The Digital Disconnect

A recent Pew study

By Glen Bull and Gina Bull

Subject: Digital Divide

Audience: Teachers, library media specialists, technology coordinators, teacher educators

Grade Level: 6–12 (Ages 11–18)

Technology: Internet/Web

Standards: *NETS•S* 1, 4, 5; *NETS•T* IV; *NETS•A* IV (http://www.iste.org/standards)

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

confirms that the Digital Divide is still an issue.

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 (PT^3) 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 reports 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

examples. Students with better Internet skills and with greater knowledge of educational Web sites had a significant edge over other students.

Even students with access to the Internet benefit from explicit instruction on how to use it most effectively. This expertise becomes academic advantage that continues to benefit students who acquire these skills. Students without Internet access outside school are much less likely to acquire these skills. Notably, 8 out of 10 students from high-income groups had Internet access at home, while only 2 out of 10 students from low-income families had access at home. Students who did not possess good skills were unlikely to overcome this barrier on their own. The Pew study reports,

> These students—and those students in our low-adopter groups—also reported that those who do not use the Internet much are often reluctant to go online because they do not even have basic keyboarding or computer skills (or—in more extreme cases—because they lack the basic reading and writing skills required of the online world).

The study findings make it clear that equity of access in school may not be enough to overcome disparities outside of school. The report concludes that students in all groups benefit from explicit instruction on effective uses of the Internet … skills that should be taught as explicit objectives.

Recommendations and Conclusions

The Pew Foundation studies on the Internet and American Life provide a fascinating series of snapshots that track the progress of our society over time. The recent report on school use is both heartening and cautionary.

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

Garofalo, J., Drier, H., Harper, S., Timmerman, M. A., & Shockey, T. (2000). Promoting appropriate uses of technology in mathematics teacher preparation. *Contemporary Issues in Technology and Teacher Education, 1*(1), 66–88. Available: http://www.citejournal.org/vol1/iss1/editorials/article1.htm.

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

Pew Internet and American Life Project. (2002). *The digital disconnect: The widening gap between Internet-savvy students and their schools.* Washington, DC: Pew Research Center. Available: http://www.pewinternet.org/reports/toc.asp?Report=67.

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

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