Online Learning for Rural Students

Expanded rural broadband service can help overcome inequitable access to digital instruction.

Reg Leichty

Despite 25 years of significant progress in connecting schools to the internet, the absence of universal high-capacity broadband access at school and at home—especially among lower income and minority families—is limiting rural students' instructional opportunities relative to their urban and suburban peers. The pandemic brought the rural broadband gap into stark relief, as schools shuttered and many families lacked the internet access and devices necessary to connect their students to high-quality online learning.

Even before the pandemic, school leaders across the country were sounding the alarm about desperate students parking next to schools, libraries, and even businesses to gain Wi-Fi access for homework. America's students deserve better.

State boards of education can help solve the rural broadband connectivity challenge and expand learning opportunities. To do so, they should support efforts to better map broadband access, champion additional connectivity funding for rural community anchor institutions like schools and libraries, invest in digital literacy initiatives to highlight broadband's benefits, and work with other state leaders to dedicate resources for expanding telecommunications infrastructure to locations where markets fail to provide consumers home connectivity options.

Rural economies and communities have changed significantly over the past 30 years. Changes to agriculture and mining have concentrated many employment opportunities in large cities, and rural populations and economies experience acute pressures from aging populations and evolving societal preferences.[1] These demographic and economic shifts make expanding online learning opportunities for rural students—including adult learners—more important than ever. Technology, especially the ability of new tools to deliver access to rich online instruction and educational resources, offers rural communities an economic development and educational lifeline.

Nationally, most schools have at least the minimum broadband capacity required for classroom-based online learning; the few that do not are disproportionately rural. According to Education Superhighway, 99 percent of schools, serving 46.3 million students, have access to the 100 kilobit per second bandwidth that the Federal Communications Commission (FCC) says is the minimum required for classroom-based digital learning. Education Superhighway estimates that only 743 schools nationally—mostly located in "hard to reach" rural areas and small towns—lack this minimum connectivity level.[2]

Connecting these schools must be a high priority, but it is not near enough. The bandwidth required for learning evolves, so policymakers must commit to expanding broadband speeds for all schools. Only 38 percent of all school districts, including 57 percent of America's smallest rural school districts, have reached the FCC's more aspirational online learning broadband speed of 1 megabit per second—10 times faster than the minimum.[3]

Home Broadband Gaps

Although most rural schools have at least the minimum broadband connections for digital learning, home broadband access rates for rural students are too low. Every rural student needs home access. Policymakers often refer to this home connectivity problem as the "homework gap." But with the pandemic requiring millions of students to attend school wholly or partially from home during the 2019–20 school year, this "homework gap" has become a massive "learning gap," especially for rural families. Rural adults

and students are less likely than their urban and suburban peers to have home broadband or own a smart phone. They are also less likely to have access to the devices required to take full advantage of broadband's potential. Responding to a 2019 survey conducted by the Pew Research Center, approximately two-thirds of rural adults (63 percent) reported that they have a home broadband connection, which compares poorly to urban (75 percent) and suburban (79 percent) broadband connection levels.[4]

Other studies confirm Pew's assessment of rural connectivity. A recent report by Common Sense and the Boston Consulting Group shows that "37 percent of students are without a home broadband connection compared to 25 percent in suburban households and 21 percent in urban areas."[5] The Alliance for Excellence in Education's Future Ready Schools initiative reports that "36 percent of Americans living in rural areas of the United States lack high-speed home internet, and 14 percent don't have a computer" (see also figures 1 and 2).[6] The National Center for Education Statistics reported in 2017 that for "5- to 17-year-old students living in households in remote rural areas, the percentage without internet access at home was particularly high. For instance, in remote rural areas 41 percent of Black students and 35 percent of students living in poverty had either no internet access or only had dial-up access at home."[7]

Home broadband gaps in rural areas emerge for a variety of reasons, including households' inability to pay for internet access and some consumers' failure to recognize the internet's value, but the absence of sufficient telecommunications infrastructure represents one of the biggest obstacles to universal broadband connectivity. Citing the FCC's annual broadband status report, Brookings Institution telecommunications policy experts Blair Levin and Carol Mattey recently noted that "39 percent of the rural population (23.4 million Americans), compared to just 4 percent of the urban population, lacked access to what the FCC regards as basic fixed broadband service." Levin and Mattey, as well as other experts, point out that market failures are responsible for the lack of infrastructure in many rural areas.[8] Small populations living at great remove from denser populations simply do

not provide sufficient returns on investment to telecommunications companies.[9]

One reason policymakers struggle to solve this problem is that broadband availability maps are not detailed enough to explain with precision where the gaps exist. Fortunately, Congress earlier this year passed the Broadband Deployment Accuracy and Technological Availability Act, which directed the FCC to fundamentally transform broadband mapping. The agency has already published new regulations to help push this work forward for rural communities.[10] With better broadband maps in hand, policymakers should be able to better target subsidies to encourage companies to expand broadband to rural students and their families.

The Pew survey also showed that "rural adults remain less likely than suburban adults" to own "traditional and tablet computers" and that rural residents go online less frequently than other Americans. Thus to be fully effective, broadband access policies must be paired with initiatives to help families acquire devices and to tout broadband's advantages for their learning and work. Congress recognized this need when it made devices and software, not just broadband, an eligible use of education funding under the Coronavirus Aid, Relief, and Economic Security Act (CARES). This funding was a helpful start. But given schools' many pandemic-related needs, additional investments in devices will be required to close access gaps and keep them closed.

E-Rate and More

Several federal programs aim to expand broadband availability, but the FCC's schools and libraries universal service support program, known as E-Rate, is the most important initiative focused on access to digital learning. Established by the Telecommunications Act of 1996, E-Rate subsidizes telecommunications services and products for public and private elementary and secondary schools. Program discounts range from 20 to 90 percent based on the family poverty levels of the students that applicants are serving. For-profit schools and schools with endowments greater than $50 million may not participate.[11]

Figure 1. Nonmetropolitan Households without High-Speed Home Internet (percent), 2018
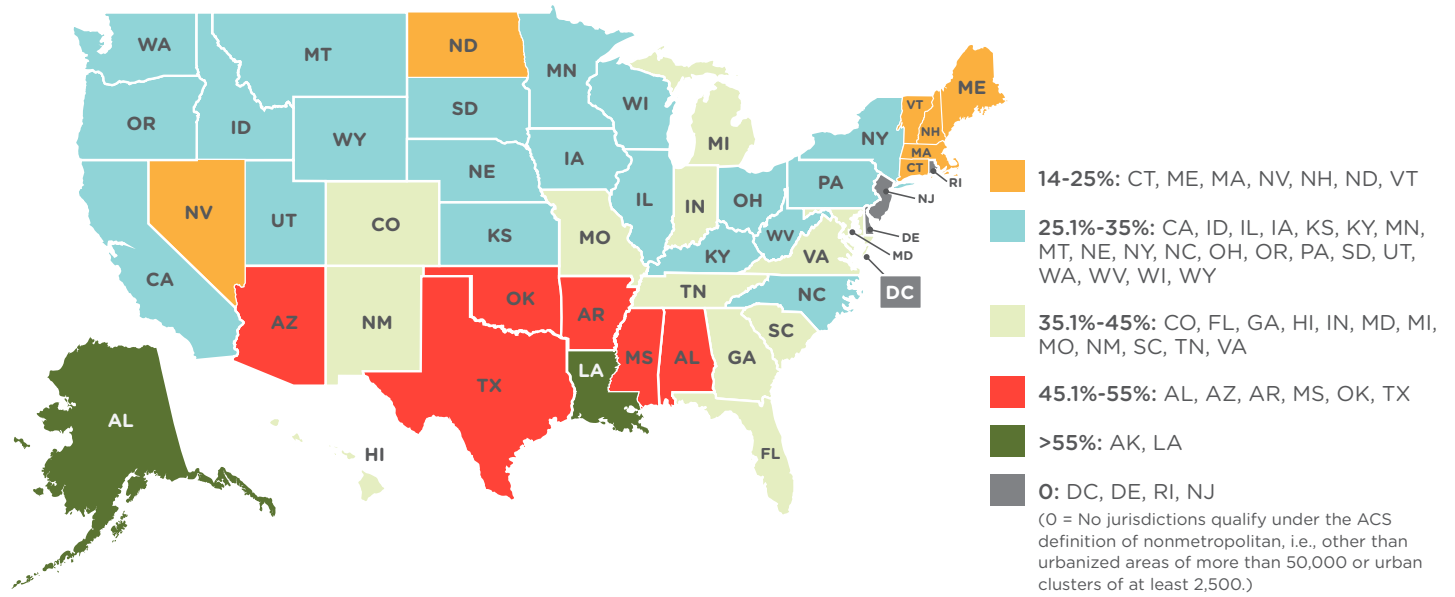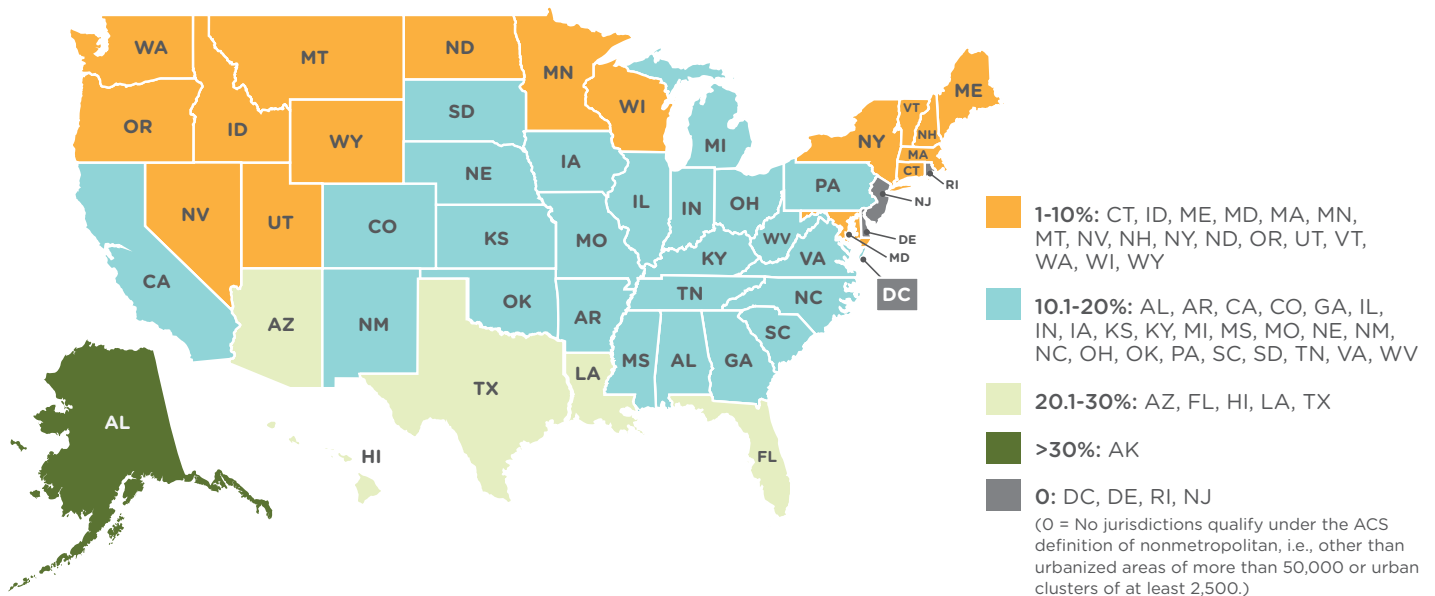U.S. average = 36.2%

14-25%: CT, ME, MA, NV, NH, ND, VT

25.1%-35%: CA, ID, IL, IA, KS, KY, MN, MT, NE, NY, NC, OH, OR, PA, SD, UT, WA, WV, WI, WY

35.1%-45%: CO, FL, GA, HI, IN, MD, MI, MO, NM, SC, TN, VA

45.1%-55%: AL, AZ, AR, MS, OK, TX

>55%: AK, LA

0: DC, DE, RI, NJ
(0 = No jurisdictions qualify under the ACS definition of nonmetropolitan, i.e., other than urbanized areas of more than 50,000 or urban clusters of at least 2,500.)

Figure 2. Nonmetropolitan Households without a Computer (percent), 2018
U.S. average = 14.2%

1-10%: CT, ID, ME, MD, MA, MN, MT, NV, NH, NY, ND, OR, UT, VT, WA, WI, WY

10.1-20%: AL, AR, CA, CO, GA, IL, IN, IA, KS, KY, MI, MS, MO, NE, NM, NC, OH, OK, PA, SC, SD, TN, VA, WV

20.1-30%: AZ, FL, HI, LA, TX

>30%: AK

0: DC, DE, RI, NJ
(0 = No jurisdictions qualify under the ACS definition of nonmetropolitan, i.e., other than urbanized areas of more than 50,000 or urban clusters of at least 2,500.)

January 2021 • National Association of State Boards of Education

Contingent on demand, E-Rate annually provides up to $4.2 billion to eligible schools and libraries, which makes the program the third largest federal investment for schools after Title I of the Elementary and Secondary Education Act and Part B of the Individuals with Disabilities Education Act. E-Rate helps schools pay for internet access costs and the internal connections required to deliver broadband within schools (for example, installing Wi-Fi networks on campus). When Congress authorized the program in 1996, only 14 percent of schools had internet access. Today, the program is widely credited with helping the country achieve 99 percent school broadband connectivity.[12]

However, E-Rate applicants are prohibited from using program funds for off-campus broadband initiatives, such as equipping rural students with the home connectivity required for digital learning. Historically, this limitation served to focus limited E-Rate resources on greatly needed school connections, but the rule has also frustrated state and district leaders' efforts to ensure that all students can participate in learning at home. When nearly all schools suddenly closed to in-person learning in March due to the COVID-19 pandemic, this limitation moved to the forefront of the digital learning debate. At that time, local leaders quickly began looking for ways to ensure that their unconnected students could participate in online learning, even though using E-Rate funding was not an option.

Responding to calls from education leaders to expand E-Rate to encompass students' connection to home broadband, FCC Chairman Ajit Pai said the agency lacked the statutory authority to use the program for that purpose. However, FCC Commissioner Jessica Rosenworcel has repeatedly argued, including during September 17 testimony before the House Subcommittee on Communications and Technology, that the agency in fact has the authority to expand the program's reach: "The agency has even done this in the past on a trial basis! That means the FCC could use E-Rate right now to provide every school library with Wi-Fi hotspots and other connectivity devices to loan out to students who lack reliable internet access at home," she said.[13]

Yet even if all commissioners agreed on this point, the FCC would still need significant additional funding to deliver on it, especially for students in sparsely populated rural areas that lack access to costly broadband infrastructure. To help connect students to broadband during the pandemic, some federal legislators introduced the Emergency Educational Connections Act (S.3690 and H.R.6563) in spring 2020. If approved, the act would require the FCC to use E-Rate for home broadband connectivity for students and would dedicate emergency funding for that purpose.[14] It remains unclear if Congress will adopt it, but states and school districts in the meantime are permitted to use education funding from the CARES Act for connectivity initiatives. However, these flexible funds are needed for many emergency purposes.

E-Rate is not the only federal broadband program important to rural students. The Universal Service Fund—of which E-Rate is one component—also supports rural households through the High Cost (also referred to as the Connect America Fund) and Lifeline programs. The High Cost program is "designed to ensure that consumers in rural, insular, and high-cost areas have access to modern communications networks capable of providing voice and broadband service, both fixed and mobile, at rates that are reasonably comparable to those in urban areas."[15] The Lifeline program subsidizes phone and broadband service for qualifying low-income consumers.[16]

Beyond the FCC, the U.S. Department of Agriculture's Rural Utilities Service (RUS) manages several telecommunications programs for rural areas. These programs include the Rural Broadband Access Loan and Loan Guarantee Program, the Community Connect Grant Program, and the ReConnect Program. RUS also administers the Distance Learning and Telemedicine grants program, which does not support broadband connectivity but funds related equipment and software.

Recommendations for State Boards

State board members can play an important role in ensuring that rural students have access to the evolving high-capacity broadband levels required to support online learning during the remainder of the COVID-19 pandemic and beyond. Board leaders interested in this work for

rural communities should consider taking the following steps:

- **Support broadband mapping.** The collection of better data about broadband access gaps in rural areas is a vital precursor to ensuring that all households, regardless of location, have access to broadband. Congress's approval of the Broadband Deployment Accuracy and Technological Availability Act will help, but state and local leaders must hold the FCC accountability for successfully implementing the law, and then they must call public attention to the resulting data.

- **Support expansion of E-Rate.** E-Rate dramatically boosted school connectivity levels. Championing ongoing, expanded funding for the program is essential, and state board members should also urge federal leaders to allow E-Rate funds to be used for connecting rural and low-income students to broadband at home.

- **Support public education about broadband's benefits.** Digital literacy initiatives can highlight broadband's benefits, including educating rural households about home broadband's educational advantages. State board members should work with other state agencies to launch public awareness campaigns about how broadband can expand education, health, and economic opportunities.

- **Support funding for broadband infrastructure.** State leaders must invest in public networks to close rural infrastructure gaps or create public-private partnerships that incentivize telecommunications providers to provide services that otherwise will not be offered as a result of market failures.

The educational challenges facing many rural communities are significant, but universal school and home broadband access could provide students with access to expanded instructional opportunities and an array of resources to help them prepare for success after graduation. Expanding broadband access for learning will require strong leadership by state boards and other state leaders who are committed to defining and funding solutions to this longstanding problem. ■

[1] László J. Kulcsár, "The Demography of Rural America," paper presented at Federal Reserve Bank of Boston conference A House Divided: Geographic Disparities in Twenty-First Century America, October 4, 2019.

[2] EducationSuperHighway, "2019 State of the States: The Classroom Connectivity Gap Is Closed" (2019), 6, 24, https://stateofthestates.educationsuperhighway.org/?utm_source=release&utm_medium=newsroom&utm_campaign=SotS18#national.

[3] Ibid., 13.

[4] Andrew Perrin, "Digital Gap between Rural and Nonrural America Persists," *Fact Tank* blog (Washington, DC: Pew Research Center, May 31, 2019).

[5] Sumit Chandra et al., "Closing the K-12 Digital Divide in the Age of Distance Learning" (San Francisco: Common Sense Media and Boston: Boston Consulting Group, 2020).

[6] futureready.org, "Students of Color Caught in the Homework Gap," web page (Washington, DC: Alliance for Excellent Education, 2020), https://futureready.org/homework-gap/.

[7] "Student Access to Digital Learning Resources Outside of the Classroom," web page (U.S. Department of Education, Institute for Education Sciences, National Center for Education Statistics, 2017), https://nces.ed.gov/pubs2017/2017098/index.asp.

[8] Blair Levin and Carol Mattey, "In Infrastructure Plan, a Big Opening for Rural Broadband," *The Avenue* blog (Washington, DC: Brookings, February 13, 2017).

[9] Congressional Research Service, "Broadband Loan and Grant Programs in the USDA's Rural Utilities Service," RL33816 (Washington, DC: CRS, March 22, 2019), 2.

[10] "Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Program," *Federal Register*, WC Docket Nos. 11-10 and 19-195, August 18, 2020.

[11] Universal Service Administrative Company, "School and Library Eligibility," web page (April 11, 2019), https://www.usac.org/e-rate/applicant-process/before-you-begin/school-and-library-eligibility/.

[12] Federal Communications Commission, "E-Rate: Schools & Libraries USF Program," web page (April 18, 2012), https://www.fcc.gov/general/e-rate-schools-libraries-usf-program.

[13] Written testimony of FCC Commissioner Jessica Rosenworcel, submitted to the House Communications and Technology Subcommittee, September 17, 2020, https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/2020.9.17.Rosenworcel.FCC%20Oversight.CAT_.pdf.

[14] The Emergency Educational Connections Act was introduced by Senator Ed Markey and Representative Grace Meng. Emergency Educational Connections Act, S. 3690, 116th Congress, 2020.

[15] Federal Communications Commission, "Universal Service for High Cost Areas: Connect America Fund," web page (June 25, 2012), https://www.fcc.gov/general/universal-service-high-cost-areas-connect-america-fund.

[16] Federal Communications Commission, "Lifeline Program for Low-Income Consumers," web page (January 27, 2012), https://www.fcc.gov/general/lifeline-program-low-income-consumers.

Better data about broadband access gaps in rural areas is a vital precursor to ensuring that all households have access to broadband.

Reg Leichty is founder and partner of Foresight Law + Policy, a national education law firm based in Washington, DC.