

Crossing the Continuum Results of Ohio's Annual Education Technology Assessment

Executive Summary

Building something and helping something to grow are two different challenges.

Building is logical and systematic. We draw up a plan, assemble the components, and put them all in place. The process can be complicated and expensive with some surprises and setbacks, but progress is fairly predictable and controllable. Helping something to grow is a different matter. All we can do is create the right conditions and keep looking for results.

Both challenges are inherent in the work of Ohio SchoolNet.

Launched in 1994 to support the work of combining educational technology with new approaches to teaching and learning in Ohio's K-12 classrooms, this statewide partnership has a full agenda:

- SchoolNet has been coordinating the major task of building a physical infrastructure for connectivity and classroom technology in Ohio's schools and classrooms.
- SchoolNet also has been working to create the optimum conditions for the growth of new, technology-enriched teaching and learning practices.

This report reviews Ohio's progress in meeting these two important challenges by presenting the results of the Annual Education Technology Assessment (AETA), which was conducted during the 1999-2000 school year.

The Assessment

The Annual Educational Technology Assessment is conducted by analyzing data collected through three survey instruments: 1) a district survey, 2) a building survey, and 3) a teacher survey. The surveys were sent to every district and building in the state and could be completed on paper or online. With a return rate of 90 percent for teachers, x percent for buildings, and 90 percent for districts, confidence is high that the results are representative of the state.

The Focus: Progress Toward Eight SchoolNet Goals

The three surveys were designed to elicit information about the progress of SchoolNet and of local districts toward developing essential conditions for effective use of educational technology, as well as about how investments in creating those conditions have changed classroom practices.

Those conditions are reflected in eight SchoolNet goals that are aligned with characteristics identified by the National Education Technology Standards. The goals center on 1) connectivity, 2) classroom technology, 3) technology support, 4) technical training, 5) professional development, 6) electronic resources (instructional), 7) electronic resources (administrative), and 7) planning and coordination.

The Benefit: Better State and Local Decisions

Each district and building can access its results--including aggregated teacher responses -- via an interactive, searchable Web site. These results can be used in a variety of local planning and budgeting activities.

Profiles of statewide aggregated data are available for determining major trends and needs across the state. For this report, data in a number of areas have been further analyzed to identify relationships and patterns among responses.

The Eight SchoolNet Goals

Connectivity

Every school classroom is able to connect to a statewide network that provides students and teachers consistent access to electronic resources and the Internet. This network would also allow students and teachers to collaborate statewide in their daily work.

Classroom Technology

Students and teachers have access to modern multimedia computers, distance learning, and other educational technologies which support teaching and learning in the classroom.

Technology Support

Schools have access to current tools and personnel with sufficient expertise to provide ongoing support for technology in the schools.

Technical Training

Schools have sufficient training resources for the personnel who are responsible for supporting technology in the schools.

Professional Development

School teachers have sufficient opportunities to increase their skills in using technology to improve student learning.

Electronic Resources (Instructional)

School teachers use electronic products to improve student learning. Students have access to electronic products and resources that will help them meet high standards of achievement.

Electronic Resources (Administrative)

School teachers, administrators, and staff have access to electronic products and services that allow them to be more efficient and productive in their daily work.

Planning and Coordination

The State of Ohio provides leadership, coordination, and oversight in the acquisition and responsible use of technology in schools to facilitate equitable access and measurable improvement in learning.

Overall Progress

The eight SchoolNet goals reflect the key elements needed to build a high-quality physical infrastructure for delivering educational technology capabilities to each Ohio classroom, as well as the supports that are needed to encourage the growth of new practices.

Although investments have been made in each of the eight goal areas, the largest portion of resources have been directed toward building a basic infrastructure for connectivity and computer technology use. As a result, the most significant progress has occurred in these two areas, and the greatest potential for growth exists in some of the other goal areas.

Building the Infrastructure

Most of the nearly \$1 billion that Ohio has invested in SchoolNet has been directed toward the process of building the infrastructure--a necessary first step. As a result of these investments, Ohio has made rapid progress in achieving its goals for network connectivity and computer technology.

Internet connectivity is now available in 88(?) percent of Ohio schools, and 78 percent (?) of Ohio classrooms.

SchoolNet Plus funding has been used to purchase multimedia computers for the state's K-4 classrooms and for all classrooms in school districts with the lowest wealth. In 1998, Market Data Retrieval's *Technology in Education* study—which is recognized as the best measurement of student access to current technology—ranked Ohio third in the country in student-to-multimedia computer ratio (1 multimedia computer per 7.4 students).

Expansion of SchoolNet Plus into fifth grade has begun. Ohio SchoolNet has prepared for this transition to the middle grades by using a five-year, \$42 million federal grant from the Technology Literacy Challenge Fund to help several middle schools develop resources and field-proven technology models for middle grades.

Investments in improved connectivity and classroom technology continue:

- The ONEnet Ohio program is completing the process of linking all public K-12 classrooms to each other and the Internet.
- The Power Up for Technology program is providing about 30,000 classrooms with electrical upgrades for greater energy efficiency.
- Distance learning capabilities are expanding, largely through the Ohio SchoolNet Telecommunity, a six-year, \$32 million commitment from nine major telephone companies to provide grants for integrating two-way interactive distance education capabilities into Ohio's schools.

Fostering the Growth of New Practices

Ohio's investment strategies for aiding the growth of new teaching practices have centered on professional development for teachers. SchoolNet's major activities in this goal area include:

- Developing a SchoolNet regional faculty to guide statewide professional development decisions.
- Providing Learner Profiles for grades K-12 to guide teachers as they integrate technology into the curriculum.
- Creating a teacher technology skills matrix that identifies competencies at the novice, practitioner, scholar and expert levels.
- Offering training options and resources appropriate for each level of the matrix. Over 75,000 individuals have attended SchoolNet workshops.
- Establishing demonstration sites at 15 public schools.
- Working with Ohio colleges of education and consortia from other states on projects funded by the federal Preparing Tomorrow's Teachers to Use Technology (PT3) program.

These professional development opportunities--as well as a number of online resources that can be used in improving instruction, an electronic resource to assist continuous improvement planning, and online courses and intensive workshops for district technology coordinators and administrators--are just beginning to show results in the classroom.

An Evolutionary Process

Research shows that the process of technology adoption in schools typically is an evolutionary one. Nationally recognized models of the process proposed by the Milken Exchange on Education Technology and the ten-year Apple Classroom of Tomorrow Project suggest that a transformation in teaching and learning does not immediately follow the introduction of computers into a classroom environment--even if the access, tools, training, and support provided are of the highest quality.

Teachers' initial focus is on gaining technical skills and teaching those skills to students. After this stage, they begin to integrate technology use with traditional classroom practices. For example, they might create handouts using word processing software, or they might use an electronic slideshow during a lecture instead of writing on the blackboard.

Only after they gain confidence through these activities are they ready to begin taking advantage of the power of technology.

Data from the AETA teacher survey suggest that Ohio teachers are following this pattern.

The survey listed each type of software tool available to teachers and asked them to indicate whether they use the application daily, weekly, monthly, or seldom to never.

The results--which will serve as a baseline for tracking growth in computer usage--show that the software application types with the highest usage are those that can be most easily used to support traditional teaching practices or student activities that are already part of most students' coursework.

For example, 53 percent of teachers who responded to the survey reported that their students use word processing on a daily or weekly basis. Word processing also was one of the more frequently listed first and second priorities for professional development.

STILL WORKING HERE

Needed Improvements

We must provide equitable connectivity and access statewide and invest greater efforts and

resources in teacher learning, technology productivity, and knowledge generation.

Connectivity and Access

Network bandwidth and computer power have increased rapidly during the past five years. New software applications and upgrades to existing ones always take advantage of the latest capabilities.

Since better tools usually mean better performance for their users, periodic improvements to the educational technology infrastructure are necessary.

In addition, state and local strategies are needed for accelerating the process of providing computers, related equipment, and software at all grade levels.

Every student attending Ohio schools today needs the opportunities afforded by technology to become better prepared for success in a global, digital, knowledge-based economy and society.

Knowledge Generation

The AETA surveys provide a wealth of data, but Ohio needs additional state and local data to develop an accurate profile of how technology is being used and to evaluate the effectiveness of professional development and other support.

One area where support is needed is the development and use of accurate measures of “knowledge age” competencies, such as critical thinking, collaboration, and complex problem-solving. Only then will we be able to assess the quality of the technologies we use.

Teacher Learning

Ohio teachers encouragement to continue making progress toward a transformation in

classroom practices. Professional development opportunities are need that focus on how technology integration can support a shift to approaches that are constructivist, collaborative, and interdisciplinary.

Also needed are more opportunities within school and classroom environments to pursue ongoing, job-embedded technology projects that will benefit both student and teacher learning.

Technology Productivity

Ohio schools need to encourage increased use of technology in classroom practice by removing some of the non-teaching effort involved in technology use.

Training administrators and teacher leaders in creating organizations and cultures that support new teaching methods is important. In addition, teachers need access to onsite computer specialists and support staff who can perform the technical work involved in using technology and help teachers solve problems and learn new skills.