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Innovations Affecting Us-Technology to Learn Anytime Anywhere

Norman Desmarais
Providence College

Judy Luther
Consultant

Sandra K. Paul
SKP Associates

Albert Simmonds
R.R. Bowker

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Innovations Affecting Us

Technology to Learn Anytime Anywhere

by **Norman Desmarais** (Providence College) <Normd@Brownvm.brown.edu >

Column Editors: **Norman Desmarais** (Providence College <Normd@Brownvm.brown.edu >
Judy Luther <jluther@earthlink.net>

Colleges and universities have long recognized the value of computer technology to enhance learning. Some have required incoming freshmen to purchase a computer along with their books. These machines have often been desktop computers which limited their use to dorm rooms. However, educators at all levels have begun to explore using laptop computers because of their greater flexibility for use inside and outside of the classroom.

Students who have access to a computer at any time can take advantage of what educators refer to as the "teachable moment." This means that when the student is ready to learn, a key point in the instructional process, the computer and access to vast information resources are available. For example, students from **Forest Ridge School of the Sacred Heart**, a private girls' school in Bellevue, Wash., that has a laptop learning program, visited the **Seattle Art Museum**. When they wanted to know more about a painting, they used their laptops' wireless modems to access an Internet Web site and conducted their research on the spot.

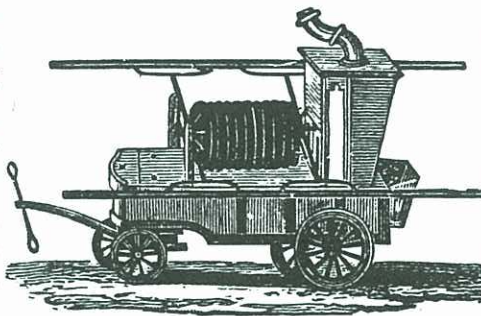
Having access to a computer at the teachable moment is an effective way to integrate technology into teaching and learning. Students who use laptop computers can use them as personal learning tools anytime they need to, anywhere they may be. No more waiting in line to use the computer! According to **Ronald J. Areglado**, Associate Executive Director of Programs, **National Association of Elementary School Principals**, "instant access to whatever information they need, whenever they want it helps students develop a new enthusiasm and motivation for learning."

Benefits

Although there are different models for such programs throughout the country, teachers generally report enhanced educational benefits. Students are no longer settling for "good enough," on their class projects. They ask each other for feedback and strive to improve each version of their work. They also learn to develop their critical thinking skills. Many even do extra work because it's fun to do on a computer. Teachers can raise their expectations of students and challenge them to work collaboratively and learn outside of the classroom.

Pilot Program

However, laptop computers remain relatively expensive. To promote the "Anytime Anywhere Learning" concept, **Microsoft** and **Toshiba** have joined forces to implement a laptop learning program. A pilot program was implemented in the 1996-1997 academic year with fifty-two schools around the country. The companies plan to broaden the program for the 1997-1998 academic year. The program will also be offered to colleges and universities. Students and teachers use **Microsoft® Windows®-based Toshiba®** notebooks loaded with Microsoft Office Professional and a modem for connectivity to the Internet as a basic "learner's tool kit."



"These teachers and students are doing incredibly creative and innovative projects using laptops as learning tools," said **Elizabeth King**, general manager of Microsoft's Education Customer Unit. "Microsoft is helping educators to make informed decisions about implementing anytime anywhere programs by documenting best teaching practices and helping schools share information."

Models

With a resource book and Web site, Microsoft will provide schools with ideas, best practices, strategies, models, and case studies as well as connections to potential solutions for hardware, financing, insurance, and training. Microsoft and Toshiba will also fund a two-year independent evaluation which will measure the impact that the use of laptops on a one-to-one ratio has on teaching and learning.

There is no single model or blueprint for implementation. Each institution or school system develops an implementa-

tion model that works best for its community. For example, New York's Community District 6 limited its program to one fifth grade classroom; other school systems involved several classrooms; and **Cincinnati Country Day School**, a private K-12 school in Ohio, issued laptops to all 600 students in grades five through 12. Regardless of the size of their program, the participating schools report they see similar effects on student learning. The students are developing higher order thinking skills, learning to summarize, and using the tools of business.

Tom Scott, vice president and general manager of the Computer Systems Division of **Toshiba America Information Systems** says, "A full-featured laptop loaded with the software that students will use in their work life is the ideal solution to mobile computing in education. We are pleased to work with these schools to develop hardware, financing, and insurance solutions that enable them to provide their students with this important personal learning tool."

Colleges and universities can require students to purchase their own computers much as they do for books. Some are exploring alternatives. Public and private schools fund their laptop programs through a variety of sources including reallocation of school budgets, parent participation, corporate/community sponsorships and government grants. For example, **Kathy Klock**, executive director of curriculum, instruction and assessment at **Snohomish School District** in rural Washington state, reports that Snohomish schools use a mix of community donations, private and state grant funding and parent support to help fund the students' personal learning tools.

In **New York City's Community District 6**, where more than 90% of the students live below the poverty line, parents share the leasing costs for the laptops with the school district. Superintendent **Anthony Amato** plans on growing the program from this year's pilot of 26 students in one classroom to 1,000 students at the start of the 1997-98 school year and another 1,000 in January, 1998. Recent permission to use U.S. Department of Education Title I funds to pay the school district's share of the laptop leases will help Amato with this ambitious expansion.

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A group of community volunteers in Beaufort County, S.C. — less than half with children in the schools — responded to an invitation from the county school district's superintendent and formed a community foundation, the **Beaufort County SchoolBook Foundation**, to help offset the costs of putting laptops in the hands of the students. The foundation subsidizes laptop leases for students who receive free and reduced lunches. **Jane Jude**, foundation president says that "portability allows students to introduce technology into their homes where it might not otherwise be accessible. This program helps to close the gap between the technology haves and have-nots. The laptop benefits both the students and their families."

Changes in Teaching and Learning

Personal learning tools, such as laptops, change the way that students learn, transforming teachers' roles and increasing parental involvement in their children's education. "Report on the Effectiveness of Technology in Schools," a 1995-96 study by the **Software Publishers Association** concluded that introducing technology into the learning environment makes learning more student-centered, encourages coop-


erative learning and stimulates increased teacher/student interaction.

Charlie Clark, Headmaster at Cincinnati Country Day School sees kids coming together in ways that didn't exist before. Kids from different social groups with different interests suddenly have something to discuss.

In Snohomish School District, where fifth and sixth grade classrooms in seven of the district's elementary schools participate in the laptop program, teachers and administrators report that their students have discovered a new excitement for learning. **Mike Hyland** has taught fifth grade at Snohomish's Riverview Elementary School for eight years. Since the laptop program began, his math and science students beg him to teach "just one more thing" at the end of each day. **Kimberlee Spaetig**, a fifth grade teacher at Dutch Hill Elementary School says, "The kids light up when they use the laptops to learn. The laptops make learning relevant and the students know it." **Kathy Klock**, executive director of curriculum, instruction and assessment, says "Our parents and students work together on the laptop, teaching each other. At parent-teacher conferences, the question of how laptops will be used in future grades always comes up."


Teacher Training

Teacher training plays a vital role in successful integration of the laptops into instruction at all 52 schools that have implemented the pilot program. Teachers receive their laptops before the students and most receive intensive training on the hardware and software. Then they work together and with curriculum specialists to integrate the laptop into their schools' already existing curriculum. Professional development of teachers is an ongoing process. In Snohomish, the teachers in laptop classrooms meet monthly to share ideas and strategies.

For more information about "anytime anywhere learning" using laptops, send e-mail to <clc@microsoft.com>. Microsoft's support of "anytime anywhere learning" is part of continuing efforts to help create a global "Connected Learning Community" in which all students and educators have access to technology and information online to support learning today and for a lifetime. For its ongoing work in the education community, Microsoft received the **1996 EdNet Pioneer Award** for its significant contribution to the advancement of educational technology. 

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type demonstration. Readers are again reminded that a videotape showing how the DOI system works can be obtained from the Washington office of the **Association of American Publishers** (1718 Connecticut Ave, Suite 700, Washington, D.C. 2009-1148: \$15 in NTSC format and \$20 in SECAM and PAL formats). DOI/electronic product identifiers will also be taken up at the Frankfurt meetings of the **International Association of Scientific, Technical and Medical Publishers** and the **International Distribution Specialists** (both on October 14).

In summary, it seems fair to say that issues about identifiers in the electronic environment have become one of the most widely aired topics in the industry in recent months. Further discussion will take place at the annual meeting of the **International ISBN Advisory Panel** so that a consensus can be reached on guidelines for using ISBN for electronic documents. Also, NISO's BICI (Book Item and Content Identifier) committee is now active. We can look forward to interesting developments from both of these sources as we continue our discussion of product identifiers in the electronic environment. 

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