TV WHITE SPACES & RURAL EDUCATION

Rural Students Lack Access & Rural Schools Pay More For Access:

6.5 Million Students Across 45 States Lack Access To High Speed Internet. "But 6.5 million students still don't have that access, and EducationSuperHighway CEO Evan Marwell told The 74 that it may be getting more difficult for schools to obtain it for them. Part of the problem, he said, is that more than 2,000 schools, mostly in rural areas and small towns, lack the fiber optics needed for high-speed internet, which the Federal Communications Commission defines as a minimum of 100 kilobits per second for each student. Those schools – spanning 45 states – are hard to reach, he said, and lately there has been a lag in approvals for projects to get them connected through the FCC's E-rate program, which funds internet infrastructure and service for schools and libraries." (Laura Fay, "39 Million Students Get High-Speed Internet, But Some Schools Still Struggle To Close The Digital Divide," the74million.org, 9/19/17)

- **Estimates Suggest More Than Five Million Households With School-Aged Children Do Not Have Broadband Connectivity.** "Today in the United States, it is estimated that about 5 million households with school-age children do not have broadband connectivity. For these children, almost every aspect of academic success – from keeping up with assignments, to communicating with teachers, to applying for college – is much more difficult than it is for their friends and peers who have high-speed internet at home." ("A Rural Broadband Strategy," 7/10/17)

Rural Schools Lack Access To High-Speed Internet & "Pay More Than Twice As Much For Bandwidth." "This discrepancy in access inhibits rural communities in often unforeseen ways. While their YouTube stream may not be the highest quality, rural communities may also be unable to efficiently provide internet access to students in public schools. The FCC in 2013 established a standard of 100 Kbps per student, and by 2015, 77 percent of school districts met this standard. However, rural schools lack access to high-speed fiber and pay more than twice as much for bandwidth. In a growing world of personalized online curricula, internet-based research, and online testing, this severely restricts rural students from educational opportunities their urban counterparts may enjoy." (Darrell M. West & Jack Karsten, "Rural And Urban America Divided By Broadband Access," The Brookings Institution, 7/18/16)

Seventy Percent Of Teachers Assign Homework That Requires Broadband As The Achievement Gap Grows Between Rural & Suburban Students:

Seventy Percent Of Teachers Assign Homework & Research Requiring A Broadband Connection. "At a time when 70 percent of teachers assign homework and research that requires a broadband connection, this means there are millions of children in this country who are not able to access the tools and information they need to thrive in school and gain the skills and knowledge they will require as they move on to college or enter the workforce." ("A Rural Broadband Strategy," 7/10/17)

- **The So-Called Homework Gap Refers To The Inability Of Rural Students To Complete Homework Due To A Lack Of Internet Access.** "That's because today roughly seven in ten teachers assign homework that requires access to the Internet. But data from where I work – the Federal Communications Commission – suggest that as many as one in three households do not subscribe to broadband, due to lack of affordability and lack of interest. Where these figures overlap is what I call the Homework Gap." (Jessica Rosenworcel, "Bridging The Homework Gap," Huffpost, 6/15/15)

- **One Study Shows That Nearly Half Of Students Were Unable To Complete A Homework Assignment Because They Didn't Have Internet Access.** "According to a recent study from the Hispanic Heritage Foundation,
  Family Online Safety Institute and My College Options, nearly 50 percent of students say they have been unable to complete a homework assignment because they didn't have access to the internet or a computer. On top of that, 42 percent of students say they received a lower grade on an assignment because they didn't have access to the internet." (Jessica Rosenworcel, "Bridging The Homework Gap," Huffpost, 6/15/15)

Rural Students Lag Behind Suburban Students In Math. "American students living in the suburbs are outpacing their urban and rural counterparts in mathematics achievement, with Asian and white students scoring the highest among all races and ethnicities, and students from higher socioeconomic backgrounds doing better overall, according to new research from the Carsey Institute at the University of New Hampshire." ("Carsey Institute At UNH: Suburban Students Outpace Rural And Urban Peers In Math," UNH Today, 6/19/12)

The Achievement Gap Widens Between Kindergarten & Eighth Grade Leaving Rural Students Farther Behind. "The average increase in mathematics achievement from kindergarten to eighth grade for rural and urban children is smaller than the increase for suburban children, resulting in a widening achievement gap over time." ("Carsey Institute At UNH: Suburban Students Outpace Rural And Urban Peers In Math," UNH Today, 6/19/12)

- **"By Eighth Grade, The Difference In Average Mathematics Achievement Levels Of Rural And Suburban Students Has More Than Tripled, And The Average Difference Between Urban And Suburban Students Has Doubled."** (Suzanne E. Graham & Lauren E. Provost, "Mathematics Achievement Gaps Between Suburban Students And Their Rural And Urban Peers Increase Over Time," Carsey Institute, Summer 2012)

<u>A Pilot Program Is Successfully Using TV White Spaces To Bring Broadband Access To Students In Rural Virginia:</u>

A Pilot Project In Rural Southern Virginia Successfully Brought Broadband To 100 Families In The Region. "The announcement followed a successful pilot program that reached about 100 households across the two counties." ("A Rural Broadband Strategy," 7/10/17)

- **One Family Previously Had To Spend Most Evenings At The Library To Complete Homework But Can Now Complete All Their Work From Home.** "One of the first families to gain access was a household with three school-age children and their mother, who is a teacher. Before the pilot program, the entire family

spent most of its evenings at school or a library – where broadband access was available – so they could keep up with assignments and other schoolwork. This is now work they all can do at home." ("A Rural Broadband Strategy," 7/10/17)

Following This Success, The Southern Virginia Homework Network Was Launched To Bring Broadband To Approximately 3,000 Students By The End Of 2017. "This program has provided broadband access for education purposes to more than 1,000 rural households, and will reach about 3,000 students – by the end of 2017." ("A Rural Broadband Strategy," 7/10/17)

- **The Homework Gap Is "Particularly Acute" In Southern Virginia.** "The homework gap is particularly acute in Charlotte and Halifax counties in southern Virginia, a rural area where half of students don't have broadband access at home." ("A Rural Broadband Strategy," 7/10/17)

- **"The Southern Virginia Homework Network Will Be The Largest Deployment Of TV White Spaces Technology In The United States Thus Far."** ("A Rural Broadband Strategy," 7/10/17)

- **TV White Spaces Have Been Described As The "Ideal Solution" To The Lack Of Broadband Access In Southern Virginia Due To The Region's Hilly Terrain And Many Trees.** "Given the region's scattered rural population, hilly terrain, and dense tree cover, low-band white spaces spectrum is an ideal solution for extending internet services to remote homes without the prohibitive costs required for implementing more traditional broadband infrastructure such as fiber optic cables." ("A Rural Broadband Strategy," 7/10/17)

Virginia State Senator Frank Ruff Has Praised The Efforts To Bring High-Speed Internet To Rural Southern Virginia. "'Rural southern Virginia is now home to a highly innovative solution, which can serve as a model for other parts of the state, the U.S. and even around the world, to help young people succeed in school,' says Virginia State Senator Frank Ruff, who co-chairs the Commission. 'We are proud to help support and fund such an important project starting here in Charlotte and Halifax counties.'" ("A Rural Broadband Strategy," 7/10/17)

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