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WHAT POLICYMAKERS NEED TO KNOW

CLOSING THE DIGITAL DIVIDE

NATHAN BARRETT, PH.D., SENIOR DIRECTOR, RESEARCH AND EVALUATION
ADAM GERSTENFELD, MANAGER, DATA AND RESEARCH

KEY FINDINGS

- ▶ **Approximately 9 million students in the United States lack access to the internet or devices.**
- ▶ **More than 1 in 5 charter school students are located in an area with low-access to the internet.**
- ▶ **In 31 out of the 44 states with charter schools, 20% or more of charter school students lack connectivity.**
- ▶ **The estimated cost to close the digital divide gap in charter schools is \$243 million.**

To stem the spread of COVID-19, almost all states ordered stay-at-home policies, shuttered nonessential businesses, and closed schools. In almost all cases, school closures extend through the end of the 2019-20 academic year. Many states are exploring what the return to school looks like for the following year, with many projecting that schools may remain closed or that they will move to some sort of blended learning with both virtual and in-person instruction. With students learning at home, schools have had to develop remote learning plans with little advance planning or budgeting. As schools began implementing these plans, unanswered questions emerged about the extent to which students have access to devices and high-speed connections—particularly students from lower income families. Inequitable access to connectivity and devices can potentially widen existing achievement and attainment gaps based on income and race. Given that charter schools serve a higher percentage of students from low-income communities than district schools, the purpose of this paper is to better understand the barriers that charter school students face in accessing remote learning opportunities and the resources necessary to bridge the gap.

TABLE 1: NATIONWIDE ACCESS TO CONNECTIVITY AND DEVICES IN CHARTER AND DISTRICT SCHOOLS

STATE	CHARTER SCHOOLS	DISTRICT SCHOOLS
Total Schools	6,917	83,916
Total Students	2,861,329	43,931,480
Students Lacking Connectivity	22.2% (635,851)	18.9% (8,281,090)
Students Lacking Devices	12.8% (365,671)	11.1% (4,858,885)

TABLE 2: SCHOOLS WITH HIGH INCIDENCE OF LOW-ACCESS TO CONNECTIVITY AND DEVICES

STATE	CHARTER SCHOOLS	DISTRICT SCHOOLS
Total Schools	6,917	83,916
Total Students	2,861,329	43,931,480
Connectivity		
Schools Located In Low-Access Tracts	23.2% (1,605)	15.7% (13,001)
Students in Low-Access Tracts	21.1% (603,975)	12.6% (5,550,879)
Device Access		
Schools Located In Low-Access Tracts	3.8% (280)	2.0% (1,790)
Students in Low-Access Tracts	3.5% (100,096)	1.7% (727,859)

DOCUMENTING CHARTER SCHOOL STUDENTS' ACCESS

While there is limited school-level data available on student access to devices and connectivity, we can approximate digital access by using the American Community Survey (ACS) and the census tract in which a school is located. The ACS provides household data at the census tract level on access to devices and the type of connectivity available in the home. The access to device data tells whether a home has access to any type of digital device such as a computer, smartphone, or tablet. Unfortunately, because smartphones are included in the count of devices, these data are less informative for the purpose of identifying limited student access to devices suitable for schoolwork, but we include them in our national analysis for comparisons. The connectivity data reveals the type of internet access in a home and includes categories for broadband, dial-up, and no internet. We consider a home with dial-up or no internet to be a low-access home.

We then geolocate a school to the census tract and use the ACS data to approximate digital access for that school's students by multiplying the percentage of low-access households by the school enrollment. Since the tracts are developed to include 4,000-9,000 people, it is reasonable to assume that a large portion of the students within a school live in the census tract in which the school is located. We use data from the five year 2018 ACS and school level data from the 2018-19 state data on school enrollment and locations for this analysis. We exclude virtual schools, since they typically can enroll students from across the state and presumably their students have access to devices and connectivity.

We also provide estimates on the incidence of low digital access at the school level. We consider a school to have low access to devices or connectivity if it is in a census tract where one-third or more households do not have access to any type of device or to high speed connectivity, respectively. This allows us to highlight schools and the students they serve who will likely face the greatest challenges with bridging the digital gap.

CHARTER SCHOOL STUDENTS FACE GREATER OBSTACLES TO CONNECTIVITY

The national picture shown in Table 1 suggests that a significant number of students in both charter and district schools face challenges in connectivity and access to devices. More than 22 percent of charter school students and about 19 percent of district school students are estimated to have limited connectivity. The data on access to devices suggests that almost 13 percent of charter school students and approximately 11 percent of district school students do not have any type of device in their home.

Table 2 highlights the extent of the digital divide at the school level. While the student-level analysis in Table 1 shows that charter school students are disproportionately affected by connectivity challenges, it is imperative to look at schools as well since, generally speaking, technology and other

coronavirus-related funding is allocated to schools, not individual students. **More than 1 in 5 charter school students and roughly 1 in 8 district school students attend a school located in a low-access connectivity tract, suggesting that charter school students are 60 percent more likely to be in a school located in a low-access census tract.** The data on access to devices is less compelling because, as mentioned previously, the ACS data includes smartphones in the count of devices. Regardless, charter school students are more than twice as likely to be enrolled in a school located in a low-device-access census tract than their counterparts.

Using the estimate of 635,851 from Table 1 for the number of students lacking connectivity, we can estimate the cost of closing the digital divide in charter schools across the country for the first year. We must make several assumptions as we estimate the total cost:

- ▶ First, we assume that access to devices is similar to access to connectivity. This is because the ACS data includes smartphones in the devices category and therefore likely underestimates need.
- ▶ Second, we assume that 80 percent of students can be serviced with wired connections and the remaining 20 percent would need wireless connections and that costs vary by the type of connectivity needed.
- ▶ Finally, we assume that devices, support, and insurance would cost \$175 per student.

Table 3 shows that closing the digital divide for charter school students would cost \$243 million in the first year.*

CONCLUSION

This brief highlights that charter school students experience low access to connectivity at higher rates than their district school counterparts and that the incidence of low access is more concentrated in certain states and cities. As a result, we estimate that charter schools need \$243 million to address unmet device and connectivity needs in a single school year. As schools continue to develop remote learning plans, governments should include charter schools and their students in plans to close the digital divide that faces most our most vulnerable communities. These plans should also focus on creating opportunities for parents and students to become familiar with the technology made available to them and ways to ensure that students with different family circumstances are equally involved in remote learning opportunities.

TABLE 3: TOTAL COST ESTIMATE FOR BRIDGING THE DIGITAL DIVIDE IN CHARTER SCHOOLS

	TYPE OF CONNECTION	
	WIRED	WIRELESS
Students	508,681	127,710
<i>Share of Students</i>	80%	20%
Cost Per Student	\$295	\$730
<i>Cost Per Device</i>	\$175	\$175
<i>Cost of Hotspot</i>	-	\$75
<i>Monthly Cost of Connectivity</i>	\$10	\$40
<i>Annual Cost of Connectivity</i>	\$120	\$480
Total Cost	\$150,060,895	\$92,834,100
Total Program Cost	\$242,894,995	

*Digital Bridge K12's state cost calculator <https://digitalbridgek12.org/states/budget-calculator/> is the source for the components of our cost estimate.



TABLE 4: CHARTER SCHOOL STUDENT CONNECTIVITY ACCESS BY STATE

STATE	STUDENTS WITH LOW-ACCESS	TOTAL ENROLLMENT*	SHARE WITH LOW-ACCESS
Alaska	1,018	6,890	14.8%
Alabama	184	591	31.1%
Arkansas	4,463	13,173	33.9%
Arizona	31,624	192,630	16.4%
California	102,447	541,976	18.9%
Colorado	14,064	116,038	12.1%
Connecticut	4,165	16,401	25.4%
District of Columbia	11,047	38,863	28.4%
Delaware	2,710	14,839	18.3%
Florida	50,704	276,284	18.4%
Georgia	11,862	53,480	22.2%
Hawaii	2,260	10,053	22.5%
Iowa	62	319	19.3%
Idaho	3,784	18,280	20.7%
Illinois	19,643	63,653	30.9%
Indiana	12,373	37,327	33.1%
Kansas	98	480	20.4%
Louisiana	24,131	80,764	29.9%
Massachusetts	9,934	46,954	21.2%
Maryland	5,482	25,194	21.8%
Maine	354	1,628	21.7%
Michigan	36,016	134,093	26.9%

TABLE 4: CHARTER SCHOOL STUDENT CONNECTIVITY ACCESS BY STATE

STATE	STUDENTS WITH LOW-ACCESS	TOTAL ENROLLMENT*	SHARE WITH LOW-ACCESS
Minnesota	8,514	55,300	15.4%
Missouri	7,651	24,517	31.2%
Mississippi	402	1,607	25.0%
North Carolina	20,886	103,169	20.2%
New Hampshire	481	3,640	13.2%
New Jersey	12,439	51,994	23.9%
New Mexico	6,736	24,217	27.8%
Nevada	8,483	46,965	18.1%
New York	37,099	147,444	25.2%
Ohio	25,088	81,960	30.6%
Oklahoma	3,324	12,216	27.2%
Oregon	3,529	19,106	18.5%
Pennsylvania	28,337	105,904	26.8%
Rhode Island	2,410	9,304	25.9%
South Carolina	2,955	12,394	23.8%
Tennessee	14,826	40,524	36.6%
Texas	90,558	336,629	26.9%
Utah	8,979	73,728	12.2%
Virginia	173	1,037	16.7%
Washington	689	3,361	20.5%
Wisconsin	3,739	15,835	23.6%
Wyoming	129	568	22.6%

The state level data shown in Table 2 suggests that there is a fair amount of variance across states in lack of access to connectivity for charter school students. Of the 44 states with charter schools, 31 have sectors where 20 percent or more of students lack connectivity, with Tennessee and Arkansas having the highest rates at 36.6 percent and 33.9 percent, respectively. Six states have more than 30,000 charter school students who lack connectivity, with California and Texas having the most at 102,447 and 90,558, respectively.

* Total enrollment represents the total number of students enrolled for in-person learning. This number does not include students enrolled in virtual schools.

TABLE 5: TOP 50 CITIES WITH THE LARGEST NUMBER OF STUDENTS IN CHARTER SCHOOLS FACING CONNECTIVITY CHALLENGES

RANK	CITY	STUDENTS WITH LOW-ACCESS	TOTAL ENROLLMENT*	SHARE WITH LOW-ACCESS
1	Los Angeles	22,150	77,396	28.6%
2	Houston	21,896	74,336	29.5%
3	Philadelphia	19,417	65,976	29.4%
4	Chicago	18,655	58,527	31.9%
5	Detroit	14,565	36,406	40.0%
6	New Orleans	14,122	49,435	28.6%
7	San Antonio	13,626	45,435	30.0%
8	Dallas	12,564	38,066	33.0%
9	Phoenix	11,640	49,723	23.4%
10	Washington, D.C.	11,047	38,863	28.4%
11	Memphis	10,959	24,916	44.0%
12	Brooklyn	10,604	47,115	22.5%
13	Bronx	8,958	30,621	29.3%
14	New York	7,587	29,969	25.3%
15	Cleveland	6,880	18,773	36.6%
16	Miami	6,572	25,796	25.5%
17	Indianapolis	6,437	19,246	33.4%
18	Columbus	5,643	21,981	25.7%
19	Las Vegas	5,255	27,114	19.4%
20	Austin	4,876	22,551	21.6%
21	Newark	4,716	21,815	21.6%
22	Stockton	4,456	11,958	37.3%
23	Baltimore	4,357	15,676	27.8%
24	Albuquerque	4,228	15,400	27.5%
25	Oakland	4,276	17,314	24.7%

TABLE 5: TOP 50 CITIES WITH THE LARGEST NUMBER OF STUDENTS IN CHARTER SCHOOLS FACING CONNECTIVITY CHALLENGES

RANK	CITY	STUDENTS WITH LOW-ACCESS	TOTAL ENROLLMENT*	SHARE WITH LOW-ACCESS
26	Kansas City, Mo.	4,142	12,877	32.2%
27	Atlanta	3,832	14,404	26.6%
28	Brownsville, Tex.	3,730	6,561	56.8%
29	Tucson	3,695	19,692	18.8%
30	San Diego	3,481	20,645	16.9%
31	Denver	3,387	23,289	14.5%
32	San Jose	3,340	24,862	13.4%
33	Saint Louis	3,038	10,426	29.1%
34	Fort Worth	2,900	11,298	25.7%
35	Jacksonville	2,887	14,908	19.4%
36	Nashville	2,846	11,199	25.4%
37	Sacramento	2,738	15,421	17.8%
38	Homestead, Fla.	2,663	12,208	21.8%
39	Cincinnati	2,720	7,053	38.6%
40	Buffalo	2,569	9,801	26.2%
41	Baton Rouge	2,481	8,803	28.2%
42	Saint Paul	2,425	15,457	15.7%
43	Fresno	2,232	8,128	27.5%
44	Gary, Ind.	2,303	5,550	41.5%
45	Pharr, Tex.	2,150	4,525	47.5%
46	Milwaukee	2,103	7,724	27.2%
47	Charlotte	2,098	10,324	20.3%
48	Grand Prairie, Tex.	2,100	7,081	29.7%
49	Toledo	2,053	7,265	28.3%
50	Henderson, Nev.	1,967	11,094	17.7%

The top 50 cities for low connectivity account for more than 51 percent of all charter school students who face connectivity challenges. Los Angeles has the highest population of students in low-access schools, more than 22,000 students, or almost 29 percent of all charter school students in that city. Texas has eight cities in the top 50, California has seven, and Ohio and New York each have four.

* Total enrollment represents the total number of students enrolled for in-person learning. This number does not include students enrolled in virtual schools.