

Disparities in Educational Access in the Time of COVID: Evidence From a Nationally Representative Panel of American Families

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We use data collected between April 2020 and March 2021 from the Understanding America Survey, a nationally representative internet panel of approximately 1,450 households with school-age children, to document the access of American households to K–12 education during the COVID-19 crisis. We also explore disparities by parent race/ethnicity, income, urbanicity, partisanship, and grade level (i.e., elementary school vs. middle/high school). Results shed light on the vectors of inequality that occurred throughout the pandemic in access to technology, instruction, services (e.g., free and reduced-price meals), and in-person learning opportunities. Our work highlights the equity implications of the pandemic and suggests the importance of encouraging widespread in-person learning opportunities and attendance by the beginning of the 2021–2022 school year for addressing COVID-19’s educational effects.

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THE coronavirus pandemic sent unprecedented shocks through the U.S. education system. Starting in March of 2020, states began closing K–12 school buildings and shifting to online learning. With virtually all schools nationwide closed by the end of April, an estimated 55.1 million K–12 students were affected, learning remotely or not at all (“Map: Coronavirus and School Closures,” 2020). Remote learning and other virus mitigation strategies employed by schools and districts throughout the 2020–2021 school year (e.g., reduced capacity for in-person learning, hybrid learning models) posed major challenges for teachers and families, who needed to quickly adapt to new roles and expectations in order to support K–12 students and their learning (Adams & Todd, 2020; Garbe et al., 2020a, 2020b; Hamilton et al., 2020; Russell et al., 2020).

While the COVID-19 pandemic undoubtedly impacted all K–12 students, the effects for some students were more severe. For example, low-income families were less likely to have access to the technology required to participate in online learning (Polikoff et al., 2020; Stelitano et al., 2020) and their parents were more likely to be essential workers

(Berube & Bateman, 2020), with less time to devote to online learning. Black and Hispanic students might also have been disproportionately affected due to existing racial inequalities in school spending (Sosina & Weathers, 2019) and unequal access to high-quality teachers (Clotfelter et al., 2005; Goldhaber et al., 2015). Understanding disparities in educational access and opportunity among these groups is critical for understanding the impacts of COVID-19 and appropriate targets for policy responses.

Our study is uniquely positioned to provide evidence to this effect, as we report on results from the only nationally representative panel data effort to collect real-time, longitudinal data during the pandemic from a large enough sample of parents to explore COVID-19’s disparate effects on education by racial and household income subgroups, among others. We leverage data from the Understanding America Survey (UAS), a nationally representative internet panel administered by the University of Southern California Dornsife Center for Economic and Social Research repeatedly over time to the same approximately 1,450 households with children aged 18 years and younger. We draw on eight



waves of survey administration, collected between April 2020 and May 2021 to explore

1. How much, and what forms of access did American households have to K–12 education between the beginning of the COVID-19 crisis in spring 2020 and spring 2021, and how did access change over time?
2. To what extent did student access differ by parent race/ethnicity, income, urbanicity, partisanship, and grade level (i.e., elementary school vs. middle/high school)?

We highlight inequalities in educational access throughout the year including in technology, services (e.g., free or reduced-price meals [FRPM], mental health), instructional supports, and in-person schooling. Our definition of “access” focuses on whether students have access. That is, it includes both whether students are offered access and, in some instances, whether parents take up those offers (often our data do not allow us to parse offer vs. take up). We find that the most common access disparities are those by race and family income, though we also observe some variation by urbanicity, partisanship, and grade levels. These results raise important equity concerns in general, and also because by at least one measure, parents’ perceptions, educational quality is much lower if students are attending school remotely relative to in-person (Rapaport et al., 2020). Results shed light on the vectors of inequality that occurred throughout the pandemic, as well as the importance of encouraging widespread in-person learning opportunities and attendance by the beginning of the 2021–2022 school year as critical to addressing COVID-19’s educational effects.

Literature Review

A burgeoning body of literature has begun to examine the educational effects of the COVID-19 pandemic. In general, studies fall into two categories, those seeking to (1) document the experiences of K–12 students, which will likely result in meaningful impacts for learning and (2) document changes in student academic outcomes during the pandemic period, obtained by harnessing data collected from online learning platforms and district- and state-administered tests. Here, we review these works, highlighting evidence on disparities across groups based on race/ethnicity, income, urbanicity, and partisanship as applicable.

Learning Experiences

A growing body of survey evidence from parents, teachers, administrators, and district staff documents students’ online learning during school closures in the spring of 2020. In general, this evidence suggests that the amount and quality of online learning that students were receiving was less

than the instruction they were experiencing prior to COVID-19, and that the deficiency was most severe for already disadvantaged groups. Results from the Household Pulse Survey, a nationally representative survey of American Households administered by the U.S. Census Bureau in April 2020, found that children were typically spending about 20 hours a week on learning activities, well below the 30-hour minimum typical in most states before the COVID-19 pandemic (von Zastrow, 2020). This survey also found a 10 percentage-point gap between the proportion of Black/Hispanic and White/Asian households reporting internet access.

Several other survey studies echo findings about disproportionate technological access to support remote learning by race/ethnicity and income (e.g., Polikoff et al., 2020). A Pew Research Center poll administered in April 2020 found that 40% of low-income parents said their children needed to rely on public Wi-Fi in order to complete schoolwork due to unstable or no internet connections at home, as compared with 6% of upper-income parents (Vogels et al., 2020). Another survey of low-income families in Los Angeles reported that only one third of families had consistent available space for their children to complete learning activities (Aguilar et al., 2020).

Spring 2020 survey evidence also indicates that parents were not getting the support they needed to help their children with online learning. Using data from an online open questionnaire of 122 parents, Garbe et al. (2020a) found parents were overwhelmed by having to help their children with online learning and struggled to keep their children motivated in this new learning environment. Parents also described barriers preventing their children from fully accessing online learning including the special learning needs of their children (e.g., special education needs or English learning needs), lack of parent content knowledge, need for more teacher communication, and lack of access to technology to support learning.

Researchers also attempted to more objectively document time and access to instructional materials and how these changed during the pandemic. In their analysis of students’ use of Zearn, an online math instructional software used by schools before and after COVID-19-related school closures, Chetty et al. (2020) found sharp discontinuities in learning progress by household income group starting March 18, 2020 at the beginning of widespread school closures. Using internet search data from April 2020, Bacher-Hicks et al. (2020) found that searches for both student- and parent-centered learning resources increased substantially following the COVID-19 pandemic, but that the increase was sharper in higher income areas relative to lower income areas. Thus, evidence from internet searches and from online learning platforms indicate stark differences in learning opportunities by income, with lower income students experiencing fewer opportunities for learning.

In fall 2020, schools began reopening in various modes, including in-person, remote, and in-person remote, hybrid learning models. Thus, emerged another opportunity for inequitable experiences, as parents reported that in-person learners had access to higher quality learning experiences (Rapaport et al., 2020), and there were stark differences in school modality by demographics. In a study analyzing the UAS data used for this study, Camp and Zamarro (2021) found that White students were more likely to attend school in-person, and that racial/ethnic differences in modality, persisting through much of the 2020–2021 school year, were largely explained by school district offerings, political partisanship, and rates of local COVID-19 outbreaks. Kogan (2021) reported similarly, also based on UAS data. Using local district reopening plans in Michigan, Grossmann et al. (2021) also found political partisanship was strongly associated with in-person learning opportunities with Republican districts favoring in-person learning relative to Democratic districts.

Student Outcomes

While the aforementioned studies document differences in learning opportunities that are likely associated with achievement gaps, other studies explore the effects of the COVID-19 pandemic on achievement more directly. Broadly, these studies suggest that student achievement has been negatively affected by the pandemic and that these effects are largest in mathematics and for low-income students, students of color, and younger students. Renaissance Learning (2020) used data from their STAR skills assessments, administered to students in Grades 2 to 8 annually, to provide early evidence of learning loss during COVID-19. They found growth in mathematics between fall of 2019 and 2020 was below expectations based on previous cohorts across all grades, and growth in reading was below expectations in Grades 4 to 8. They also found the largest learning gaps relative to expectations for schools with high shares of students from low socioeconomic families. In a similar study of third-to-eighth-grade students who took the MAP growth assessments in fall 2020, Kuhfeld and colleagues (Kuhfeld, Tarasawa, et al., 2020) found that average achievement levels in reading for children were similar to achievement in previous years; however, as much as 10 percentage points lower in mathematics. In a third study drawing on data from the third-grade English Language Arts assessment in Ohio, Kogan and Lavertu (2021) estimated that incoming third-grade students may have lost as much as one third of the progress they would make in a typical year, with effects most severe for Black and Hispanic students, and economically disadvantaged students. Finally, a recent study using data from Curriculum Associates (2021) found declines in the proportion of students on grade level

in math and reading of between 1% and 10% depending on grade and subject. However, the declines were especially steep in schools with more Black, Hispanic, and low-income students and in the early grades (especially in mathematics).

One key limitation to results from studies using interim assessments like STAR and MAP is the large proportion of students who did not take the tests on which the results were based (the study from Curriculum Associates, in contrast, only included students who took the test in person at both time points). The students who did not take the test for the most part were from disadvantaged backgrounds whereas students who took the test are from more advantaged backgrounds, leading to underestimates of potential learning loss, particularly for the children of greatest concern (Kuhfeld, Soland, et al., 2020; Renaissance Learning, 2020).

Summary and Contribution

In spring 2020, schools attempted to slow the spread of COVID-19 by shifting to an online learning model. Existing literature documents the impacts of COVID-19 on children's educational experiences and outcomes, and how both vary by racial and income groups. Evidence from parent surveys and students' progress on instructional software in mathematics suggests that students' educational experiences suffered during this time, and that the impact was most severe for Black and Hispanic students and economically disadvantaged students. In fall 2020, some schools continued to operate remotely while others adopted in-person or hybrid models. Through the 2020–2021 school year, Black, Hispanic, and Asian students were less likely to attend in-person schooling relative to White students, while elementary and rural students and those in Republican-controlled counties were more likely to be in person.

Our study contributes to understanding of the effects of pandemic-related school closures and ongoing mitigation strategies on students' access to educational resources in several ways. First, by tracking the experiences of the same nationally representative families over time, we are able to document the dynamic effects of the COVID-19 crisis in ways that individual snapshot studies cannot. Second, given the longitudinal nature of our panel, we have been able to probe differences in educational access as the meaning of access evolved throughout the course of the pandemic. For example, access to technology was more important in the beginning of the pandemic, while all students were attending school remotely. While access to technology, particularly, one device per child and sufficient internet access remained important in the fall, gaps in access to in-person learning became more prominent. Finally, in addition to the more common demographic differences reported upon elsewhere, we explore differences in educational experiences by urbanicity, partisanship, and grade level.

Data and Method

We leveraged UAS data to learn about the experiences of K–12 students, particularly, from historically underserved groups. Given the richness of the UAS data set, we could have explored educational access by any number of demographic subgroups. We choose to focus on race/ethnicity and income given the chronic disparities in educational access for economically disadvantaged, Black and Hispanic students (Clotfelter et al., 2005; Lareau, 2011; Owens, 2018; Sosina & Weathers, 2019; Welsh & Little, 2018), as well as the burgeoning body of evidence that the pandemic was reinforcing these existing inequalities. We focus on urbanicity because urban districts were far more likely to remain virtual throughout most of the 2020–2021 school year relative to suburban and rural districts (Gross et al., 2020). Partisanship has been a key driver of whether students have been attending in person (Camp & Zamarro, 2021; Grossmann et al., 2021), and younger students have had greater opportunities for in-person learning than older children due largely to evidence demonstrating less severe health effects from the COVID-19 virus for younger relative to older children (Centers for Disease Control, 2021).

Data

We drew on data from the UAS, an ongoing nationally representative research panel of U.S. households, administered since 2014 by the USC Dornsife Center for Economic and Social Research. To ensure full coverage of the U.S. population, households without internet and/or devices received both as part of their participation in the panel. Panel members were recruited via “Address-based Sampling” (Lavrakas, 2008) and received compensation for participation.

Since the start of the COVID-19 pandemic, UAS has included questions related to the COVID-19 pandemic and its effects on education. The education module includes questions related to a variety of topics. In this article, we focus on questions asking about the myriad effects of school closures on K–12 students (e.g., engagement in school-related activities across subjects, continued access to school-provided resources, services and programs, parents’ perceptions of instructional quality and concerns about the educational effects of the pandemic for their children). The larger UAS database contains extensive participant characteristics—including race/ethnicity, household income, urbanicity, partisanship—as well as children’s grade levels, which can be used to explore relationships in the education data. For this article, we draw on eight waves of UAS data collected from April, 2020 to May, 2021, with each wave in the field for 4 weeks. Administration dates for each of the waves of the UAS are presented in Table 1.

Sample

Our education sample included a subset of the UAS panel of about 1,450 unique households with school-age children, or children in K–12 grade. The total number of households varied slightly by administration wave with exact numbers presented in Table 1. Some households in the UAS education sample had multiple respondents who provide information about the same individuals in K–12 education. For instance, in a household with two parents and one child, in which both parents were included in the UAS panel and participated in a given wave, both respondents were asked the same education questions about their child’s experiences. While the UAS is designed to capture information about U.S. households, for the education modules, we were primarily interested in the characteristics and experiences of individual students, and duplication within households would overrepresent the responses of households with multiple respondents. To eliminate this overrepresentation, we unduplicated households with the goal of maintaining respondent sample continuity across waves (see Appendix A).

Table 2 presents demographic characteristics for unduplicated respondents included in the education sample (weighted shares). To achieve population representativeness, the UAS administration team employed sample weights constructed in two steps. First, they calculated a base weight that corrects for unequal probabilities of selection of different households into the UAS. Second, they generated poststratification weights, aligning sample distributions of key demographics, namely gender, race/ethnicity, age, education, and geographic location, with their population counterparts. Population benchmarks are derived from the Basic Monthly Current Population Survey (CPS). The sample weights broadly align the sample with the U.S. adult population along the listed dimensions, though the sample is somewhat poorer than the American population on average.

Many of the parents in our sample have multiple school-age children in their households. For questions for which parents may have differing responses by child, starting with UAS 240 we programmed the survey instrument to randomly select a single child and asked the respondent to respond for that child only. We retained this same randomly selected child over time, which permitted comparisons of responses about the same child longitudinally. We collected additional demographic information about the selected child—including grade level, mode of attendance (i.e., in-person, remote, or hybrid), and school type—and present sample demographics by wave in Table 3, from May and October 2020. The majority of our sample attends traditional public schools, and roughly half of selected children are in elementary school.

TABLE 1
Understanding America Survey (UAS) Administration Dates, Sample Sizes, and Topics

	UAS 235	UAS 240	UAS 242	UAS 250	UAS 264	UAS 270, 340	UAS 344
Wave	April 2020	Early May 2020	Late May 2020	June 2020	September–October 2020	270: November–December 2020 340: February–March 2021	April–May 2021
<i>n</i>	1,296	1,505	1,533	1,411	1,334	270: 1,432 340: 1,542	1,510
Admin dates	April 1 to April 28, 2020	April 15 to May 12, 2020	April 29 to May 26, 2020	June 24 to July 21, 2020	September 30 to October 27, 2020	270: November 11 to December 8, 2020 340: February 17 to March 30, 2021	April 14 to May 25, 2021
Topics	Access to technology	Access to instruction	Access to instruction	Support for keeping schools remote for 2020–2021	Access to technology	School modality and preference	School modality and preference
		Access to services	Access to services		School modality and preference		Plans to attend in person for the 2021–2022 school year
					Access to services		
					Tutoring/pod participation		
					Parents' ability to help with school work		

TABLE 2
Weighted Respondent Demographics by Survey Wave

Demographic	April 2020 (%)	February–March 2021 (%)	National (%)
Race/ethnicity			
NH White	53.87	54.06	55.6
NH Black	13.56	14.07	11.3
NH Asian	4.45	4.8	7.9
NH Other	5.15	4.23	2.5
Hispanic	22.97	22.84	22.7
Household income (\$)			
<25,000	21	22.5	10.5
25,000–49,999	22.18	21.59	18.8
50,000–74,999	15.06	15.71	17.8
75,000–149,999	32.08	28.48	31.5
≥150,000	9.69	11.72	21.5
Educational attainment			
HS or less	39.55	35.38	36.4
Some college	27.78	30.43	27.2
BA or more	32.68	34.19	36.5
Political party			
Democrat	38.78	40.62	
Republican	37.62	36.48	
Other	23.6	22.9	
Region			
Northeast	14.77	15.5	16.8
Midwest	21.79	21.84	21.1
South	40.05	38.64	37.5
West	23.4	24.02	24.7
Urbanicity			
Rural	21.04	19.12	
Suburban/mixed	50.21	50.93	
Urban	28.75	29.95	
Number of children			
One child	31.12	37.52	
More than one child	68.88	62.48	

Note. NH = non-Hispanic; HS = high school; BA, bachelor’s degree.

COVID-19 Context and Survey Outcomes

A primary advantage of the longitudinal nature of our panel was the ability to tailor the questions we asked in each wave to the most pressing educational issues at any given time. Here, we provide a brief overview of the COVID-19 crisis in education throughout the duration of our panel. Then we describe the questions drawn on in our analysis to capture these events.

The spring of 2020 was marked by massive disruptions to education, as districts and states began to close their school buildings in efforts to curb the spread of COVID-19. The first rumblings of school closures began in February, 2020. Teachers’ unions released public statements asking for more federal guidance to schools about how to handle the pandemic, and individual schools and districts began to

close their doors, primarily in Washington State and New York which were experiencing early outbreaks. On March 11, the World Health Organization officially declared the COVID-19 pandemic, and on March 12, Ohio officially became of the first state to declare a state-wide closing of schools. By March 25, all states had announced state-wide school closures and by May 6, virtually all (48 plus and the District of Columbia) decided to keep school buildings closed for the remainder of the 2019–2020 year.

As schools increasingly closed their doors, teachers, students, and families faced numerous challenges as they adapted to remote schooling. During these early months, discussion around the impacts on education focused primarily on students’ ability to access education, from their technological capabilities at home, to their engagement in online learning, to

TABLE 3
Selected Child Demographics by Administration Month

Demographic	Early May, 2020 (%)	September–October, 2020 (%)	National (%)
School type			
Traditional public school	78.85	77.09	85.9
Magnet	4.01	2.45	
Charter	3.79	4.82	4.6
Private	6.04	5.79	9.5
Home school	5.06	7.92	
Other	2.25	1.92	
School level			
Elementary		47.35	45.57
Secondary		52.65	54.43

Note. We do not collect data about selected child in each wave. Missing values in UAS 240 on school level are because we did not collect that information on the specified survey administration. National shares taken from the Digest of Education Statistics. These data include the percentages of students in each grade level for 2018, and the percentage of students by school type (excluding home school and other) for 2016.

their access to critical education services like FRPM, to access to help from parents. During this time, we asked about students’ access to technology to support learning, instruction from their school and teachers (e.g., whether students have received work/grades/feedback/meetings from school), and access to services provided by the school (e.g., mental health services, special education services, services for English learners).

In the fall of 2020, the focus shifted as some schools continued to operate remotely, some returned for in-person learning, and some employed a hybrid model. Here, we asked about students’ access to educational supports (e.g., tutoring, pods, technology) and in-person learning opportunities.

From winter 2020 through spring 2021 we focused most of our measurement on student access to in-person learning modality. Over multiple waves, we asked parents where students were being educated, whether schools were open for in-person learning, and what their preference was for modality. Also in spring 2021 we began to ask about students’ access to and participation in various policy efforts aimed at addressing the negative consequences of the pandemic, including tutoring and summer school.

Given the sheer magnitude of questions asked over the course of this survey, we draw on a subset of the UAS education questions that we believe are related to the most pressing educational issues at each time point. A summary of the topics covered are listed above in Table 1, and specific questions in Appendix B.

Analytic Approach

For the majority of our reporting, we rely on summary statistics (means and counts), to provide a descriptive picture of K–12 students’ educational access between April 2020 and May 2021. We document educational disparities across five characteristics: race/ethnicity, household income, urbanicity, partisanship, and grade level.

Our analytic approach relies on multiple regression models. For each outcome, we fit five regression models predicting each outcome one-at-a-time with our five sets of demographic indicators:

$$y_i = \beta_0 + \beta_1 X_i + \epsilon_i, \quad (1)$$

where y_i represents the outcome of interest, X_i represents the person-level demographic characteristic, and ϵ_i represents the random error. We estimate the model with one set of demographic predictors at a time and test for group significance, an approach appropriate for descriptively documenting disparities in educational experiences within specific subgroups of the population (Loeb et al., 2017). To test significance for our categorical school modality and preferences for school modality outcomes (in-person, remote, hybrid), we fit Model 1 as a multinomial logistic regression model. We do not discuss every statistically significant difference in the text, but rather focus on the most apparent trends in each analysis—all results are reported in the tables.

Results

Our objective is to document disparities in the educational resource access of U.S. K–12 children from April 2020 to May 2021, the first full year of the COVID-19 pandemic and its impact on education. We focus on several buckets of survey questions describing access to technology, instruction, services, learning supports, and access to in-person learning. For each, we first describe the overall experiences of families from our panel; then, we document inequalities driven by race/ethnicity, region, and income.

Access to Technology

Given the sudden shift to remote learning in the Spring of 2020, understanding whether students had sufficient

technology to access online learning was of critical concern. We asked about families' access to technology in two ways: First, in April 2020, we asked about whether children in the household had access to internet and computer during the day to support learning. In October 2020, we asked about technology access in a more detailed way, probing on district provision of devices, options for access to the internet and bandwidth quality, and number of devices available per child.

Overall, the clear majority of families reported having access to internet and computers for learning. In April, 85% of families report having access to internet and computers to support learning (Table 4). By October, almost all families (95%) reported having access to internet and computers for learning. In other words, the proportion of families lacking either internet or computers for learning dropped by 10 percentage points between April and October.

While overall rates of technology access were high, when we disaggregated by subgroups, we found significant differences by race and income in both April and October, with the biggest disparities by income on some variables. For example, when we asked parents about their access to technology in April, only about two thirds of households with income less than \$25,000 per year reported having computers and internet access available for children's remote learning, compared with 92% of families with household incomes of \$75,000 to \$149,000, and 97% of those above \$150,000. These differences were much smaller in October—just seven percentage points between the highest and lowest income families with hybrid or remote learners. There were important racial/ethnic differences in technology access in October, with Black families less likely than other groups to have technology and internet and more likely to have to share devices. There were also school-level differences, with secondary students less likely to have access.

Sufficient internet connectivity has been another barrier to accessing education. While 77% of K–12 parents of fully remote or hybrid learners reported good internet connectivity for their children's remote learning, 22% reported connections were slow or dropped frequently. Poor internet connections can translate into missed instruction, student absences, an inability to meaningfully communicate with teachers and peers, and ultimately, failing grades. There were large income gaps in connectivity, with 39% of the lowest income group (less than \$25,000 per year) reporting connectivity issues versus just 3% of the highest income group (over \$150,000 per year). There were also gaps based on urbanicity, with 81% of suburban parents reporting good connectivity versus 72% of urban and 69% of rural parents.

In sum, early in the pandemic there were large gaps in access to technology, especially based on family income. By the fall, income gaps in access to technology had mostly disappeared, but modest racial gaps were still present. Furthermore, while there was a baseline level of access to

technology by the fall, there were yawning income and urbanicity gaps in the quality of internet connectivity.

Access to Instruction and Instructional Supports

In addition to understanding whether students had the necessary technology to access remote schooling, there was also concern about students' access to instruction and instructional supports. To capture students' access to instruction during the shift to remote schooling, we asked about whether children had (1) interacted with a teacher by online platform, phone, or email; (2) received new school work from teachers; and (3) received feedback from teachers. We asked these questions both in our early and late May 2020 administration waves (Table 5). Then, in October we asked questions about access to learning supports, including pods, tutoring, and parents' self-reported ability to help students with schoolwork (Table 6).

We find while most families reported interacting with teachers and receiving school work, up to a quarter of students did not. In early May, only 74% of families reported having interacted with a teacher and 69% of families reported having received feedback from a teacher. These numbers rose slightly by late May (77% interacted with a teacher and 73% received feedback), however, large shares of children remained disengaged from their teachers. More promisingly, 88% of students reported receiving school work in early May and 90% in late May. Thus, while most families were assigned work during the initial shutdowns, many had less access to direct instruction, either through interacting with teachers or receiving feedback on their work.

When we look at access to instruction by subgroups, we see large gaps, mostly based on income and urbanicity (Table 5). In terms of urbanicity, urban and suburban students had more access to instruction than rural students by as much as 20 percentage points (84% of urban parents reported their children had met with their teacher versus just 64% of rural parents). There were also sharp income gradients. For instance, by late May, the most affluent students were 28 percentage points more likely than the least affluent students to have met with teachers. These income gaps also appear in terms of students receiving work and receiving feedback from teachers, though the magnitude of the gaps was smaller on these variables.

October data on access to learning supports (Table 6) generally find that they were not common. For instance, 26% of households reported that their students had access to tutoring provided by the school, and 20% or fewer of households reported participating in various forms of family-provided tutoring including "pods." Furthermore, there were no significant subgroup differences in access to these relatively rare forms of support. By April–May of 2021 (Table 7), these results had not changed much. Just 27% of parents reported that their child was offered in-school tutoring, 27% were

TABLE 4

Share of Families With Access to Internet and Computers for Learning

	Internet and computer for learning				Devices for learning				Internet for learning				School-provided technology			
	April 2020				September–October 2020											
	Percent with internet and computer for learning	Percent with internet and computer for learning	Percent with one device per child	Percent with shared devices for learning	Percent with no devices for learning	Percent with no internet connectivity	Percent with poor internet connectivity	Percent with good internet connectivity	Percent school offered to provide internet	Percent accepted school-offered internet	Percent school offered to provide device for learning	Percent accepted school-offered device for learning	Percent school offered to provide device for learning	Percent accepted school-offered device for learning		
Demographic	84.72	94.32	95.37	83.60	9.30	3.40	1.25	22.05	76.71	41.64	11.36	85.47	67.51			
Race/ethnicity																
NH White	86.84	94.38	96.35	83.11	11.29	2.99	0.69	20.27	79.04	38.89	9.82	85.40	67.16			
NH Black	79.77	88.34	88.84	80.37	6.52	7.57	3.58	26.10	70.32	47.89	17.64	79.94	60.15			
NH Asian	94.52	98.57	98.12	86.78	10.77	1.88	0.00	11.28	88.72	30.11	15.94	83.33	60.55			
NH Other	64.50	91.66	92.23	79.70	4.32	0.00	7.77	16.80	75.44	32.39	0.08	90.89	70.60			
Hispanic	85.23	97.51	97.55	86.38	7.97	2.39	0.05	25.67	74.28	46.28	11.36	88.46	73.32			
Group significance	a	a	a	a							a					
Income (\$)																
<25,000	63.34	90.44	93.35	78.15	11.28	3.31	3.34	38.86	57.81	44.88	23.47	83.40	70.62			
25,000–49,999	85.85	91.05	91.57	74.84	11.76	6.64	1.78	21.28	76.94	35.54	12.34	84.65	72.20			
50,000–74,999	89.58	97.07	97.96	86.25	10.10	1.97	0.07	21.42	78.50	45.21	7.02	83.27	65.77			
75,000–149,999	91.79	96.64	97.76	91.02	6.51	1.89	0.42	16.99	82.60	47.02	6.92	90.45	64.63			
≥150,000	97.45	97.37	97.72	92.42	4.64	2.28	0.00	2.83	97.17	29.81	6.70	82.34	60.99			
Group significance	a	a	a	a				a	a		a					
Urbanicity																
Rural	80.21	93.52	98.10	79.15	13.53	0.00	1.90	28.84	69.27	43.47	16.29	80.06	66.01			
Suburban/mixed	86.15	94.15	94.84	83.96	8.63	4.53	0.63	17.98	81.39	39.13	9.13	86.55	69.95			
Urban	85.52	94.84	94.68	84.69	8.42	3.42	1.95	26.23	71.82	44.04	12.03	85.69	63.16			
Group significance						a			a							
Political party																
Democrat	87.03	93.11	94.24	82.87	9.36	3.95	1.85	24.83	73.32	45.11	11.19	84.89	69.06			
Republican	88.76	94.93	96.60	90.78	5.71	2.85	0.55	18.97	80.48	37.11	9.28	89.70	67.58			
Neither	75.41	93.11	92.89	75.37	12.84	5.03	2.08	22.35	75.57	37.61	17.22	81.36	63.94			
Group significance	a			a												
School level																
Elementary	95.70	99.70	98.23	83.69	11.61	1.54	0.23	20.27	79.50	38.60	10.70	83.37	71.18			
Secondary	93.28	93.28	93.26	83.54	7.59	4.77	2.00	23.36	74.65	43.85	11.84	86.99	64.84			
Group significance			a						b							
Remote/hybrid only	×	×	×	×	×	×	×	×	×	×	×	×	×			

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. NH = non-Hispanic.

TABLE 5
Share of Families With Access to Instruction

Demographic	Met with teacher		Received feedback		Received work	
	Early May 2020 (%)	Late May 2020 (%)	Early May 2020 (%)	Late May 2020 (%)	Early May 2020 (%)	Late May 2020 (%)
Overall	73.61	77.17	69.21	72.64	88.09	89.66
Race/ethnicity						
NH White	74.43	76.85	71.19	70.91	89.08	89.79
NH Black	63.02	71.48	59.69	70.53	83.39	84.92
NH Asian	90.52	81.03	68.41	78.42	89.67	89.10
NH Other	71.62	70.96	66.56	77.23	93.89	93.11
Hispanic	74.80	81.70	71.40	75.62	86.93	91.54
Group significance	a					
Income (\$)						
<25,000	57.03	58.96	57.49	63.47	77.64	81.80
25,000–49,999	67.51	73.94	65.41	68.92	88.47	86.58
50,000–74,999	77.32	80.10	78.89	74.24	87.11	92.25
75,000–149,999	81.39	86.79	73.15	78.88	92.44	94.14
≥150,000	88.50	86.82	72.43	77.76	94.79	94.50
Group significance	a	a	a	a	a	a
Urbanicity						
Rural	63.70	64.72	64.77	62.74	85.14	85.96
Suburban/mixed	75.50	78.12	70.25	74.04	87.20	88.94
Urban	77.48	84.36	70.59	77.13	91.81	93.68
Group significance	a	a		a		a
Political party						
Democrat	75.64	82.21	67.82	76.36	90.65	93.48
Republican	69.32	74.03	69.15	71.72	88.54	88.29
Neither	75.76	75.74	71.51	70.19	86.97	87.64
Group significance						

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. NH = non-Hispanic.

offered afterschool tutoring, 17% were offered pods, and 34% were offered summer school. There were generally modest group differences on these variables, with urban and elementary students less likely to be offered some forms of tutoring and Black students more likely to be offered pods.

We also found fairly limited interest in their child accessing these supports among those should they be offered (Saavedra & Polikoff, 2021). Among parents whose children’s schools were not offering in-person learning, 16% said they would participate if offered. Among parents with children who did not currently have tutoring opportunities, 30% said they would enroll their child for during-school tutoring, 25% after-school. If offered the opportunity to enroll in a pod, 25% of parents reported they would.

Regarding parent ability to help their children with their school work, most respondents in October reported that they mostly or very much could help with their children’s schoolwork, but here there were sharp differences by both income level and grade level. Depending on the subject area, 63% to

72% of respondents indicated that they could help with their children’s schoolwork. However, the most affluent parents were 13 to 22 percentage points more likely to say they could help with schoolwork. And parents of elementary children were 22 to 34 percentage points more likely to say they could help with schoolwork. The income- and grade-level gaps were the largest in mathematics and the smallest in English language arts—echoing test score results other researchers have documented. There were also racial gaps between Black and other parents of similar magnitudes, but these were only statistically significant in social studies.

Access to Services

When we look at services provided by schools, we found rates of service provisions—like FRPM and special education services—fell dramatically under school closures (Figure 1), particularly in the spring. In late May 2020, we asked parents to reflect upon whether their randomly selected child had

TABLE 6

Share of Families Who Have Access to Tutoring, Pods, and Homework Help

Demographic	Supports from school			Supports from families			September–October 2020			Parents' ability to help with homework		
	Percent tutoring provided by school	Percent participating in pods organized by families	Percent participating in small group tutoring organized by families	Percent participating in individual tutoring organized by families	Percent families who can mostly or very much help with HW in math	Percent families who can mostly or very much help with HW in science	Percent families who can mostly or very much help with HW in social studies	Percent families who can mostly or very much help with HW in ELA	September–October 2020			
									Percent participating in pods organized by families	Percent participating in individual tutoring organized by families	Percent families who can mostly or very much help with HW in math	Percent families who can mostly or very much help with HW in science
Overall	25.53	11.22	11.57	20.25	62.76	66.78	69.27	71.98				
Race/ethnicity												
NH White	25.39	9.16	9.90	19.14	66.40	70.57	74.05	74.80				
NH Black	20.45	15.48	10.95	13.71	54.51	57.10	54.60	65.24				
NH Asian	20.74	11.80	14.60	17.45	62.47	62.61	63.45	62.95				
NH Other	16.57	7.04	8.38	31.98	62.18	69.85	79.66	69.01				
Hispanic	30.99	12.94	15.24	25.45	59.76	64.26	66.29	72.04				
Group significance							a					
Income (\$)												
<25,000	25.45	17.62	8.54	20.31	52.31	57.87	59.00	65.68				
25,000–49,999	24.92	13.54	16.57	19.92	57.19	58.79	60.32	61.18				
50,000–74,999	28.13	12.13	12.07	23.10	66.86	71.15	71.30	73.54				
75,000–149,999	26.75	6.30	10.29	16.87	67.31	73.05	79.85	81.67				
≥150,000	19.29	3.09	7.70	24.38	74.76	76.10	75.65	78.68				
Group significance					a	a	a	a				
Urbanicity												
Rural	21.77	13.24	8.87	15.40	61.29	65.32	65.04	61.54				
Suburban/mixed	27.24	11.05	10.97	21.29	65.38	68.85	70.79	74.60				
Urban	26.09	10.07	13.41	21.08	58.89	63.97	68.57	73.49				a
Group significance												
Political party												
Democrat	23.72	8.76	9.84	16.89	61.19	61.88	66.26	73.11				
Republican	26.86	14.83	12.31	19.87	65.13	68.17	72.81	72.26				
Neither	26.18	11.58	13.10	25.54	61.01	68.39	64.91	66.96				
Group significance												
School level												
Elementary	22.03	11.74	12.49	17.08	80.80	79.79	80.03	82.93				
Secondary	28.61	10.84	10.87	22.68	46.62	55.13	59.64	62.18				
Group significance					a	a	a	a				
Remote/hybrid only				×								

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. NH = non-Hispanic; HW = homework; ELA = English language arts.

TABLE 7

Share of Families Whose Schools Offer Tutoring, Pods, and Summer School

Demographic	April–May 2021				
	In-school tutoring (%)	After-school tutoring (%)	Any tutoring (%)	Pods (%)	Summer school (%)
Overall	26.87	26.69	33.00	17.47	34.02
Race/ethnicity					
NH White	26.70	24.92	33.28	13.25	31.45
NH Black	23.98	24.49	29.60	31.55	31.91
NH Asian	23.47	28.74	33.73	15.72	39.69
NH Other	17.88	18.69	20.40	15.58	42.56
Hispanic	31.35	32.97	36.56	19.84	37.73
Group significance				a	
Income (\$)					
<25,000	26.28	29.09	35.02	20.95	29.10
25,000–49,999	22.10	25.13	30.29	15.97	29.32
50,000–74,999	24.52	22.05	28.36	16.62	36.26
75,000–149,999	30.83	27.73	35.01	16.74	39.14
≥150,000	30.32	29.65	36.24	17.17	35.29
Group significance					
Urbanicity					
Rural	30.18	27.79	36.42	13.58	38.45
Suburban/mixed	27.33	28.58	34.23	20.38	34.90
Urban	19.37	20.46	24.46	13.22	29.27
Group significance			a		
Political party					
Democrat	25.30	23.44	29.69	19.81	34.86
Republican	30.74	30.20	36.09	12.68	33.75
Neither	22.08	23.84	27.75	17.09	35.14
Group significance					
School level					
Elementary	24.59	20.79	29.03	17.16	32.99
Secondary	29.23	32.64	37.07	17.81	35.21
Group significance		a	a		

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. NH = non-Hispanic.

received one or more school-provided services in February 2020, prior to school closures. Roughly 40% of responding parents in our sample reported that their child had been receiving free or FRPM provided by their school pre-pandemic; by May, just over half of those receiving meals when schools were open continued to receive meal services. Similarly, while 16% of our sample reported that their child had been receiving services or accommodations through an individualized education plan or 504 plan pre-pandemic, 61% of those students reported continuing to receive these services in May.

We observed improvements in service provision in the fall; however, rates had not returned to their pre-COVID levels. For FRPM, 30% of our sample reported receiving meals in October, compared with 40% who had been previously

been receiving meals pre-pandemic. For special education students, only 8% of our sample were receiving these critical services in October, compared with 16% of our sample pre-pandemic. While most services rebounded slightly from May to October, rates of students receiving gifted and talented services continued to fall as 13% of students were receiving GATE (Gifted and Talented Education) services pre-pandemic, which dropped to 7% in May, and dropped further to 5% in October.

For our provision of services questions, our sample is limited to only students in the education sample who received each service in February 2020. These limited samples do not support further disaggregation into the five subgroups we otherwise highlight.

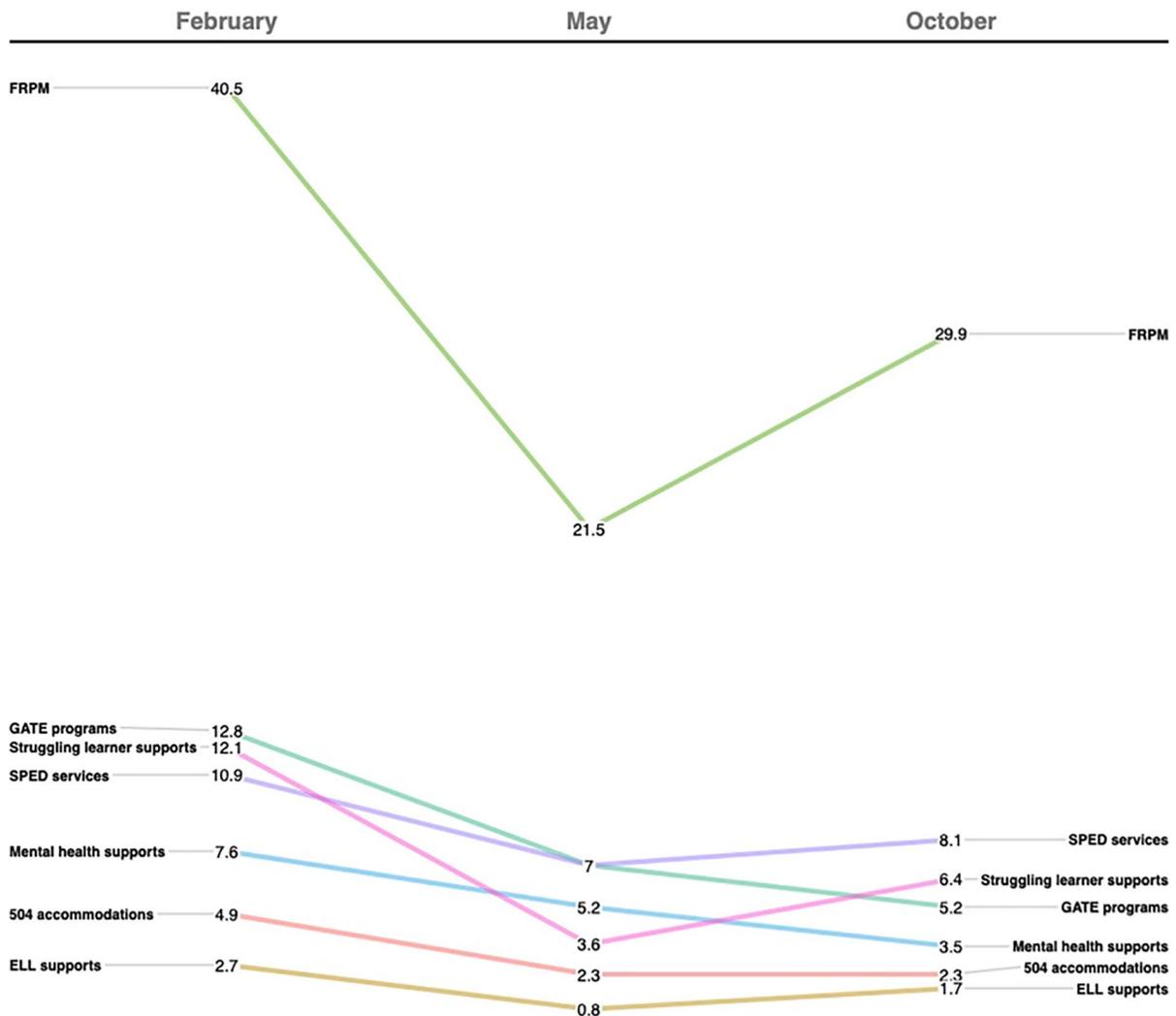


FIGURE 1. Schools' provision of critical education services.

Access to and Preferences for In-Person Learning

As the 2020–2021 school year began, some schools began to reopen for in-person learning, while others remained remote or employed a hybrid model. Starting in November and through Spring 2021, we asked parents how their randomly selected child was attending school (in-person, remote, hybrid), and how they wanted their child to be attending given the state of the COVID-19 pandemic locally and their child's school's safety protocols. Understanding access to and preferences for in-person schooling is important because, at least in their current forms, UAS families who resumed in-person learning reported better educational experiences (higher ratings of education quality, lower levels of concern) relative to parents who remained remote (Rapaport et al., 2020). We

report results from November to December 2020, February to March 2021, and April to May 2021, though more waves of these results are available on the UAS website.

Overall, in November of the 2020–2021 school year, 28% of our sample was attending school in person, 49% remotely, and 20% in a hybrid model (Table 8). Yet we found large and statistically significant differences in attendance mode type by race/ethnicity, urbanicity, partisanship, and school level.

By November, urban (66%) and suburban (48%) students were far more likely to be remote than rural students (30%). Similarly, Democrats (60%) were more likely than Republicans (37%), and secondary students (53%) were more likely than elementary (44%). There were large racial gaps as well (e.g., 64% of Hispanic and Asian children were remote vs. 40% of White children), but there were no gaps based on income.

TABLE 8
Share of Families Who Are Attending Remote, Hybrid, or In-Person Schooling

Demographic	November–December 2020			February–March 2021			April–May 2021		
	Remote (%)	Hybrid (%)	In person (%)	Remote (%)	Hybrid (%)	In person (%)	Remote (%)	Hybrid (%)	In person (%)
Overall	49.36	20.10	28.49	41.01	20.40	38.06	30.18	19.48	50.06
Race/ethnicity									
NH White	40.02	22.54	35.94	26.68	24.23	48.89	20.92	18.64	60.09
NH Black	59.54	19.27	17.80	56.91	18.90	22.71	42.37	20.26	37.37
NH Asian	57.13	18.53	22.60	55.92	15.31	28.77	45.23	14.82	39.94
NH Other	40.87	26.52	27.53	38.34	26.64	34.04	32.86	14.51	52.62
Hispanic	64.05	14.11	19.99	60.09	12.77	26.47	39.77	22.36	37.45
Group significance	a	a	a	a	a	a	a	a	a
Income (\$)									
<25,000	55.30	16.53	25.53	56.68	16.90	26.03	38.95	19.64	41.26
25,000–49,999	54.33	21.64	21.57	44.09	21.27	33.35	33.56	20.59	44.99
50,000–74,999	37.51	26.62	31.28	34.63	21.24	43.55	27.01	19.00	53.83
75,000–149,999	50.03	19.30	30.02	33.69	21.28	44.94	25.90	18.00	55.97
≥150,000	44.42	15.72	39.86	32.62	22.01	45.00	24.52	21.47	53.96
Group significance									
Urbanicity									
Rural	30.36	27.92	38.63	22.66	24.75	52.59	19.24	21.75	58.17
Suburban/mixed	47.93	19.45	30.34	38.05	20.69	40.48	27.80	18.88	53.19
Urban	65.99	14.72	18.07	59.43	16.49	23.55	42.71	21.37	35.63
Group significance	a	a	a	a	a	a	a	a	a
Political party									
Democrat	59.66	21.70	16.23	54.18	19.61	26.12	39.75	20.55	39.61
Republican	37.35	17.83	41.53	26.28	21.11	51.61	22.02	17.99	59.28
Neither	46.52	21.60	30.92	42.29	19.53	37.58	28.74	26.07	45.19
Group significance	a	a	a	a	a	a	a	a	a
School level									
Elementary	44.90	16.01	36.58	32.94	17.61	48.77	25.62	17.65	56.22
Secondary	53.12	23.55	21.66	48.54	23.20	27.88	34.55	21.25	44.13
Group significance	a	a	a	a	a	a	a	a	a

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. Significance for this outcome is obtained by fitting multinomial logistic regression models predicting for school mode, and group significance tests are conducted on each group predictor. NH = non-Hispanic.

Looking across the waves, we see that all of these trends remained the same, even as the proportion of students learning remotely declined by March 2021 to 41% overall (with 38% in-person and 21% hybrid) and May 2021 (with 30% remote, 50% in-person, and 19% hybrid). Still, there were large gaps among the above-mentioned groups, with Urban, Democratic, Black, and secondary children especially unlikely to be in in-person settings throughout the spring.

Thus, while many students resumed access to in-person learning in the fall and over the course of the 2020–2021 school year, we found large differences based on location, partisanship, race/ethnicity, and grade level. Camp and Zamarro (2021) and Kogan (2021) conducted a more detailed analysis of the determinants of differences in

modality by race/ethnicity using UAS data and cited district offerings, political partisanship, and local COVID-19 outbreaks as likely drivers of racial differences.

Parents’ preferences for in-person instruction mirrored access patterns (Table 9). In November, we observed large differences in preferences for in-person learning across all measured variables: by urbanicity (40% among rural, 31% suburban, 20% urban), partisanship (50% Republican, 15% Democrat), school level (23% secondary, 36% elementary), race/ethnicity (39% White, 15%–16% Asian/Black), and income (39% higher income, 17% lower income). The patterns persisted through May 2021 on all five variables, with gaps on urbanicity, income, and race/ethnicity widening somewhat over time.

TABLE 9

Share of Families Would Prefer to Attend Remote, Hybrid, or In-Person Schooling

Demographic	November–December 2020			February–March 2021			April–May 2021		
	Remote (%)	Hybrid (%)	In-person (%)	Remote (%)	Hybrid (%)	In-person (%)	Remote (%)	Hybrid (%)	In-person (%)
Overall	43.78	22.81	29.21	34.78	19.78	42.91	29.40	18.95	49.37
Race/ethnicity									
NH White	34.37	24.04	38.99	24.02	17.15	55.35	18.74	15.35	63.37
NH Black	56.90	21.30	15.51	49.37	18.82	27.96	42.72	23.93	30.37
NH Asian	58.43	24.92	15.03	42.33	31.75	25.93	40.41	28.73	28.86
NH Other	35.03	32.49	17.91	31.36	26.62	41.42	32.12	16.97	45.63
Hispanic	55.91	17.91	21.46	48.91	21.94	28.64	42.23	21.75	35.12
Group significance	a	a	a	a	a	a	a	a	a
Income (\$)									
<25,000	53.57	22.77	16.60	53.17	18.82	25.83	43.65	20.44	34.45
25,000–49,999	48.63	22.59	24.96	38.46	18.05	37.49	33.59	17.20	43.72
50,000–74,999	35.04	27.69	31.20	31.52	20.10	45.78	25.03	20.64	51.06
75,000–149,999	42.04	20.19	36.20	27.12	19.60	53.00	22.48	19.41	58.02
≥150,000	33.68	23.23	39.01	17.53	24.59	55.73	21.22	15.95	60.96
Group significance	a	a	a	a	a	a	a	a	a
Urbanicity									
Rural	28.75	26.92	40.03	22.41	16.74	57.91	15.84	19.41	60.09
Suburban/mixed	41.95	22.53	30.69	30.47	21.56	45.21	28.39	15.97	53.81
Urban	56.33	20.16	20.10	47.41	20.50	29.96	39.35	21.12	37.15
Group significance	a	a	a	a	a	a	a	a	a
Political party									
Democrat	56.68	24.01	15.42	43.39	24.17	30.13	38.15	23.00	36.82
Republican	26.97	18.87	50.50	18.91	14.96	63.39	18.47	10.82	69.23
Neither	43.43	19.84	30.21	35.50	24.91	36.94	25.84	24.32	44.53
Group significance	a	a	a	a	a	a	a	a	a
School level									
Elementary	39.43	18.99	36.03	27.14	17.78	53.82	24.97	16.69	55.98
Secondary	47.46	26.04	23.45	41.88	21.80	32.55	33.64	21.15	43.01
Group significance	a	a	a	a	a	a	a	a	a

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. Significance for this outcome is obtained by fitting multinomial logistic regression models predicting preferences for school mode, and group significance tests are conducted on each group predictor. NH = non-Hispanic.

In April–May 2021, we asked parents who kept their child learning remotely during that window why they had made that choice (for a more complete description of these results, see Saavedra et al., 2021). Nearly 90% of responses related to either (1) concerns about safety or (2) belief that remote learning is better social, academically, or both for their child. Around 30% said remote learning was better for their child, 30% cited safety concerns, and 30% said both safety and fit were factors.

Looking forward to the 2021–2022 school year (Table 10), we asked parents in April–May of 2021 whether they planned to send their child back in person in the fall. Overall, 77% of parents said yes, another 14% said they were unsure, and 9% of parents said they planned to keep their children

home in the fall. However, we saw sharp differences in plans based on race/ethnicity, income, and school level. Just 62% of Black parents said they planned to send their children back in person, versus 83% of White and 87% of Asian parents. Just 56% of the lowest income parents said they planned to send their children back in person, versus 92% of the highest income parents. And there was an 8 percentage point difference by school level, with elementary parents more likely to plan to send their children back in person.

Discussion and Conclusion

The COVID-19 pandemic has had profound effects on educational access. While few students appear to entirely

TABLE 10

Share of Families Who Plan to Send Randomly Selected Child Back to School in Person for the 2021–2022 School Year

Demographic	April–May 2021		
	Plan to send in-person (%)	Plan to keep home (%)	Unsure (%)
Overall	76.97	9.46	13.57
Race/ethnicity			
NH White	83.16	7.78	9.06
NH Black	61.90	19.59	18.51
NH Asian	87.07	5.84	7.09
NH Other	64.95	7.34	27.71
Hispanic	72.25	8.53	19.21
Group significance	a	a	a
Income (\$)			
<25,000	55.99	19.51	24.50
25,000–49,999	74.05	9.74	16.21
50,000–74,999	81.86	6.73	11.42
75,000–149,999	86.42	5.55	8.03
≥150,000	91.80	3.47	4.73
Group significance	a	a	a
Urbanicity			
Rural	82.43	7.40	10.17
Suburban/mixed	78.12	10.61	11.28
Urban	71.56	9.90	18.54
Group significance			
Political party			
Democrat	76.69	10.79	12.51
Republican	84.19	7.33	8.47
Neither	71.75	13.49	14.76
Group significance			
School level			
Elementary	81.16	6.88	11.96
Secondary	73.24	11.49	15.27
Group significance	a	a	a

Note. Group significance is denoted under the final category for each group variable. “a” denotes significance on the group variable in the independent model. We use $p < .05$ significance thresholds for all models. NH = non-Hispanic.

lack technology, into the fall almost a quarter of students lacked sufficient internet connectivity and the need to share devices with other family members remained a challenge. Early in the pandemic, one third to one quarter of students had not met with or received feedback from their teachers. By fall, similar proportions of parents felt that they could not help their students with their school work, and very few schools or parents were providing supplemental learning opportunities like tutoring. And of course, it was well documented—and we observed—that many students did not have access to in-person learning throughout most or all of the 2020–2021 school year. These are important and troubling figures that highlight the potentially serious negative consequences of the pandemic on American students.

Our work also documents the ways in which those consequences have been disproportionately felt across groups. We

found different dimensions of access were experienced differently, and the variation in access depended on the particular dimension. Income has been a major driver of inequities in access. Income gaps in access to computers and suitable internet were large—while income gaps in technology reduced by fall of 2020, the gaps in access to suitable internet remained. Similarly, early in the pandemic there were large gaps in access to teachers (meeting with teachers, receiving feedback) that were associated with family income. Income was also strongly associated with parents’ feelings about their ability to help their students with schoolwork and with parents’ preferences for in-person learning during the 2020–2021 school year. In contrast, income was not a major predictor of student access to in-person learning—though it did predict parents’ preferences for their children’s attendance mode.

There were also large and persistent gaps in access based on race/ethnicity; most often these gaps placed Black students at the most disadvantage. For instance, Black students were least likely to have internet and computer for learning and most likely to have no devices in the fall. Black students were least likely to have met with their teacher in the fall and were least likely to have access to in-person learning throughout the spring of 2021. There were also yawning racial gaps in preferences for in-person learning, with Black, Asian, and Hispanic parents much less likely than White parents to prefer in-person learning as of the spring of 2021.

Finally, we also found large and persistent gaps along dimensions of urbanicity, partisanship, and school level. For instance, parents of elementary children were much more likely to say they could support students' learning and much more likely to enroll their children in and prefer in-person learning than parents of secondary children. There was tremendous stratification in in-person learning access and preferences by urbanicity, with rural parents most likely and urban parents least likely to enroll their children in and prefer in-person learning. And similarly, Republican and independent parents were far more likely than Democrat parents to both enroll their children in and prefer in-person learning throughout the 2020–2021 school year.

There are other axes of inequality that are important to consider moving forward. The UAS data are appropriate for investigating some of these issues, but not for others. For instance, delving more deeply into the experiences of students with disabilities and their access to services is an important area for future research, but as discussed above our sample sizes are too small to go into this in much detail. Exploring geographic variation more carefully—zooming in on state-to-state differences, for instance—is another important area of work. Even as schools and districts finalize reopening plans in the late spring of 2021, there remain yawning gaps in school opening along geographic lines (see for instance the American Enterprise Institute's Return to Learn Tracker, <https://www.returntolearntolearn.net/>)—understanding these gaps, and their implications, are important for crafting appropriate policy solutions. And the experiences of other underserved groups—homeless and foster youth, LGBTQ students, and so on—are important to understand as well.

Access issues loom large in the COVID-19 recovery effort, as well, and this is an important area for continued measurement. Perhaps the biggest access issue of all looking forward to the 2021–2022 school year is the hesitancy of families to send their children back in person, even when such options become available. Our evidence suggests that this hesitancy is far greater among families of color, lower income families, Democrats, and parents of older children. Our data also reveal real and persistent concerns about the safety of in-person learning and the fit of in-person versus

online options for individual children (Saavedra et al., 2021). Notably, in terms of plans for the fall of 2021, Black families expressed the least certainty about sending their children back in person, while Asian families (who were typically as reluctant as Black families during the 2020–2021 school year) expressed the strongest support for in-person learning in 2021–2022.

It will not be enough to simply reopen schools and expect that students will come—there may need to be greater attention and continuing to follow and regularly communicate the efficacy of safety protocols (e.g., mask-wearing) to parents as a strategy for boosting preferences for in-person learning, especially for districts serving more Black, Hispanic, and Asian families that currently prefer online options. There undoubtedly needs to be greater effort to improve the quality of online learning options in order to reduce the gap between modalities in terms of quality, as some students will clearly be online in fall 2021 if given the option.

However, we also emphasize the importance of the finding that though overall various indicators—including parent reports—indicate that remote learning is inferior to in-person on a host of dimensions (academic, socially, mentally, physically), some parents found remote learning a better fit for their child (Saavedra et al., 2021). We need to know what made remote learning better and fix those aspects of in-person, particularly for Black families—those communicating the greatest school hesitancy.

Our findings have important policy implications, both for the recovery from the current pandemic and also for thinking about future policy solutions to educational disruptions. Appropriate safety precautions should continue along with frequent communication about the efficacy of those precautions, at least while children younger than 12 years do not have access to vaccinations. We need to learn from parents the specific reasons for why remote was a better fit for their child and subsequently improve these aspects of in-person instruction. Remote learning quality must be improved and in ways that do not compromise the quality of in-person teaching and learning. Limited unmet parent interest in some of researchers' and policymakers' preferred interventions—like in-person tutoring, summer school, and extended learning time—highlight the continued importance of soliciting parent input (Saavedra & Polikoff, 2021). At this time, we are still not “postpandemic”; indeed from an education standpoint we may not be for many years to come. In the meanwhile, parents are an invaluable source of information about their children's access to learning as well as critical to implementation of solutions.

Appendix A

Methodology for Unduplicating Households

Our methodology for unduplicating households is as follows:

1. Most households already have a flag in the main Understanding America Survey (UAS) data set identifying the “primary respondent.” When the primary respondent flag exists, we defer to that designation by selecting that individual. For more information about the primary respondent flag, see <https://uasdata.usc.edu/index.php> (“default survey variables”).
2. For households in which the flag does not already exist, we randomly designated one respondent per household as that household’s “primary respondent” in the first UAS administration of education questions (UAS235) and retained those responses for the unduplicated sample.
3. If the “primary respondent” gives a response in any subsequent wave, we retain that response for that wave’s unduplicated sample.
4. If that primary respondent is not available in a given wave, we randomly select another respondent from that household to retain for the unduplicated sample.

Appendix B

TABLE B1
Survey Questions by Wave

Wave	Administration date	Questions
UAS 235	April 1 to April 29, 2020	<p>Do children in this household have access to the internet during the day to support learning?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Unsure <p>Which of the following devices do children in your household use to access the Internet for learning?</p> <p>A laptop, chromebook, or desktop computer</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Unsure
UAS 240	April 15 to May 13, 2020	<p>Has [NAME] done any of the following activities since schools physically closed?</p> <ol style="list-style-type: none"> a. Yes No Unsure Interacted with a teacher through an online meeting such as Zoom, by phone, or by email b. Yes No Unsure Received new schoolwork from his or her teacher(s) c. Yes No Unsure Completed newly assigned school work d. Yes No Unsure Received feedback on schoolwork from his or her teacher(s) <p>In February 2020, did [NAME] receive any of the following services?</p> <ol style="list-style-type: none"> a. Yes No Unsure Gifted and talented instruction b. Yes No Unsure Mental health services c. Yes No Unsure Free or reduced-price meals d. Yes No Unsure Extra instruction for English language learners e. Yes No Unsure Extra support for struggling learners <p>A 504 plan is a plan to ensure that a child with disabilities receives accommodations that will allow the child to learn. In February 2020, did [NAME] receive services under a 504 plan?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Unsure <p>An individual education plan (IEP) is a plan to ensure that a child with disabilities receives specialized instruction and services. In February 2020, did [NAME] receive services related to an IEP?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Unsure <p>For each “yes” response: Is [NAME] still receiving [NAME OF SERVICE] since schools closed?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Unsure

(continued)

TABLE B1 (CONTINUED)

Wave	Administration date	Questions
UAS 242	April 29 to May 26, 2020	Same questions as UAS 240
UAS 250	June 24 to July 22, 2020	Schools are considering several policies in the wake of recent school closures. Do you oppose or support each of the following policies? [Strongly oppose, oppose, support, strongly support] <ul style="list-style-type: none"> Conducting all instruction remotely and keeping schools closed for the entirety of the 2020–2021 school year.
UAS 264	September 30 to October 27, 2020	<p>Is [NAME] still receiving [NAME OF SERVICE] since schools closed?</p> <ol style="list-style-type: none"> Yes No Unsure <p>Has [NAME]’s school provided tutoring or additional small group instruction to help NAME catch up or to help stay on track this year?</p> <p>Yes</p> <p>No and it is needed</p> <p>No and it is not needed</p> <p>Unsure</p> <p>Have any adults in your household acquired or provided any of the following tutoring or additional instructional supports named below to help [NAME] catch up or stay on track this year outside of what school is providing?:</p> <ul style="list-style-type: none"> Learning pods or “pandemic pods” (in-person groups of students learning together with the help of an in-person tutor or teacher, organized by families, not by schools. Students in pods are engaging in the school’s curriculum and following the school schedule). Small group tutoring where tutors are providing additional help beyond the regular school day. Tutoring can be in person or remote. One-on-one tutoring, in person or remote <p>If [NAME] needs help with schoolwork, how able are you to provide needed help in each of the following areas?</p> <p>(I can’t help at all, I can help a little, I can mostly help, I can help very much, not applicable)</p> <ol style="list-style-type: none"> Math Science Social Studies/History/Civics English Language Arts/Writing
UAS 270, 340, 344	<p>November 11, 2020 to December 8, 2020</p> <p>February 17 to March 30, 2021</p> <p>April 14 to May 25, 2021</p>	<p>How is [NAME] currently attending school?</p> <p>In-person only</p> <p>Remote only</p> <p>Both in-person and remote (hybrid)</p> <p>Other: specify</p> <p>Given the state of the COVID-19 pandemic in your area and your school’s safety protocols, how would you prefer [NAME] to attend school right now?</p> <p>In-person only</p> <p>Remote only</p> <p>Both in-person and remote (hybrid)</p> <p>Other: specify</p> <p>Unsure</p>
UAS 344	April 14 to May 25, 2021	<p>Is [NAME]’s school offering . . . ?</p> <p>Summer school</p> <p>In-person tutoring during school</p> <p>In-person tutoring after school</p> <p>Learning pods</p> <p>Are you planning to send [NAME] to school in-person at the beginning of the 2021–2022 school year?</p>

Note. UAS = Understanding America Survey.

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