



## Keeping Students Linked in California

When the COVID-19 pandemic abruptly closed schools in the spring, educators and industry partners in California’s Antelope Valley Union High School District (AVUHSD) quickly recognized that many of their students needed extra support to connect to their schoolwork during an extended closure. In this desert-region district located 70 miles outside of Los Angeles, 71 percent of students qualify for free or reduced-price lunch and 88 percent identify as students of color. With schools closed, students were separated physically from their teachers and peers. However, students in the district’s Linked Learning pathways also were separated from the work-based learning experiences that are integral to their school experience and the teachers and local business professionals who mentored them in acquiring the knowledge, skills, and disposition to succeed in college and careers. In partnership with local hospitals and businesses, AVUHSD provided lesson plans and equipment (including 3-D printers) to Linked Learning students at home that they used to create prototype face shields, mask straps, and other personal protective equipment for local health care workers. Students even participated in a virtual design review conducted remotely with NASA engineers and physicians from the Antelope Valley COVID-19 Task Force to receive feedback on their work.<sup>1</sup>

### Focusing on College *and* Career Readiness

Linked Learning transforms student learning experiences by bringing meaning and motivation to the school day. It integrates college and career preparation by combining rigorous academic coursework, sequenced career and technical education, work-based learning experiences, and comprehensive support services. An independent evaluation conducted by SRI International shows that, compared to peers in traditional schools, students in Linked Learning pathways earn more course credits, have higher graduation

rates, and build more of the skills aligned with the needs of a twenty-first-century workforce. The results are especially strong for Black students and youth who start high school behind academically.<sup>2</sup> The approach has been so successful in improving student experiences and outcomes (see “The Linked Learning Advantage” below) that the state of California invested \$2 billion to expand the initiative statewide in 2013.<sup>3</sup> Today, Linked Learning is working in more than 100 California school districts, with more than 650 pathways. The approach also is being adopted in twenty other states including Michigan, Massachusetts, Texas, Oregon, Wisconsin, and North Carolina.

### The Linked Learning Advantage

Compared to their peers in traditional high school programs, Linked Learning students

- earn more credits by the end of high school,
- complete more college-preparatory courses,
- are less likely to drop out of school,
- are more likely to graduate from high school, and
- are more likely to enroll in a four-year college.

Source: K. Caspary and M. Warner, *Linked Learning and Postsecondary Transitions: A Report on the Early Postsecondary Education Outcomes of Linked Learning Students* (Menlo Park, CA: SRI International, 2017).

For the nation’s young people, the COVID-19 pandemic will have an indelible impact on their future prospects for college and careers. These are the talented, driven young people whose collective aspirations represent the future of this nation. As schools continue with remote instruction this school year, those offering Linked Learning pathways have transitioned their programs to an online environment. Yet the students who could gain the most from participating in Linked Learning—students



**TABLE 1: Internet and Device Access in California by Race and Ethnicity**

	All	White	Asian	Black	Latino	American Indian/Alaska Native
<b>Number of Children Without High-Speed Home Internet</b>	1,763,038	998,147	144,307	126,525	1,163,710	48,941
<b>Number of Children Without a Computer</b>	688,636	383,337	29,641	63,619	559,163	19,685
<b>Percentage of Households Without High-Speed Home Internet</b>	19.9%	19.0%	11.2%	22.9%	28.3%	27.1%
<b>Percentage of Households Without a Computer</b>	8.2%	7.3%	2.3%	11.5%	13.6%	10.9%

**Source:** Alliance for Excellent Education, *Students of Color Caught in the Homework Gap* (Washington, DC: Author, 2020).

**Notes:** "High-speed home internet" refers to a wireline broadband internet subscription—high-speed internet service provided via cable, fiber, or digital subscriber line (DSL). "Computer" refers to a laptop, desktop, or tablet computer. "Households" refers to households with one or more children age 17 years or younger.

of color and those from low-income families—also are the ones least likely to have the internet access and devices needed to experience Linked Learning from home.

## Students of Color Are Logged Out and Left Behind

Nationwide, 16.9 million children lack the high-speed home internet service necessary to support remote learning—including approximately 1.8 million children in California alone.<sup>4</sup> Moreover, these disparities in access disproportionately impact children of color. Nearly one-quarter of Black families in California do not have the high-speed internet access necessary to support their children's learning at home. Similarly, almost one-third each of California's Latino and American Indian/Alaska Native families do not have high-speed home internet service.<sup>5</sup> Additionally, nearly 690,000 children—and one in ten each of Black, Latino, and American Indian/Alaska Native families—in California do not have a computer.<sup>6</sup>

## Linked Learning Pathways Embrace Remote Learning

When equipped with sufficient home internet access and proper devices, Linked Learning students continue to excel, even when learning remotely. For instance, 100 students—89 percent of whom are Black and Latino—from the biomedical science Linked Learning academy at AVUHSD's Eastside High School completed the Advanced Placement (AP) world history exam last spring. Despite missing in-person reviews and practice sessions, the Linked Learning students still outperformed their Eastside peers who were not enrolled in the biomedical pathway.<sup>7</sup> The pathway students passed the AP exam at a higher rate (relative to the number of students who took the exam), achieved a higher mean score, and achieved

a higher median score than their Eastside peers who were not enrolled in Linked Learning. Similarly, when the pandemic forced Pasadena Unified School District to transition to remote learning, senior Linked Learning students also adjusted. The students completed, presented, and defended their senior capstone projects to a panel of educators, industry leaders, and postsecondary partners through live online sessions and recorded presentations since they could not gather in person.<sup>8</sup>

Meanwhile, Linked Learning industry partners who understood the incredible potential of the community's young people found creative ways to provide students with enriching real-world learning experiences remotely. For example, partners from Lockheed Martin and the American Institute of Aeronautics and Astronautics launched a series of webinars to connect AVUHSD's Linked Learning students remotely with fighter pilots and engineers to learn about building and flying the F-35, the world's most advanced stealth jet fighter.<sup>9</sup> Other partners such as Northrop Grumman Corporation, Kaiser Permanente, and Edwards Air Force Base provided students and teachers with online learning resources, podcasts, and virtual speakers.

**"Some students are homeless or are financially unstable because of this pandemic so I want those students to receive help and not be punished for not completing assignments as they are not worrying about school but worrying about their next meal or home."**

**—High School Junior, Linked Learning Student  
Oakland Unified School District**



**TABLE 2: Internet and Device Access in California by Household Income**

	All Households	Annual Income Below \$25,000	Annual Income Between \$25,000 and \$50,000	Annual Income Between \$50,000 and \$75,000	Annual Income Between \$75,000 and \$150,000	Annual Income Above \$150,000
<b>Number of Children Without High-Speed Home Internet</b>	1,763,038	447,519	493,192	305,831	364,829	151,668
<b>Number of Children Without a Computer</b>	688,636	260,971	245,925	108,460	51,595	21,686
<b>Percentage of Households Without High-Speed Internet</b>	19.9%	40.1%	30.1%	23.4%	14.1%	7.7%
<b>Percentage of Households Without a Computer</b>	8.2%	23.4%	15.0%	8.3%	2.0%	1.1%

**Source:** Alliance for Excellent Education, *Students of Color Caught in the Homework Gap* (Washington, DC: Author, 2020).

**Notes:** "High-speed home internet" refers to a wireline broadband internet subscription—high-speed internet service provided via cable, fiber, or digital subscriber line (DSL). "Computer" refers to a laptop, desktop, or tablet computer. "Households" refers to households with one or more children age 17 years or younger.

## Students Need Internet Access and Devices to Succeed

Despite these successes, remote learning still presents challenges for students in Linked Learning and traditional programs alike, particularly when students do not have the devices and internet service they need to access online programs. In a [survey](#) of Linked Learning students, 56 percent of juniors and 58 percent of seniors said that keeping up with schoolwork at home is challenging, particularly if they do not have the appropriate tools and resources.<sup>10</sup> "Some students are homeless or are financially unstable because of this pandemic so I want those students to receive help and not be punished for not completing assignments as they are not worrying about school but worrying about their next meal or home," said a junior from Oakland Unified School District. Students also said they need adults to "provide more technical support and materials such as computers or internet in order to support students in completing homework or projects."<sup>11</sup>

Most of the burden for equipping students with the devices and internet access for ongoing online learning, though, has fallen to local schools, districts, and states. However, they cannot resolve the existing disparities alone particularly as they continue to struggle with budget cuts and the effects of revenue losses from the pandemic-driven economic shutdown.

## Congress Can Keep Students Linked

Bringing high-speed home internet access to the 16.9 million children who currently are offline requires Congress to approve additional funding to support students' learning needs. The Alliance for Excellent Education (All4Ed) and the Linked Learning Alliance urge Congress to "keep students linked" by including the Emergency Educational Connections Act and appropriating \$6.8 billion through the federal E-rate program to cover immediate costs related to high-speed home internet access and devices in any upcoming funding packages passed in response to the COVID-19 pandemic.

There are many unanswered questions about the 2020–2021 school year, yet one thing is certain: many students, including those in California, have started the school year online. Therefore, students without high-speed home internet face extreme disadvantages. The gap between students who are "logged in" and "logged out" could set back a generation of American students. By appropriating \$6.8 billion in the next COVID-19 legislative package, Congress can provide students in California and nationwide with the high-speed home internet access and devices they need to stay motivated and engaged in meaningful educational experiences, including Linked Learning.

For additional information about how disparities in internet and device access affect student learning, and to see data for other states, visit [all4ed.org/homeworkgap](http://all4ed.org/homeworkgap).

To learn more about the Linked Learning Alliance and the movement to connect all youth to college, career, and purpose, visit [linkedlearning.org](http://linkedlearning.org).



**TABLE 3: Costs of Keeping Students Linked**

Technology	Households/Children Without Access	Cost	Total Cost
<b>High-Speed Home Internet</b>	8,365,183 households	\$600 annually per household	\$5,019,109,800
<b>Computer</b>	7,273,556 children	\$250 one-time cost per child	\$1,818,389,000
<b>Total</b>			<b>\$6,837,498,800</b>

**Source:** Alliance for Excellent Education, *Students of Color Caught in the Homework Gap* (Washington, DC: Author, 2020).

**Notes:** This chart calculates the costs of high-speed home internet service based on the number of households without access since a single internet subscription serves multiple family members. By contrast, this chart calculates computer costs based on the number of children without a device since each child needs an individual computer to participate in online learning.



## Endnotes

- <sup>1</sup> R. Zaentz, "Promise Amid the Pandemic: Antelope Valley Schools and Industries Join Forces to Engage Students in a Vital Mission," *Alliance Blog* (blog), Linked Learning Alliance, May 26, 2020, <https://www.linkedlearning.org/blog/promise-amid-the-pandemic-antelope-valley-schools-and-industries-join-forces-to-engage-students-in-a-vital-mission>.
- <sup>2</sup> K. Caspary and M. Warner, *Linked Learning and Postsecondary Transitions: A Report on the Early Postsecondary Education Outcomes of Linked Learning Students* (Menlo Park, CA: SRI International, 2017).
- <sup>3</sup> Linked Learning Alliance, "About the Linked Learning Approach," <https://www.linkedlearning.org/about/linked-learning-approach> (accessed September 9, 2020).
- <sup>4</sup> For this analysis, "high-speed home internet" refers to a wireline broadband internet subscription—high-speed internet service provided via cable, fiber, or digital subscriber line (DSL). Alliance for Excellent Education, *Students of Color Caught in the Homework Gap* (Washington, DC: Author, 2020).
- <sup>5</sup> Ibid.
- <sup>6</sup> Ibid. In this analysis, a computer refers to a laptop, desktop, or tablet.
- <sup>7</sup> A. Marinelli, "Antelope Valley Spotlight: Gold Certified Biomedical Pathway Sees Record High Advanced Placement Scores," *Alliance Blog* (blog), Linked Learning Alliance, August 25, 2020, <https://www.linkedlearning.org/blog/antelope-valley-spotlight-gold-certified-biomedical-pathway-sees-record-high-advanced-placement-scores>.
- <sup>8</sup> ———, "Equitable Assessment in a Pandemic: Pasadena Unified School District Embraces Virtual Senior Defenses," *Alliance Blog* (blog), Linked Learning Alliance, May 27, 2020, <https://www.linkedlearning.org/blog/equitable-assessment-in-a-pandemic-pasadena-unified-school-district-embraces-virtual-senior-defenses>.
- <sup>9</sup> Zaentz, "Promise Amid the Pandemic."
- <sup>10</sup> Linked Learning Alliance, *Keep Us Linked: Students Speak Out Amid the Pandemic* (San Francisco, CA: Author, 2020).
- <sup>11</sup> Ibid.



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The **Alliance for Excellent Education (All4Ed)** is a Washington, DC–based national policy, practice, and advocacy organization dedicated to ensuring that all students, particularly those underperforming and those historically underserved, graduate from high school ready for success in college, work, and citizenship. [all4ed.org](http://all4ed.org)

The **Linked Learning Alliance** is a statewide coalition of education, industry, and community organizations dedicated to improving California's high schools and preparing all students for success in college, career, and life. [linkedlearning.org](http://linkedlearning.org)

Photos provided by the Linked Learning Alliance.