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CETF-USC **Statewide** **Broadband** **Adoption Survey**

**CLOSING THE HOMEWORK GAP IN CALIFORNIA:
PROMOTING BROADBAND FOR K-12 FAMILIES
BEYOND THE PANDEMIC**

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SINCE 2008, the California Emerging Technology Fund (CETF) has conducted a statewide survey to assess California’s progress towards closing the divide in broadband connectivity across the state. Over the years, the results have shown a steady increase in broadband adoption, though the gains have been uneven across regions and groups. With the onset of the COVID-19 pandemic and the transition to remote learning across California, there has been particular attention to deficits in connectivity and device availability among K-12 families. Prior research has shown that these deficits are associated with demographic characteristics such as income and race or ethnicity, as well as place of residency.¹ The concern is that barriers to online learning associated with broadband connectivity and digital literacy may further exacerbate existing educational disparities along income, racial and geographical lines.

This policy brief examines these questions based on the findings from the 2021 Statewide Survey on Broadband Adoption. The survey was conducted by researchers at the University of Southern California (USC) as part of a new research partnership between the California Emerging Technology fund (CETF) and USC. As most K-12 students faced the reality of learning from home during the 2020-21 school year, the survey included new questions aimed at capturing how families with school-age children managed the challenges and opportunities of online learning. The analysis was led by Dr. Stephen J. Aguilar, Assistant Professor at the USC Rossier School of Education, with contributions from Dr. Hernan Galperin, Associate Professor at the USC Annenberg School for Communication and Principal Investigator of the USC-CETF Statewide Broadband Adoption Survey.

The results are organized along three pillars that, when taken together, have been shown by prior research to enhance remote learning outcomes and mitigate its potential negative impacts. These pillars are: (1) access to the appropriate devices for remote learning; (2) access to robust connectivity for remote learning activities; and (3) parental support for online learning, which include helping children with schoolwork, communicating with teachers, and checking on students’ progress. The results are disaggregated by race or ethnicity, income and other demographic characteristics that reveal disparities in the ability to cope with the transition to remote learning among California families.

Overall, the findings indicate that California families with school-age children have, by and large, adapted to the requirements imposed by remote learning. The share of K-12 families connected to broadband through a computer device (desktop/laptop/tablet) has jumped from 86% in 2019 to 93% in 2021, driven largely by school or district programs put in place after the onset of the pandemic. However, the transition to remote learning has been challenging for many families, in particular to Hispanic families whose primary language is Spanish.

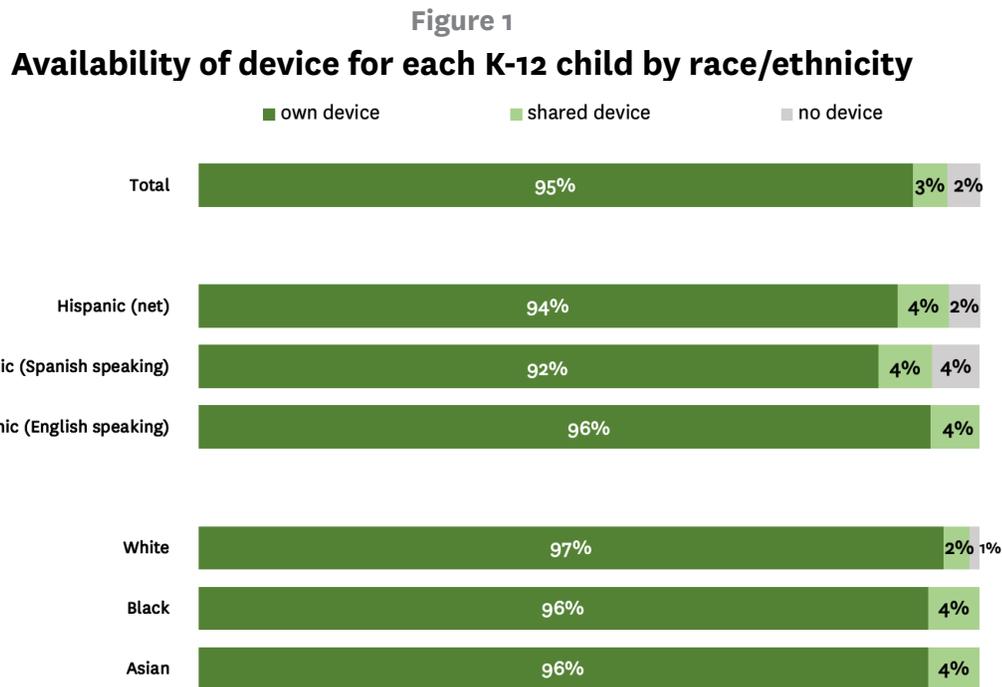
The results also reflect the efforts by schools and districts to provide devices for remote learning to K-12 families, and in particular low-income families. The evidence is in the reduction in the share of smartphone-only K-12 families by more than half, from 10% in 2019 to 4% in 2021. By contrast, broadband access continues to depend on the ability of parents to pay for service, which

¹ See “Mapping the Distance Learning Gap in California”, available at <http://arnicus.org/publications/mapping-the-distance-learning-gap-in-ca/>

as shown in our prior report varies widely depending on family characteristics.² Finally, the results suggest that several opportunities exist for school-based programs that integrate equipment distribution and support with digital skills training for parents to facilitate technology-enabled learning beyond the pandemic.

PILLAR 1: ACCESSING DEVICES REQUIRED FOR REMOTE LEARNING

Overall, 95% of families with children attending school reported that each of their children had their own device to use for remote classes, with 3% reporting that a device was available but shared among several children, and 2% reporting no device availability. When disaggregated by race and ethnicity (Figure 1), the results show that White families had the highest 1:1 child to device ratio (97%), while Hispanic families whose primary language is Spanish reported the lowest (92%). While small in magnitude, these differences reveal that gaps in device availability persist even after a year of distance education for California students, affecting an estimated 300,000 students.



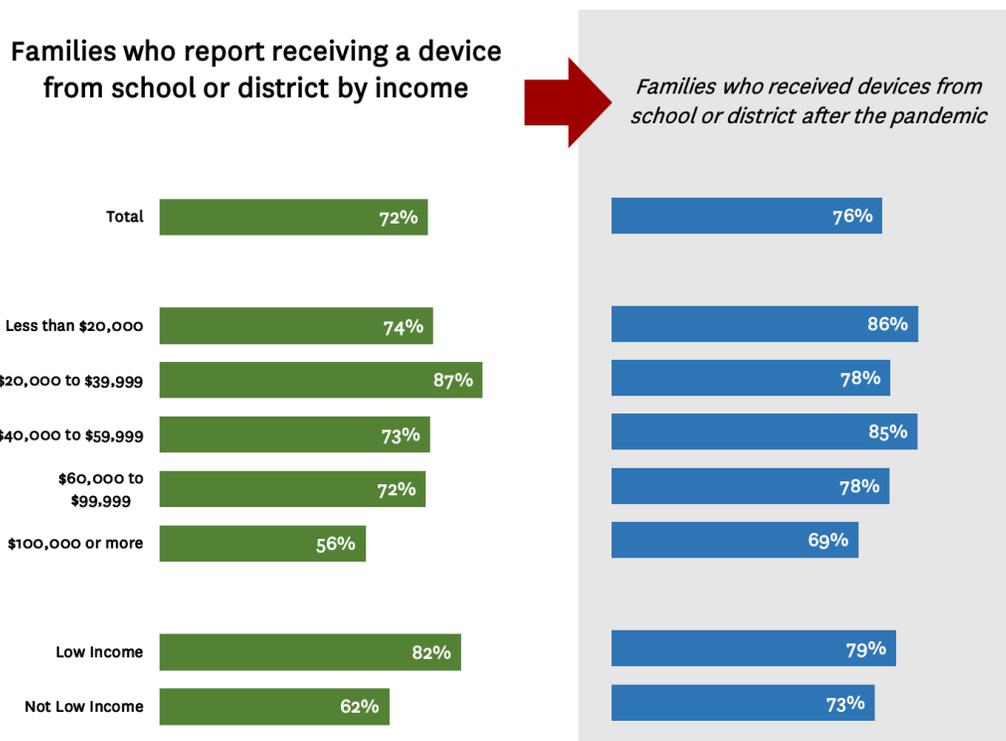
Similarly, small but relevant differences are observed in device availability with respect to income. While 98% of families with incomes above 200% of the Federal Poverty Line report that each student in the household has a device for remote learning, the figure drops to 92% among low-income families (at or below 200% of the Federal Poverty Line). Among families with

² See Internet Adoption and the Digital Divide in California, available at http://assets.uscannenberg.org/docs/CETF-USC_Statewide_Broadband_Adoption_Survey.pdf

annual incomes below \$40,000, about 1 in 10 report either lacking a device or that children are sharing devices for remote learning.

The transition to remote learning forced schools and districts to make very large investments in devices and Internet service to ensure the continuation of learning for K-12 students. The survey results reflect these investments, with 72% of families reporting that at least one of the devices used by students was loaned to them by their school or school district, and the vast majority (76%) of them report that the device was received after the onset of the COVID-19 pandemic. When evaluated along demographic characteristics, there is evidence that these programs have reached those most in need. For example, while 82% of low-income families report having received a device from the school or district, the figure is 62% for more affluent families (Figure 2).

Figure 2



At the same time, most families (81%) report that the devices provided by schools are used exclusively for K-12 educational activities, and therefore are never used by other family members. While this is consistent with the primary goal of these programs, prior research suggests that investments in laptops or tablets for students may also benefit other family members who otherwise have limited opportunities for Internet engagement, particularly in low-income, multi-generational households.³

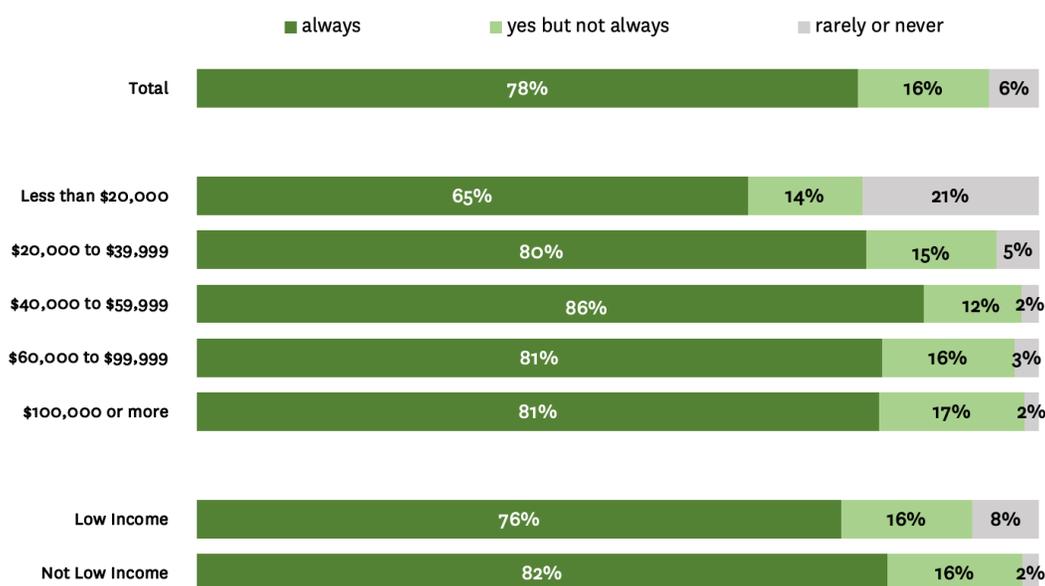
³ See Galperin and Arcidiacono (2019). Learning from or leaning on? The impact of children on Internet use by adults. *New Media & Society* 21(2): 483–506.

PILLAR 2: BROADBAND ACCESS FOR REMOTE LEARNING

Remote learning also requires reliable access to a robust and affordable high-speed broadband connection. While about 97% of families with school-age children in California have home Internet, the quality and reliability of a connection may fall short of the requirements for remote learning, particularly when other household members are using the same connection for school, work or other remote activities. In fact, nearly 16% of K-12 families with home Internet access report that their current connection is not adequate for their needs, compared to less than 11% among households without children.

When specifically asked about the availability of home Internet for remote learning, 78% of parents report that their child or children are “always” able to connect to remote classes, while 16% report that Internet access is available “sometimes but not always” and 6% report “rarely” or “never”. As Figure 3 shows, low-income families are about 4 times more likely to report that students are unable to connect to remote class (“rarely” or “never”), thus indicating the extent to which disparities in access continue to impact online learning opportunities.

Figure 3
Availability of Internet access for remote learning by income



There is debate about the role of schools or districts in providing home connectivity to students who otherwise lack access to the Internet at home. However, there is broad consensus that the sudden shift to online learning after the onset of the COVID-19 pandemic required that officials put emergency programs into place to guarantee the continuity of classes and learning activities for all. The impact of these programs is reflected in the findings, with 17% of families reporting to have connections provided and paid for by the school or district (rising to 22% among low-income families).

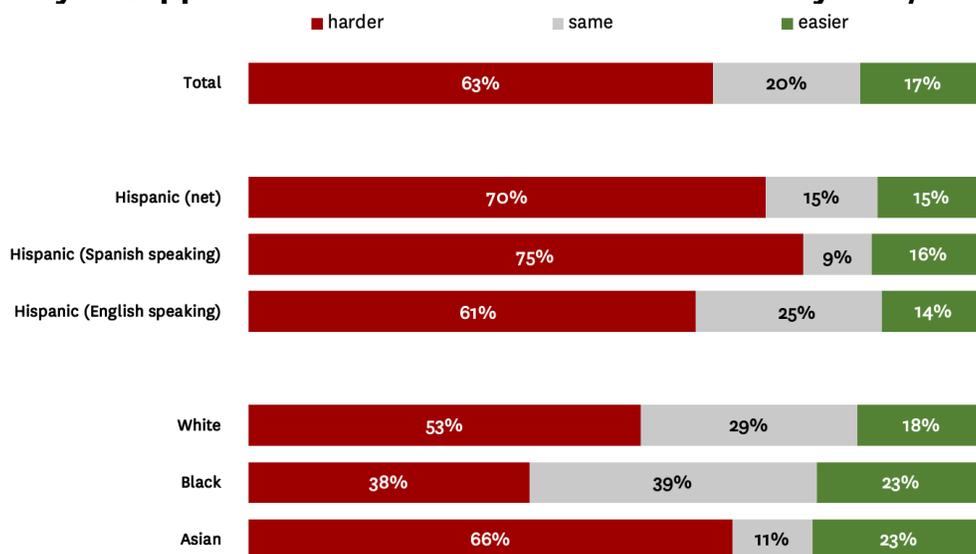
Interestingly, when probed about expectations to continue having Internet access once the school or district discontinues the subsidy program, more than two thirds (70%) of parents report they will “definitely” or “most likely” subscribe to the service on their own. This reflects strong demand for low-cost connectivity options that cater in particular to the needs of K-12 families. Such options already exist in California, however only about a third (34%) of K-12 parents are aware of these options, which is lower than awareness of discounted plans among households without children (43%). This suggests an opportunity for partnerships between schools and service providers to promote these programs to reach those in need.

PILLAR 3: SUPPORTING CHILDREN DURING REMOTE LEARNING

Remote learning requires substantial efforts from the entire family, and prior studies suggest parental involvement and support is a key determinant of educational outcomes.⁴ The survey thus probed parents about their ability to support students during remote learning in terms of helping with schoolwork, regular communication with teachers, and their ability to check on students’ progress online, all relative to their situation pre pandemic.

About 60% of parents report having more difficulty than before the pandemic in helping their child or children with schoolwork, with noticeable differences along race and ethnicity (Figure 4). While about half of White parents reported that it was more difficult for them to help their children with schoolwork, the figure is higher (70%) for Hispanic parents, and reaches 75% for Hispanic parents who primarily speak Spanish at home. Asian parents also report more difficulties than White parents, thus suggesting that language barriers may be a factor that, compounded with lower broadband access, prevent non-White parents from adequately supporting their child or children with schoolwork in a remote context.

Figure 4
Difficulty to support child or children with schoolwork by race/ethnicity

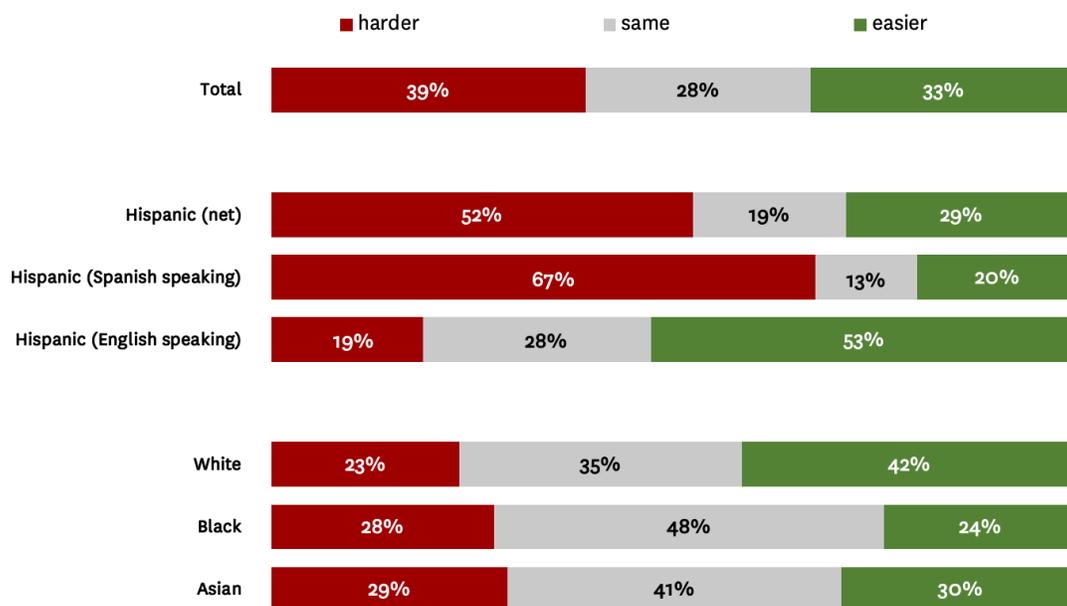


⁴ See Dumont, H., Trautwein, U., Lüdtke, O., Neumann, M., Niggli, A., & Schnyder, I. (2012). Does parental homework involvement mediate the relationship between family background and educational outcomes? *Contemporary Educational Psychology*, 37(1), 55-69.

The results are similar for communication with teachers. About 39% of White parents reported more difficulty communicating with teachers since the transition to online learning. This rises to 46% among Hispanic parents, and to 56% for Hispanic parents who primarily speak Spanish at home.

In terms of checking on students’ progress, the findings reveal a mix of challenges and opportunities in the online learning context. While many parents report more difficulty in following their child or children’s school progress (39%), about a third report that it has become in fact easier (with the rest reporting no change). As with other findings, the results indicate that White parents (who are more likely to be connected at home) report being more comfortable checking on their child or children’s progress online. This stands in sharp contrast to Hispanic parents who overwhelmingly (52%) report more difficulty following their child or children’s school progress (relative to their situation pre pandemic), and in particular to those who speak Spanish at home (67% of whom report it has become more difficult).

Figure 5
Difficulty to follow child or children school progress by race/ethnicity



Summing up the findings along the three pillars (device access, broadband connectivity, and parental support) our results suggest both setbacks as well as improvements since the COVID-19 pandemic. Access to devices, for example, is over 90% for all groups, indicating successful investments—especially for low-income families. Devices, however, are only one component of successful remote learning. When examining access to broadband at home, our findings show mixed results, with low-income families reporting more precarious connectivity for their school-age children. Yet, those same families also report a commitment to sustain their connectivity beyond the emergency programs offered by schools or districts, indicating a long-term need for affordable access alternatives.

Finally, our results show that parental support for online learning is largely mixed, with more affluent families not only better weathering the requirements of remote learning, but actually finding it easier in some instances. This has implications for how school district and community partners communicate with families who have to navigate language barriers to not only understand their children's schoolwork, but also the technology required to complete it. One possible step is ensuring that deployment of learning management systems and other technologies comes with additional language options for parents whose primary language is not English. There is also an opportunity to build upon pandemic-related emergency connectivity programs to deploy multilingual digital literacy training for K-12 parents. Overall, our findings suggest an opportunity to leverage the lessons of the pandemic to close the "homework gap" beyond the pandemic by assessing the needs of K-12 families along the three pillars of digitally-enabled learning, and retooling existing emergency programs for long-term impact.

ABOUT THE STUDY

- Sample size: 575 parents of K-12 students in California
- Sampling method: random-digit dialing (RDD) of cellphones and landlines
- Languages: English, Spanish, Mandarin, Vietnamese
- Margin of error: ~2% for 95% confidence level
- Weighting: results were adjusted for age, gender, race/ethnicity, education and region based on totals from the American Community Survey (ACS)
- Fieldwork dates: February 10-March 22, 2021
- Funding: California Emerging Technology Fund

ABOUT THE TEAM

This report was prepared by Dr. Stephen J. Aguilar, Assistant Professor, USC Rossier School of Education and Dr. Hernan Galperin, Associate Professor, USC Annenberg School for Communication and Journalism, with research assistance from Thai V. Le, Doctoral Candidate, USC Price School of Public Policy.

USC-CETF RESEARCH PANEL

Researchers from across the University of Southern California will analyze and interpret results of the 2021 Statewide Survey, including: Stephen Aguilar of the USC Rossier School of Education; Francois Bar of the USC Annenberg School for Communication and Journalism; Donna Benton of the USC Leonard Davis School of Gerontology; Geoffrey Cowan of the USC Annenberg School for Communication and Journalism and Center on Communication Leadership and Policy; Conyers Davis of the USC Sol Price School of Public Policy and Schwarzenegger Institute; Pedro Noguera, Dean of the USC Rossier School of Education; Manuel Pastor of the USC Dornsife College of Letters, Arts and Sciences, and Director of the Equity Research Institute; Adam Clayton Powell of the USC Annenberg School of Communication and Journalism; Dorian Traube of the USC Suzanne Dworak-Peck School of Social Work; and Kathleen Wilber of the USC Leonard Davis School of Gerontology. Former State Treasurer and Controller John Chiang, Past Fellow at the USC Dornsife Center for the Political Future and Co-Chair of California Forward, also is a contributing researcher.

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