

Why internet stops once school ends for many rural California students

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ALPAUGH, Calif. — Walk into any classroom in Alpaugh Unified and you will see teaching and learning using the latest technology. Students collaborate on digital documents, give presentations on interactive whiteboards, conduct research and even apply to colleges on Chromebooks.

But for many students in Alpaugh, a small rural town about an hour north of Bakersfield in Tulare County, that online connection stops once the school day ends.

“We have a disadvantage because of the lack of technology,” said Alpaugh High School principal Nancy Ruble. “Not here at school, but in the community.”

By talking with students and teachers, it’s clear to Ruble that the majority of her students don’t have internet at home. Many families can’t afford an extra payment, she said, and there are few internet options in their town of about 1,000 people.

Only about a third of California households in rural areas are subscribed to internet service, compared with 78 percent in urban areas, according to an EdSource analysis of data from the California Public Utilities Commission.

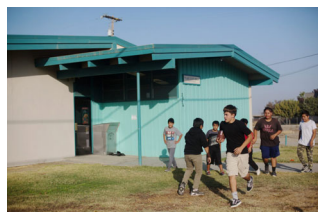
The divide between students who have access to internet and computers required to do assignments at home and those who don’t is known as the “homework gap.” And it threatens to slow down efforts to close the gap in educational opportunities between students in rural regions of California and their wealthier counterparts around the state.

A lack of internet access may also exacerbate the achievement gap — a consistent difference in scores on standardized tests between black and Latino students and their white and Asian peers.

“Lack of access to computers and the internet limits learning, making it more difficult for children to keep up or develop the skills that are necessary for academic and professional success,” according to **a report by Common Sense Media**, a nonprofit that advocates for safe technology use for children and their families. “Students without broadband access are disadvantaged when their teachers are not able to assign homework that’s most relevant to or useful for them.”

Families in Alpaugh are among the least likely in the state to be connected to internet service at home. There, only 13.8 percent of households have broadband subscriptions, an EdSource analysis of commission data shows.

Knowing many of their students lack internet at home, teachers at Alpaugh Unified's two schools — and **those around the country** facing similar challenges — don't assign homework that requires students to get online.



Youth in Alpaugh play in front of the town's public library where many students access the internet after school. Photo by Julie Leopo

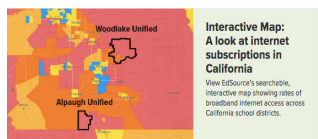
Alpaugh Unified consists of Alpaugh Elementary and Alpaugh High, and the combined enrollment is small enough the schools share one campus. Alan Gonzalez, a junior at Alpaugh High whose parents work in nearby grape fields, is one of the students without internet at home. He's taking a college-level course at College of the Sequoias in Visalia through his school's dual-enrollment program, but he can't get online to do homework.

"Studying without internet at home makes everything hard," he said. "I screenshot every assignment, so I'm not stressing out later when I get home, and there's no internet."

Alpaugh provides Chromebooks that all students can use during the school day, but students who take the bus or rely on the district's free breakfast program don't have much extra time to use the internet before or after school or visit the public library, which is open two days a week.

"It makes them choose between breakfast and go to work on homework," said Carmen Diaz, a 7th- and 8th-grade English and history teacher who grew up in Alpaugh.

Diaz uses class time for computer-based assignments like research for a family history project. But the workaround isn't ideal. It can slow down the amount of content she is able to cover, she said, and students miss out on opportunities to do research and tinker with technology on their own at home.



This map shows the rate of internet subscriptions statewide and the rate per school district for 2018. Courtesy EdSource

Income is the biggest factor affecting the rate of broadband subscriptions, a June 2019 **report** released by the California Public Utilities Commission shows. But for low-income residents in rural California, the problem is often compounded by having fewer internet service providers and prices to choose from — or no broadband options at all.

Because broadband infrastructure can cost more to build in rural areas with fewer customers, it can lead to higher prices for customers, said Sunne Wright McPeak, president and CEO of the California Emerging Technology Fund, a statewide nonprofit that works to accelerate the deployment and adoption of broadband.

Even when internet service is available, paying for it can take a backseat to more pressing needs like food or gas, an issue in both rural and urban low-income communities.

Tulare County — one of the state's poorest counties, according to the 2013-17 American Community **Survey** — has among the lowest rates of broadband subscriptions in California, says a 2019 **report** from Public Policy Institute of California, a nonpartisan statewide research and policy organization.

Katherine Goyette, an educational consultant for technology and integrated studies for the Tulare County Office

of Education, said the opportunity gap is particularly stark in computer science. Across California, black and Latino students and students in rural areas are already among the least likely to attend high schools that offer computer science courses, according to a **report** from the Kapor Center, a nonprofit that focuses on equity in technology.

As a primary author of California's **computer science standards**, she is concerned with how the homework gap inflates these existing challenges.

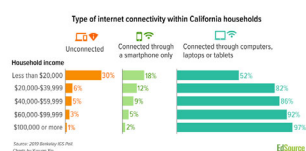
“In our rural area, computer science isn’t often seen but it’s used in fields like agriculture and medicine. And jobs in the Central Valley that require computer science are expected to increase,” Goyette said. Without internet at home to do computer science coursework — or if rural schools don’t offer these courses at all — students can miss out on opportunities to learn technology skills needed across a variety of fields.

Closing the digital divide in California

California has invested millions into expanding access to the internet in and outside of schools over the last decade. In June 2014, California lawmakers allocated \$26.7 million to fund the Broadband Infrastructure Improvement **grants**, which help schools upgrade their internet connections. In 2015, the grants received \$50 million in additional funding.

Today more than **92 percent** of California students have access to at least the minimum internet speeds required to take online state Smarter Balanced assessments, according to **data** from the K-12 High Speed Network, a state project funded by the California Department of Education to help expand high-speed internet in schools.

Alongside their efforts to expand internet access in schools, lawmakers have made bridging the digital divide at home a priority. In 2017, legislators passed a new version of the California Internet for All Now Act, which allocated \$330 million to build broadband infrastructure and boost connectivity around the state.



The bill created a Broadband Adoption Account to fund \$20 million in grants to increase publicly available and after-school broadband. As of June 2019, \$2.7 million had been awarded to schools, libraries and nonprofit organizations, according to a **report** released by the California Public Utilities Commission.

Source: 2019 Berkeley IGS poll.
Charts by Yuxuan Xie.

At the national level, the Federal Communications Commission, which runs the E-Rate program that gives schools and libraries discounts on broadband service, **announced** it will research whether the program could expand the broadband subsidy to the homes of students. And the federal Connect America Fund **has provided** millions in subsidies to build infrastructure and make service available in underserved parts of California.

“Internet companies are taking advantage of federal and state subsidies to deploy broadband in rural communities,” Carolyn McIntyre, president of the California Cable and Telecommunications Association, said in an email. In addition, California’s cable industry spends about \$2 billion annually to upgrade and build out networks using private investment dollars, McIntyre said.

As these efforts are underway, new roadblocks have emerged.

Fifth generation (5G) wireless networks promise a future with faster internet speeds. Yet many rural parts of the state lack the fiber infrastructure the technology requires, potentially widening the digital divide there.

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“Complicating all of this is this rush to 5G. They are trying to redeploy in urban areas and are leaving rural areas behind,” said McPeak, of the California Emerging Technology Fund. “This will be the next generation of the technology divide.”

While subsidies are available to entice companies to build out broadband in rural areas, there must also be enough paying customers to continue operating, McIntyre said.

Some internet companies in California have discounts available to low-income residents, however the majority of residents without internet access said they are unaware of such discounts, according to a **2019 poll** by UC Berkeley’s Institute of Governmental Studies.

Like some of his peers, Gonzalez, the junior at Alpaugh High, sometimes connects to the internet using his cellphone hotspot. But service is spotty, he said, and even after deleting social media to save data for schoolwork, his data plan still runs out before the end of the month.

If he’s in a real pinch, Gonzalez will drive 30 minutes to a relative’s house in Delano to turn in essays online or search for help on the internet for the college-level American Sign Language course he’s taking.

“Society is updating and today everyone needs Wi-Fi,” Gonzalez said. “But here, it’s difficult to rely on.”

Local solutions

Districts around the state have come up with creative solutions to help students get online at home, including using funds from the Local Control Funding Formula, which directs additional state funding to low-income and other high-needs students.

Situated at the foot of the Sierra Nevada Mountain range, about an hour northeast of Alpaugh, sits the small city of Woodlake. Home to about 7,600 residents, Woodlake is surrounded by lush orange groves and rocky foothills reminiscent of a vintage citrus packing label. The town’s picturesque backdrop has a downside, however: Many families don’t have reliable internet in the hilly rural terrain.



Four years ago, the issue became clear to officials at Woodlake High School when they discovered through a survey that many of their students had no internet at home.

Administrators already knew that the majority of their students struggled financially — 86 percent of students at Woodlake High qualified for free or

Woodlake Unified erected four cell phone towers to connect students with district Wi-Fi from home. Photo by Julie Leopo

reduced-priced lunch in 2017-18, **according to data** from the California Department of Education. So then-Assistant Superintendent Glen Billington spearheaded an effort to extend the district's Wi-Fi beyond school grounds.

Using one-time state funding, the district in 2016 erected four \$100,000 cellular antennas throughout Woodlake that students can use to connect to district Wi-Fi at home using routers the school provides for free.

Before the antennas went in, four out of 10 students said they couldn't get online at home at all; others had poor service.

Now district officials report that most students are online either through the district's Wi-Fi or their family's subscription. And the district is stocked with router devices for students who might need them.

Rogelio Chavez is one of the students who has benefitted from the district's free Wi-Fi.

"I live way out in the country, and our internet service was terrible to the point where we pretty much didn't have internet," Chavez said. "Whenever I was doing homework online, I would have to write out my essays then come to school and type it out. It took a lot of time, unnecessary amounts of time."



Carmen Diaz, a 7th- and 8th-grade teacher at Alpaugh Elementary, uses class time to do computer-based work with students. Photo by Julie Leopo

The router has made it easier for Chavez to manage schoolwork and activities such as student government because he doesn't have to use the library immediately after the bell rings or find other means of getting online. Instead, he can log on at home when it's convenient for him.

"It's one of the crown jewels of our district," said Woodlake High principal Rick Rodriguez. "This opened up everything."

What's happening in Woodlake mirrors efforts by schools around the state to help students and families connect to the internet and computers at home.

"The homework gap very much contributes to the achievement gap," McPeak said. "A school-based strategy that gets technology into the hands of students and their parents can begin to close the digital divide."

In Alpaugh Unified, officials said they are exploring similar options but funding those kinds of initiatives will be a struggle for their tiny district.

Diaz, the English and history teacher, has experienced firsthand how a lack of internet access can hinder educational opportunities. Before she began teaching in Alpaugh Unified, Diaz enrolled in an online teaching program. But she had a dial-up connection, and it wasn't fast enough to load parts of the program. Feeling discouraged, she put her education plans on hold. Eventually she returned to teaching through an internship at the Tulare County Office of Education.

Today, she's proud of how far her school has come. "There are a lot of changes that need to be done," Diaz said.

“But there is hope.”

*This article is part of an EdSource **special report** on the challenges of students and districts in California’s rural communities: **Rural California: An Education Divide**. This piece explores the barriers created by limited internet access. Produced by EdSource: Sydney Johnson, reporter; Julie Leopo, photographer; Jennifer Molina, videographer; Yuxuan Xie, data visualization specialist; Daniel J. Willis, data analyst; Rose Ciotta, project editor; Denise Zapata, co-editor; Justin Allen, web designer; Andrew Reed, social media.*

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Wi-Fi-enabled school buses leave no child offline

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