Closing the Digital Divide for Students in Texas

To have digital equity in Texas, all households need to have access to affordable, reliable, and high-speed internet. Nationally, 78 percent of all households subscribe to the internet at any speed, but households in both rural and lower-income counties trail the national average by 13 points.[i] Broadband internet access[ii] disproportiontely impacts racial and ethnic minorities, people living on tribal lands, older adults, and those with lower levels of education and income.[iii]

Looking to Texas, in addition to rural, remote areas, many urban counties also have subscription rates that are below 55 percent. Two cities—Laredo, where almost a third (32.3%) of residents lack any internet access, and Brownsville (30.9%)—consistently rank near the bottom among U.S. cities with more than 50,000 households.[iv]

The digital divide is not unique to Texas. In June, Common Sense Media estimated that around 1 in 4 students nationally lacked adequate internet, with as many as half of all students in some states lacking adequate internet.[v] The gap across the country is greatest for Latinx, Black, and American Indian and Alaska Native (AI/AN) students. Even when families have a device at home, that device is often a smartphone, which may not be conducive to completing homework, doing research, or accessing government services.

In March 2020, the COVID-19 pandemic accelerated a digital divide in education due to the sudden closure of school buildings in Texas and across the country. The abrupt transition to remote learning has shone a bright light on the digital divide—an inequity that hinders students from kindergarten through college—and how it undermines the long-run economic viability of Texas. Further, the pandemic has underscored digital disparities in other related areas from public health to economic stability.

Due to geographic barriers and other obstacles, rural families in Texas are the most disproportionately harmed by the digital divide. In many rural areas, Texans are not able to get high-speed internet access even if they are willing and able to pay for it.

What does digital access look like for households with school-aged children in Texas?

Utilizing existing data from the American Community Survey (ACS) provided by the U.S. Census Bureau, Public Policy Associates, Inc. (PPA) found that on average 92 percent of school-aged children in Texas live in households that have some sort of internet access, and 85 percent own a computer; however, only 70 percent have what can be classified as high-speed internet access. Roughly one third (33%) of school aged-children in Texas lack either broadband access or a computer.[vi]

If equal access to virtual learning is defined as living in a household with a computer and high-speed internet access, then approximately 1.8 million Texas students lack access to online instructional technology.

TSTA/NEA

This brief and its accompanying documents were prepared by Public Policy Associates, Inc. (PPA) for the Texas State Teachers Association (TSTA).

Texas ranks well below national averages in three key areas of digital access:

46th in internet access and computers, 45th in broadband, and 45th in access to both broadband and computers.

Disparities Exist

Detailed data for Texas counties suggests substantial disparities in technology access for population groups. In particular, Latinx students are statistically significantly less likely to have access to the basic internet (88% vs. 97% for White students), computers (79% vs. 95%), broadband (63% vs. 79%), and both broadband and a computer (59% vs. 78%).

Gaps between Latinx-White students are larger in Texas than for the country as a whole.

Black students in Texas also face substantial barriers, with a lower proportion of households with school-aged children having access to the internet (90%), computers (81%), broadband (67%), and combined access for both broadband and a coomputer (63%). These inequalities are similar to the national averages.

Moreover, children in Texas living below the poverty line are much less likely than their peers to have access to the internet (82% vs. 95%), computers (65% vs. 91%), broadband service (49% vs. 76%), or both computers and broadband (43% vs. 74%).

As with Latinx students, gaps for low-income students in Texas are significantly larger than is typical for low-income students in the rest of the country.

Geography Matters

In most cases, access to technology in Texas is connected to where a student lives. Although there are differences across parts of the state for internet, there are significant inequalities in access to computers, broadband, or both across seven regions of the state.

North Texas, Central Texas, and the Upper Gulf Coast all have similar access to computers and broadband (around 72%), outpacing the rest of the state.

West Texas (63%), South Texas (60%), and the Panhandle (58%) all have significantly less access than the rest of the state.

The most disadvantaged region of the state is East Texas, where just 49 percent of households with school-aged children have access to both broadband and a computer.

For the state as a whole, 70 percent of children living in metropolitan areas have access to broadband and a computer, compared with just 50 percent of those in non-metro areas—a 20-point gap between urban and rural households.

Implications

The digital divide is much bigger in Texas than one might think, and underserved students are impacted the most.

Recovery and response planning in schools should ensure connectivity for all of their students, including access to reliable, high-speed internet as well as computers or tablets appropriate for school work. School districts need support to close this gap as they consider a range of possible scenarios, including in-person, online, and hybrid instruction, and intermittent closures.

Beyond ensuring access to technology, more work must be done by leaders to ensure that online or other remote instructional methods are rigorous, accessible to all students, and of high-quality for all students—especially those in areas with less access to high-speed internet or computer devices.

Teachers and education support professionals need additional supports to be effective at remote learning. Additional professional development will be needed, as well as funding for it.

The following questions and recommendations are for policymakers to consider as they seek to address digital equity in Texas:

Key Questions to Consider

- How can state and local policymakers in Texas ensure more students gain access to the necessary technology—both computers and broadband—to support student learning, either for remote learning during the pandemic or later for homework as students return to in-person instruction?

- How are school districts reaching out to students and families who do not have internet or broadband access? How are devices and equipment being distributed to students?

- How are districts ensuring that students without internet access receive equal learning opportunities?
- How can funds at the state and national levels be allocated to address the digital divide and help communities that need them the most, whether in rural or urban Texas counties?
- How can the state equip, support, and encourage school district leaders, classroom educators, and education support professionals so they can reach all of their students as school resumes in the fall, regardless of format?

Suggested Practices and Policies

Remote/distance learning does not have to be online. There is no one right way to provide learning opportunities that are accessible to all students. A range of options (e.g., providing packets to households who lack adequate internet access, providing parents with options for both remote and in-person learning, and providing mobile hot spots to families who lack access) will need to be utilized to meet students where they are.

More research on the number and types of devices in households with school-aged children is necessary. Currently, ACS collects data on household access to computers, the internet, and high-speed broadband. It would be helpful for the ACS to ask respondents how many devices they have in the household. It would also be helpful to understand whether or not households with school-aged children are relying only on a handheld device, such as cell phone, for internet access as opposed to a computer, tablet, or other device with a keyboard.

Providing additional funding to equip students with internet access to support students for the duration of the 2020-21 school year. This could be done by expanding the federal E-Rate, a broadband program designed to provide schools with internet services, and allowing school districts to use funds to provide equitable access to Wi-Fi hotspots (e.g., through technologies such as mobile hotspots or on buses stationed in communities, or in public spaces).

Targeted support in the communities most likely to be impacted. Closing the gap will require additional dollars for low-income neighborhoods, rural and hard-to-reach communities, and in communities of color (including Black, Latinx, and AI/AN students).

References

[i] "U.S. Census Shares New Broadband Adoption Data," Connected Nation, accessed July 16, 2020, https://connectednation.org/blog/2019/10/04/u-s-census-shares-new-broadband-adoption-data/.

[ii] The U.S. Federal Communications Commission (FCC) defines broadband internet speeds as connections with a bandwidth of 25 Mbps for downloads and 3 Mbps for uploads.

[iii] Bauerly, Brittney Crock, Russell F. McCord, Rachel Hulkower, and Dawn Pepin. "Broadband Access as a Public Health Issue: The Role of Law in Expanding Broadband Access and Connecting Underserved Communities for Better Health Outcomes." The Journal of Law, Medicine & Ethics 47, no. 2 (June 2019): 39–42. doi:10.1177/1073110519857314.

[iv] "Worst Connected Cities 2017," National Digital Inclusion Alliance, accessed July 16, 2020, https://www.digitalinclusion.org/wp-content/uploads/2018/10/25-Worst-2017.pdf.

[v] "Closing the K-12 Digital Divide in the Age of Distance Learning," Common Sense Media, accessed July 16, 2020 from https://www.commonsensemedia.org/kids-action/publications/closing-the-k-12-digital-divide-in-the-age-of-distance-learning.

[vi] Methods and data decisions are included in a companion document to this brief.

Closing the Digital Divide for Students in Texas

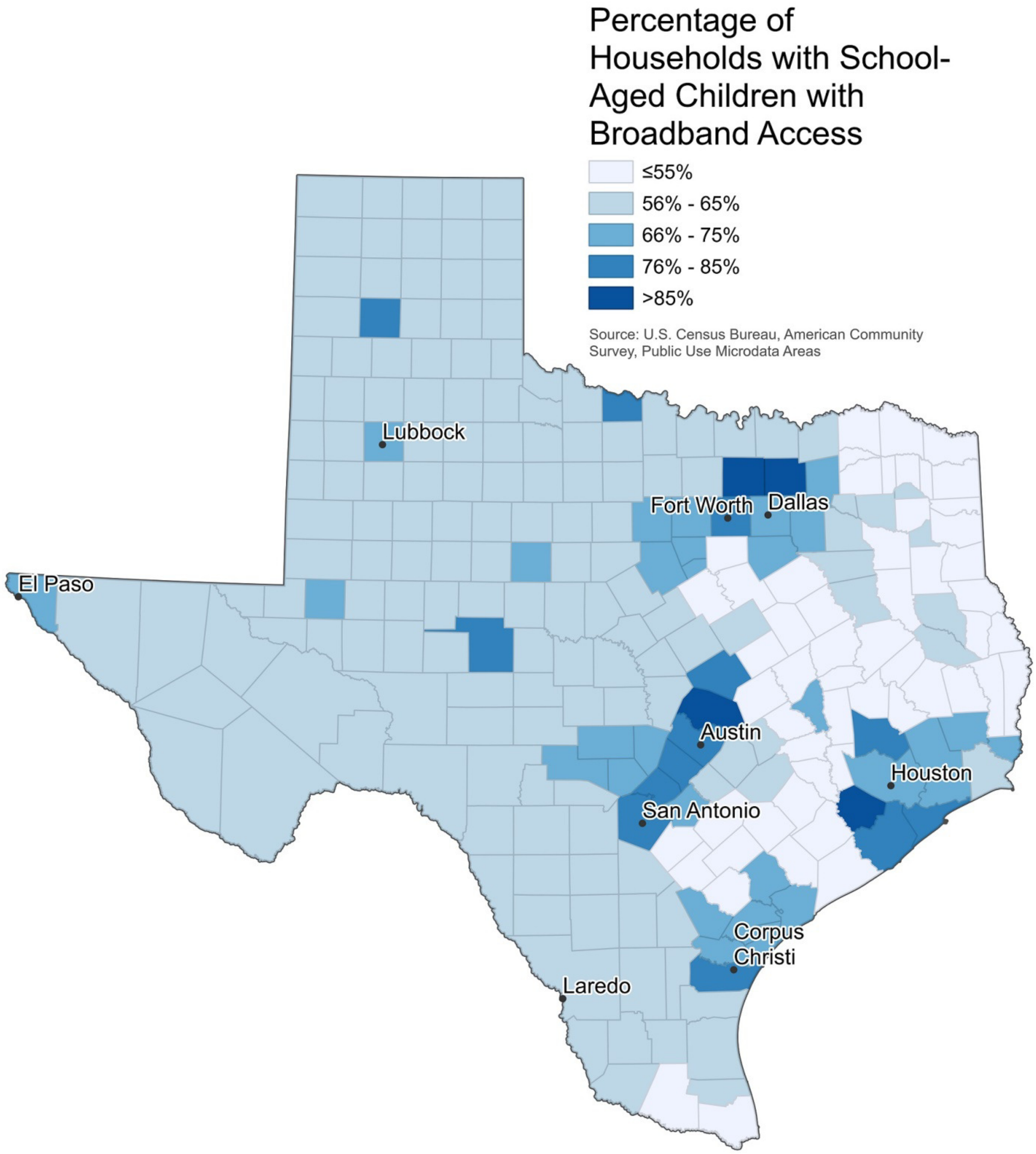

Figure 1: Broadband Access by Households with Children

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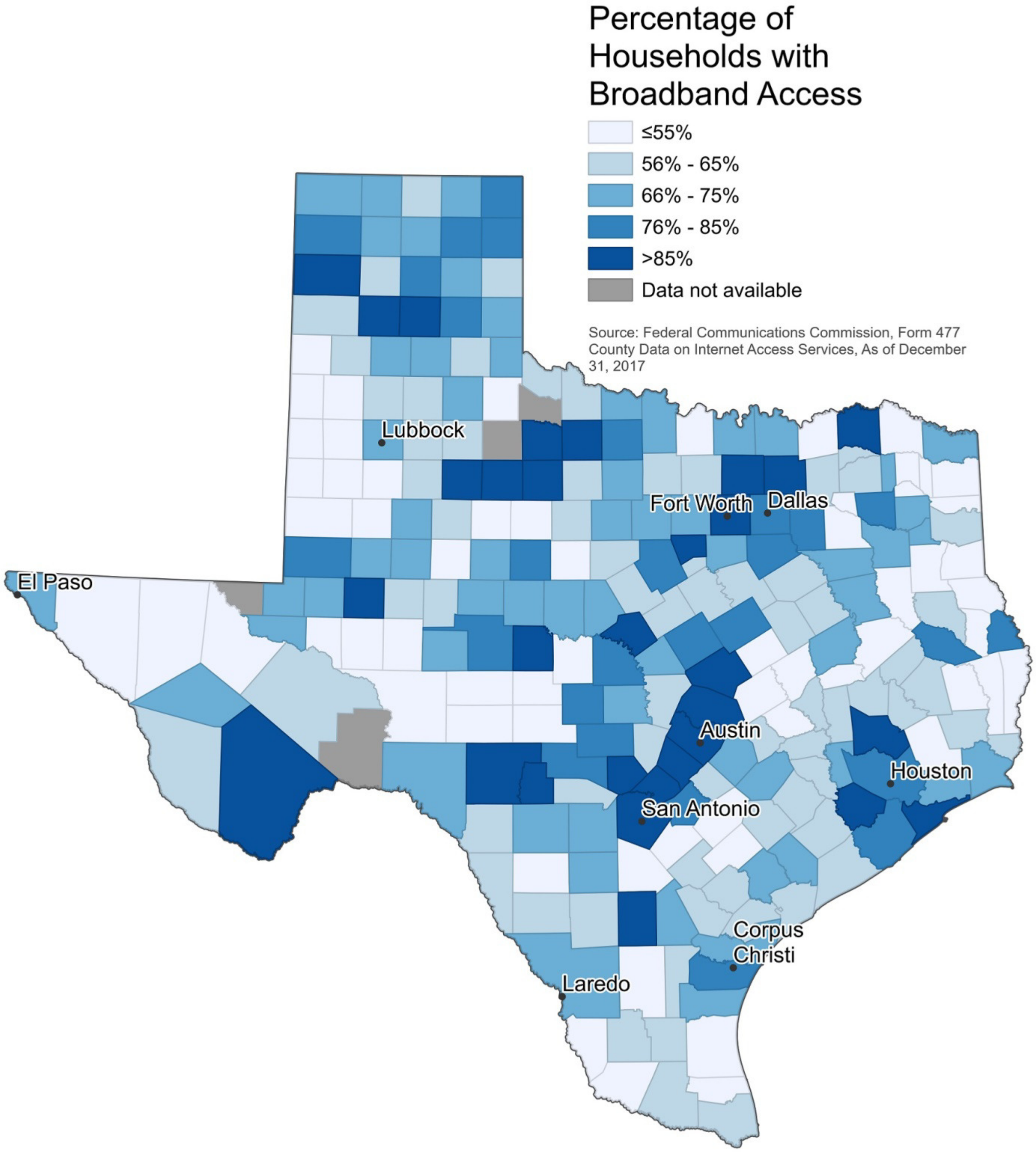

Figure 3: Household Access to Broadband[1]

[1] The data are compiled from mandatory reporting submitted by Internet Service Providers (ISPs) to the Federal Communications Commission (FCC). Compared to the U.S. Census Bureau American Community Survey Public Use Microdata Areas (PUMA) data reported in the issue brief, the FCC data show greater variation county-to-county. However, because the source is ISP self-reported data, there may be some degree of overestimation of the number of households served, along with other reporting errors.

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Methods and Data

This document provides additional information about the methods, data, and analytical strategy that were used in the brief, "Closing the Digital Divide for Students in Texas."

Access to different types of broadband technologies is correlated to income, geographic location, and urbanicity. The Federal Communications Commission (FCC) defines broadband as, ". . . high-speed Internet access that is always on and faster than traditional dial-up access."[1] Broadband can be transmitted using several different forms, including digital subscriber line (DSL); cable modem; fiber optic; wireless; satellite; and broadband over power line (BPL). The National Broadband Plan stipulates download speeds of at least 100 Mbps and upload speeds of at least 50 Mbps are considered as high-quality broadband.[2] Broadband has significant effects on unemployment rates and faster job growth for skilled workers and for a college-educated workforce.[3]

To understand the access to internet, broadband, and computers at home, the analysis for this brief uses data drawn from the American Community Survey (ACS) administered by the U.S. Census Bureau (2018). Since 2013, the ACS has collected data required under the 2008 Broadband Data Improvement Act. Data collected through the Current Population Survey (CPS) potentially include more detail through its longer questionnaire and longer time series. However, the ACS, with a larger sample, provides better estimates for small population groups and with more details related to geographic area.[4] Three relevant ACS questions (asked since 2016) were included in these data with those relying on cellphones coded as not having a computer.

Data were downloaded from the ipums.org website,[5] which maintains formatted ACS data. This analysis used both household and individual-level variables. Respondents who resided in group quarters and did not have family income data were excluded. Because the focus of this brief is the availability of and access to technology for school-aged children, the sample was restricted to households with individuals who were between 5 and 17 years of age.

ACS demographic and geographical data were used to identify inequalities in access to technology, including: race and ethnicity, poverty, and geography. Geography was analyzed separately by residence in a metropolitan area and in one of seven geographic regions within Texas: Central Texas, East Texas, the Upper Gulf Coast, North Texas, the Panhandle, South Texas, and West Texas. Estimates and standard errors were derived using standard techniques.

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[1] "Types of Broadband Connections," Federal Communications Commission (FCC) updated June 23, 2014, accessed April 10, 2020, https://www.fcc.gov/general/types-broadband-connections.

[2] Elizabeth Mack, "Businesses and the Need for Speed: The Impact of Broadband Speed on Business Presence," *Telematics and Informatics* 31, no. 4 (2014): 617-627.

[3] Bento J. Lobo, Md Rafayet Alam, and Brian Whitacre, "Broadband Speeds and Unemployment Rates: Data and Measurement Issues," *Telecommunications Policy* 44, no. 1 (2020).

[4] Camille Ryan, "Computer and Internet Use in the United States: 2016," U.S. Census Bureau, August 2018, accessed April 10, 2020, https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-39.pdf.

[5] Steven Ruggles, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas and Matthew Sobek, IPUMS USA: Version 10.0 [dataset], Minneapolis, MN: IPUMS, 2020, https://doi.org/10.18128/D010.V10.0

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Research Notes

- Sample sizes were too small to identify statistically significant differences between counties or groups of counties. Although the analysts considered using the five-year ACS sample, this possibility was rejected because: (a) there might be differential trends in technology access over time and (b) the ACS question on Internet access was changed in 2016.
- Race and ethnicity were re-coded as White, Black, Asian, Native American, Multiple Races/Other, and Hispanic. Hispanic was treated as an inclusive category (so that all other racial/ethnic categories are non-Hispanic).
- Family poverty status was determined using the ACS total family income variable. All children living in families with total income below the 2018 federal poverty guidelines were coded as being in poverty.
- Metropolitan status was determined by collapsing all households in a federally defined metropolitan area (which includes suburbs) into a simple 1/0 dichotomy.
- In producing the estimates for seven different regions within Texas, data were grouped together following regions as defined by texascounties.net, which combines counties according to Texas Regional Planning Commission boundaries. Data from Public-Use Microdata Areas (PUMAs) in each region were combined.[6]
- Because PUMAs do not map neatly onto groups according to the regional planning commissions, three counties were linked to a different region (Navarro to Central Texas, Walker to East Texas, and Blanco to South Texas).
- Estimates were weighted using individual-level weights, and standard errors produced through balanced replicate weights.

[6] "The Regions of Texas: Summary of Texas Regions," last accessed on July 21, 2020, http://www.texascounties.net/statistics/regions.htm

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