Rural connections
Mary Ann Zehr
Education Week; May 10, 2001; 20, 35; Research Library
pg. 24

Rural Connections

BY MARY ANN ZEHR

In a remote area of New Mexico, Central Consolidated Schools is struggling to get a workable connection to the Internet for all its schools.

The 7,500-student district with 17 schools straddles a Navajo reservation. The district's five schools that are not on the American Indian reservation, plus one that is, have a fast and robust connection to the Internet. But 11 of the schools on the reservation have a lousy connection, so slow that it can take half an hour to download a few e-mail messages.

"Not only is there a digital divide, but we live on it," says Rick Nussbaum, the director of technology-support services for the district.

The reason, he points out, is that the district hasn't been able to get the telecommunications company serving the area to install the line that would permit the schools on the reservation to share the fast connection to the Internet—a T1 line—that the schools off the reservation are using.

"We have the hardware, the servers, the routers," says Nussbaum. "We have the connections between schools. The only problem we're having is getting connected to the Internet."

The 'Last Mile' Problem

Rural and other isolated areas hoping to link up with advanced telecommunications often encounter what technology experts call the "last mile" problem.

It's costly for companies to lay fiber-optic cable or provide another kind of technology infrastructure in remote areas both because of the distances involved and because local communities often lack the customer base that suburban or urban areas have that enable providers to recoup their costs.

"The issue becomes the level of access—how big your pipe is coming into your school," says Steven A. Sanchez, the director of curriculum, instruction and learning technologies for the New Mexico Department of Education. "It's those isolated communities in the mountain areas and out on the reservations that have had the most difficulty" with access.

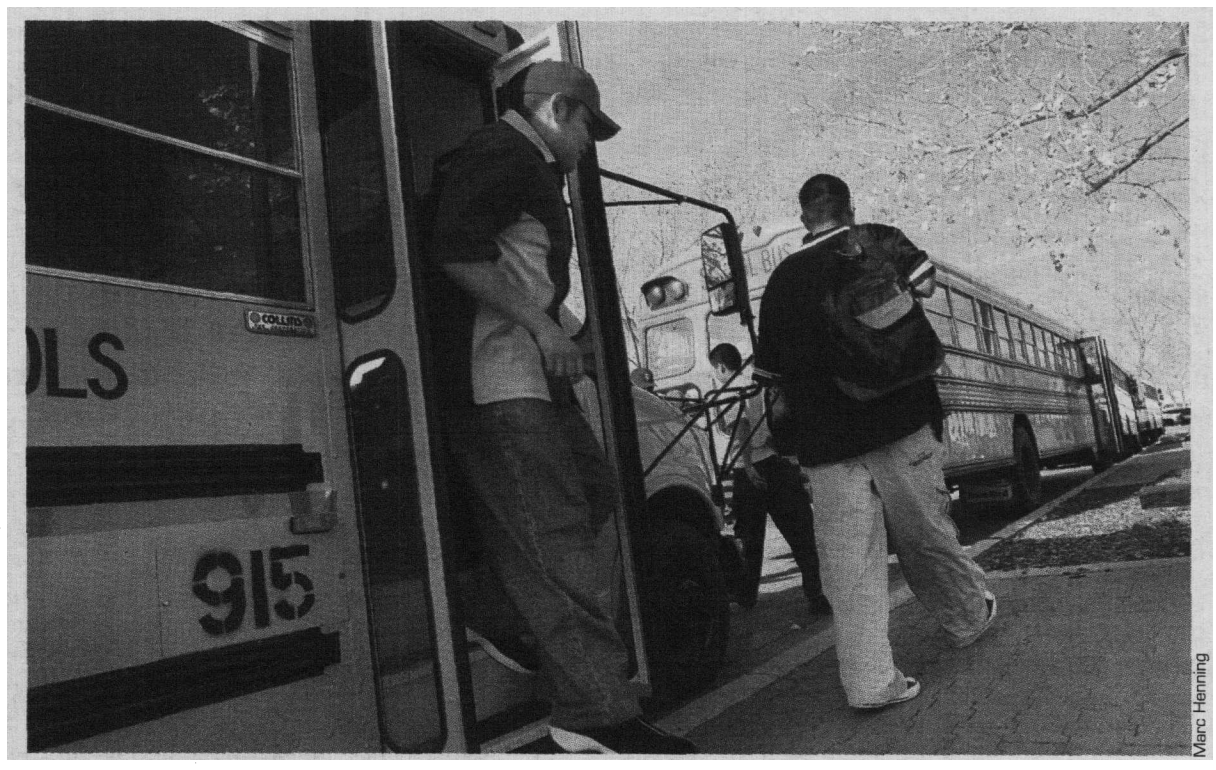
Education technology experts generally talk as if all students are entitled to "broadband" access to the Internet, which is generally viewed as a connection able to transmit large amounts of video and data in two directions. The goal of most educators is to obtain at least the quality of a T1 line for rural schools, even though some suburban or urban schools now have even higher-quality connections.

Almost all of the nation's schools have, at the least, what's called a "dial-up" connection to the Internet, which allows students or teachers to place a call to the Internet service provider in the same way they would place a regular telephone call.

With the help of state initiatives that take advantage of bulk buying power to convince companies it's worth their while to provide an infrastructure for service to far-flung areas, and with the help of satellite and other technologies, many rural areas are overcoming access problems.

Kentucky, for example, has a statewide initiative that guarantees broadband access to every county in the state, and many schools have been successful in getting high-quality connections, according to Marty Newell, a part-time field-staff person for the Rural School and Community Trust, a Washington-based nonprofit organization.

In addition, while many of the federal Bureau of Indian Affairs' 185 schools have had only slow dial-up connections to the Internet, the government expected, as of April, to have every BIA school connected to the Internet with at least a T1-quality line. The project used satellite technology in areas where it wasn't feasible to lay fiber-optic cable that would provide a T1 line or fractional T1 line, which would provide a school with only a fraction of the 24 channels available with a full T1 line.



Marc Henning

Because poor Internet connections prevent them from taking classes online, some high school students from New Mexico's remote Central Consolidated Schools must ride a bus 75 miles to a college in Farmington, N.M.,to take courses that are not offered in their district.

"If we had known how difficult it was, we never would have started," says Peter H. Camp, an education specialist for the BIA and a member of the team that coordinated the effort, which took three years. "It has been an enormous challenge."

Home Connections Scarce

But some rural schools are still waiting to get T1-quality lines.

Those schools may not have gotten around to applying for federal E-rate money, which subsidizes such connections, benefiting many rural schools.

Or the schools with poor access may not yet have experienced the fruits of state initiatives that are kicking in right now. The North Dakota legislature, for example, has approved plans for a network that ensures that all districts with a high school will have T1 connections by the end of this summer.

One reason to target rural schools for high-quality connections to the Internet is that in many rural communities, few students have computers and Internet connections at home.

"I'm working in a lot of places where more than a third of the homes don't have telephones," notes Newell of the Rural School and Community Trust, who has worked with nearly two dozen rural schools in Georgia, Kentucky, North Carolina, Tennessee, and Virginia

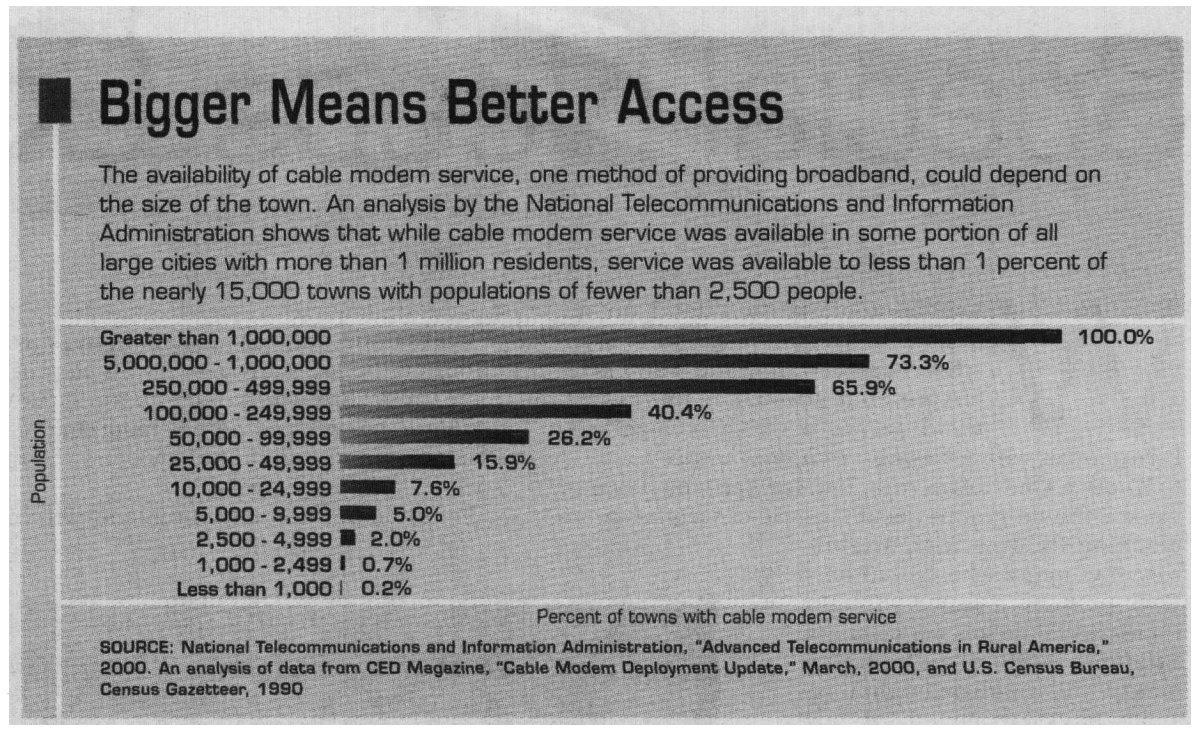
over the past year. "We're a long way from having computers in those homes."

Debra L. Flynn, the sole teacher at Molt Elementary School in Molt, Mont., says that only one of the nine students in her school has a computer at home and the school's Internet connection is often used by members of the community.

A dial-up connection to the Internet has been workable for her students, given the small size of the school. Still, Flynn has appreciated upgrades to the connection.

A year ago, the school used E-rate aid to pay for a second telephone line, which is now dedicated to Internet access. The second line makes computer troubleshooting much easier, says Flynn, because she can stay on the phone with a repair person at the same time she's logged on to the Internet.

While at a tiny school such as Molt Elementary, students may not be losing out in big ways by not having a state-of-the-art connection to the Internet, at schools with more students—and thus more traffic—having a poor connection rules out certain educational activities.



Information Flows in Digital Drips

Stephen Carr, a technology teacher at Newcomb Middle School, one of the schools within New Mexico's Central Consolidated district, says the quality of the connection to the Internet at his 250-student school on the Navajo reservation is like "a small water pipe." He says: "We're getting drips, while everyone else is getting a flow."

Newcomb and nine other schools on the reservation share one 56K dedicated line to the Internet.

Besides the fact that students have to wait while Web pages load "painfully" slowly, Carr says, the quality of the connection doesn't allow them to participate in online courses, which can be an important source of instruction for rural students.

"We have [high school] students who leave here at about 7:30 in the morning to go to San Juan College in Farmington, 75 miles away. They're able to take one class in the morning and come back to the school to take classes in the afternoon," Carr says. "If we had Internet access and a higher bandwidth and satellite communication, we could set up two-way communication for a class." ■