preparing Tomorrow’s Teachers to Use Technology (PT³) programs place a strong emphasis on school-university partnerships.

The Internet makes it possible for teachers to work with researchers at geographically distant institutions—we have encountered many L&L readers who are involved in such projects. As these compelling examples that address instructional standards are developed and piloted in schools, it is equally important for them to be made available to practicing teachers, through publications, professional conferences, and Web sites.

The Need for School Leadership

One important finding that emerged from the study is that although access to the Internet in schools is much more equitable now as a result of federal E-Rate policies, wide variation exists in the type of use as a result of policies established by school administrators. The report notes that, “School administrators—and not teachers—set the tone for Internet use at school. The differences among the schools attended by our students were striking. Policy choices by those who run school systems and other factors have resulted in different schools having different levels of access to the Internet … and different restrictions on student Internet access.”

Therefore, to make effective use of the technological infrastructure that has been established, educators must collaborate to develop rich, engaging, and appropriate uses of the Internet in each subject area, and simultaneously work with school policy makers to ensure that school policies both permit and encourage these uses. The Pew study found that in many schools at present, policies focus on restricting access rather than facilitation of instructional use. Development of a model policy for use in schools is a potential area for future ISTE leadership.

Because students do not have equal access outside of school, teachers on the whole seldom make assignments that involve use of the Internet. The Pew report says, “the vast majority of students report that their teachers do not make homework assignments that require the use of the Internet. Most students noted that teachers feel it unfair to make assignments involving Internet use because some in the class do not have access to the Internet at home. We heard of more than one occasion when a teacher had made such an assignment only to rescind it because they worried that those without Internet access would have difficulty.”

This fear coupled with the fact that Internet access in school is often limited to certain times or places as a result of school policies further limits the return on the investment in this infrastructure at present.

The Digital Divide at Home

In some circles, it has become fashionable to suggest that the Digital Divide is no longer an issue, or at least not as significant, now that access in schools is more even. The Pew study reported that the students surveyed reached a very different conclusion:

The gap between students who do and don’t have access to the Internet at home is a serious matter to these students. In the classroom, it is apparent to Internet-savvy students when a classmate does not have access to the Internet. Indeed, students with easy Internet access assert that they have a clear and persistent advantage over their peers with little or no access.

In other words, even when teachers do not make Internet-specific assignments in schools, the other ways in which the students themselves employ the Internet to enhance the learning process results in a clear competitive advantage. Further, this competitive advantage often persists into college after graduation from high school. According to the Pew report, Not all students have the skills and knowledge to navigate the Internet effectively. No matter what conventional wisdom may say, it was abundantly clear from conversations with focus group participants that even students who are frequently online could benefit from instruction and advice about how to use the Internet better. The students held many misconceptions about such basic things as how to use search engines, how computer viruses are contracted and spread, and how their privacy might be compromised online—just to cite a few
It is heartening that students themselves are identifying effective ways to use the Internet to enhance their own learning when Internet access is available. The researchers confirmed this finding, reporting, “We found that Internet-savvy students are articulate and pragmatic consumers of their educations.”

At the same time, the findings document important policy issues that we must continue to consider. Students who do not acquire these skills, and who do not have access to these resources outside of school, may fall further and further behind. The students consulted have no doubt about appropriate policies:

Students insist that policy makers take the “digital divide” seriously and that they begin to understand the more subtle inequities among teenagers that manifest themselves in differences in the quality of student Internet access and use.

The full 30-page report is available as a PDF file from the Pew Foundation Web site. It is fascinating reading and well worth a review.

The report highlights other student recommendations emerging from the surveys and focus groups: “Students maintain that schools should place priority on developing programs to teach keyboarding, computer, and Internet literacy skills. Students urge that there be continued effort to ensure that high-quality online information to complete school assignments be freely available, easily accessible, and age-appropriate.”

In short, a survey of today’s students generated policy recommendations that could have come directly from ISTE guidelines and recommendations, such as the ISTE National Educational Technology Standards (NETS)—highly recommended reading for any educator.

Resources

NETS: http://www.iste.org/standards


Pew Foundation: http://www.pewinternet.org

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Online Technology Plan Builder
A look at a new and free online resource that will enable districts to write a technology plan that meets the requirements of NCLB
Susan Brooks-Young, Consultant
January 21, 2004

Writing a technology plan that will make a difference for staff and students is a challenge for many small to medium districts. WestEd RTEC has developed an easy to use technology plan builder. This plan builder built on a Turbo Tax metaphor will guide the plan writers through a process that will result in a district technology plan that meets NCLB criteria and that has the buy in of staff and community.

The event is limited to 25 participants. To sign up, e-mail Harvey Barnett at hbarnett@wested.org or Susan Brooks-Young at sbrooks@aol.com.

December/January 2003–04 Learning & Leading with Technology

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