COVID-19 Pandemic in the Houston Region – Education and Schooling

Findings from the Gulf Coast Coronavirus (COVID-19) Community Impact Survey

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Houston Education Research Consortium

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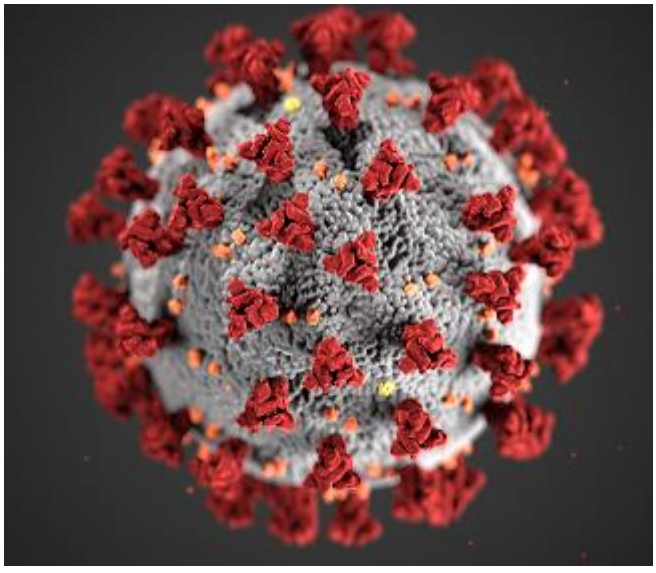
The coronavirus pandemic fundamentally altered education and schooling in the Houston area. To better understand the impact of COVID-19 on Houston area families and communities, the Houston Education Research Consortium collaborated with Connective (previously, Harvey Home Connect) to launch the Gulf Coast Coronavirus (COVID-19) Community Impact Survey. This report focuses on changes and experiences with education and schooling between March and September 2020. In these first few months of the pandemic, schools and districts were forced to shift to 100% remote instruction. This decision meant students needed acess to the internet and a digital device suitable for engaging with online learning. Many students, particularly Black and Hispanic students, as well as students from families earning less than $35,000 per year, did not have access to these technology resources. Parents also worried their children would not be academically prepared for the 2020-21 school year. Yet, despite the shifting unknowns for schools at the start of the pandemic, school district leaders were consistently and continuously in communication with their students' families . The report concludes with recommendations related to digital equity, ongoing communication efforts and additional areas of study around the pandemic.

Key Findings

- **More than one in five families lacked access to the internet or a digital device for children to use to do their schoolwork during the early months of the pandemic.** Most often families reported that children did not have their own digital device, such as a computer, laptop, or tablet, to do schoolwork.



- **Black and Hispanic families were more likely than white families to report not having access to the internet or a digital device.** About one in three Black families and one in four Hispanic families reported their child did not have a device to do schoolwork or have access to the internet. In contrast, only one in 10 white families reported these challenges.
- **Family income is related to having access to internet and a digital device.** Almost half of households earning less than $20,000 per year reported not having a device or internet for children to complete schoolwork, compared to only 4% of families earning over $100,000 per year.
- **Half of families worried their children would not be ready for the 2020-21 school year.** Concern was shared across all race/ethnicities and income levels, but particularly high for those families without a device for the child to use for schoolwork or access to the internet.
- **Parents and families were hearing from schools and districts.** About 90% of parents indicated they were getting information from their children's school or district during the first six months of the pandemic.

Background

In March 2020, the coronavirus (COVID-19) spread across the United States, first arriving in many urban areas around the country, then moving to rural areas and communities. By March 2021, nearly 30 million Americans have tested positive for COVID-19 and more than 529,000 have lost their lives because of the disease (Johns Hopkins, 2021). In Harris County, Texas – home to Houston, the fourth most populous U.S. city – there have been over 360,000 cases of COVID-19 resulting in more than 3,400 deaths (Harris County Public Health, 2021). These numbers illustrate how hundreds of thousands of Houston-area residents have had their health directly impacted by COVID-19 and thousands more have lost their lives, bringing significant costs to families and communities. For millions of other Houston-area residents, and people around the world, while COVID-19 has not directly impacted their health, the virus has inflicted other costs because of its disruptions to the economy, public education, and life in general.

COVID-19 impacted everyone, but it did not impact everyone equally.

The different experiences of families and households during the pandemic is not a matter of random chance. Which families thrived and which fought to survive reflects known and well-documented patterns whereby disease and disasters disproportionately disrupt the lives of disadvantaged individuals (Bolin & Kurtz, 2018; Elliott & Pais, 2006; Lai et al., 2019; Phifer, 1990). Pandemics are no exception (Wade, 2020), and COVID-19 is no different.

This report, focused on education and schooling, is part of a series of reports highlighting the pandemic's social influence on several dimensions of life in the Houston area. The other reports in the series focus on wages and employment, and family and well-being.

Education and Schooling

Over a two week period in the middle of March 2020, public schools in the Houston area made the previously unheard of decision to shift to 100% remote instruction. More than 1.2 million students from pre-kindergarten to grade 12 relocated from classrooms to kitchen tables, and, since then, hundreds of thousands of school-aged students in the Houston area have not set foot in a classroom.

The impacts of COVID-19 on students' learning and attainment will not be completely understood for years, and only now are data beginning to emerge that provide some evidence of the academic consequences to students (Dorn et al., 2020). It is likely, if not almost certain, that COVID-19 expanded educational inequalities (Kuhfeld et al., 2020). Confidence in this assertion comes from the history of evidence showing that more disadvantaged students attending more disadvantaged schools typically experience the most severe consequences and take the longest to recover following natural disasters (Lai et al., 2019).

A likely contributor to the expected learning gaps, particularly in the early months of the pandemic, was differences in students' access to the technology that would allow them to participate in online education, what is often referred to as the *digital divide*. Digital divide is the gap between individuals who have access to digital information and communication technology and those who do not (Riggins & Dewan, 2005). In the early-2000s, the digital divide was a significant marker of inequality (e.g., Warschauer, 2003), but in the years leading up to the pandemic that had largely changed. Between 2000 and 2015, the number of internet users in the United States increased from 117 to 227 million (McHenry

et al., 2016). In 2019, more than 90% of Americans had access to the internet, and with the proliferation of smartphones, access to the internet became constant (Pew Research Center, 2019). While the digital divide had never closed, its significance had seemingly diminished from the social landscape. That changed with the pandemic.

Once schooling shifted to 100% virtual instruction in March 2020, inequalities around access to technology became immediately apparent in the Houson area and across the country. In order for students to access virtual instruction, they needed both reliable internet and an adequate device (e.g., computer, tablet, or laptop), and a smartphone wasn't an adequate learning device.

Data and Methods

The data used for this report came from the Gulf Coast Coronavirus (COVID-19) Community Impact Survey, which was a joint data collection between Connective (previously Harvey Home Connect) and the Houston Education Research Consortium (HERC), a program of the Kinder Institute for Urban Research at Rice University. Data collected for the Gulf Coast Coronavirus (COVID-19) Community Impact Survey began in late March 2020. While the survey is ongoing, the results from this report focus on responses collected in the first six months of the pandemic through late September 2020.

Gulf Coast Coronavirus (COVID-19) Community Impact Survey

Approximately, 12,100 households had responded to the survey by late September 2020. Since this report focuses on the pandemic's consequences to education and schooling, the analytic sample was limited to only households with children.[1] For this report, the analytic sample size was 9,331 households.

Importantly, the social consequences of COVID-19 continue to unfold, so the findings detailed in this report may require future updating. The experiences shared by respondents come from the early days of the pandemic, and may have evolved or changed since the data were collected. These analyses are informed by unique and otherwise unavailable data (see Appendix A for more details on sample), and provide insights into how the pandemic affected the lives of thousands of Houstonians.

Descriptive Statistics

All reported results are descriptive in nature, as the findings highlight relationships and associations but do not establish causation. Statistical tests were run, and each of the differences included in this report is statistically significant at a $p < 0.05$-level (unless otherwise noted).

[1] Limiting the sample to households with children resulted in 2,769 households getting dropped from the original sample. Analyses focused on or including households without children may provide a different view of COVID-19 experiences in the Houston area, and is left for consideration by other researchers.

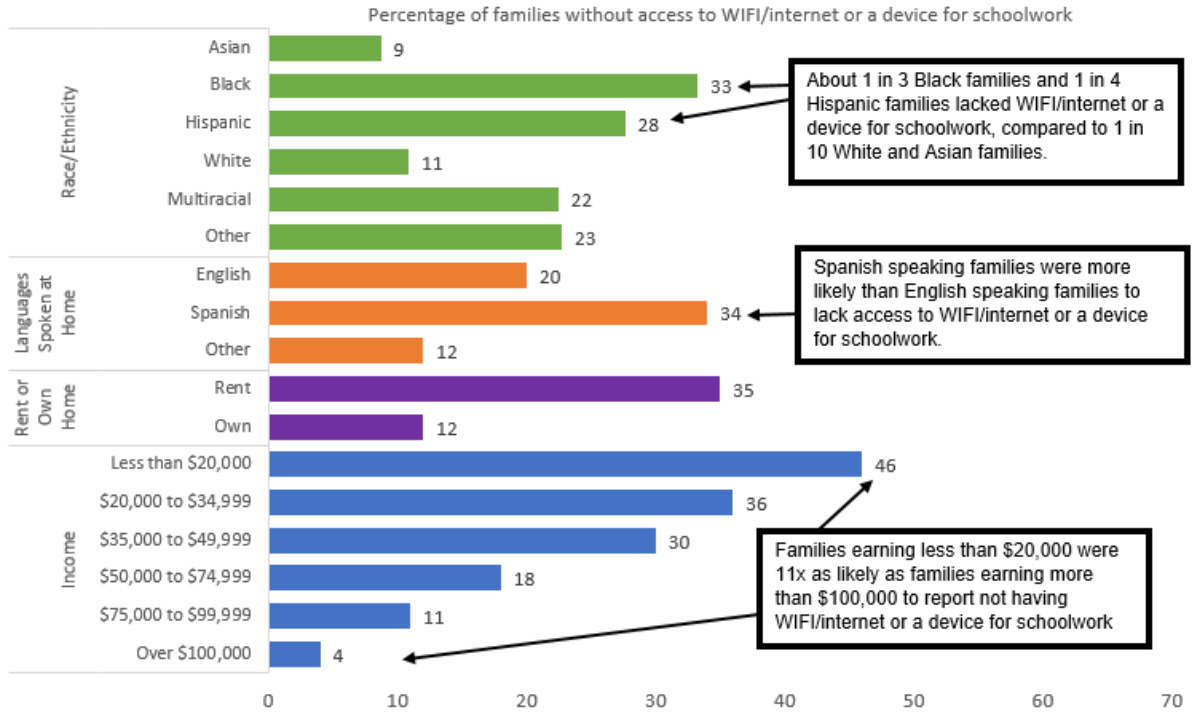
Findings: COVID-19 Impacts in the Houston Area

Education and Schooling

Digital Divide

About one in five families in the Houston area reported not having access to internet or a device for doing schoolwork during the first six months of the pandemic. Most often, families lacked a digital device for their child(ren) to do schoolwork. Families typically reported having internet: over 90% reported having access. But when confronted with the reality of 100% virtual instruction for school, many families did not have a digital device available for children to use to make at-home instruction work.

Figure 1. Not all students had access to internet or a device for schoolwork.



Note: Chi-square used to test for association between digital divide and race/ethnicity, language spoken at home, rent or own home status, and household earnings. All differences statistically significant ($p < 0.05$). n = ~9,330.

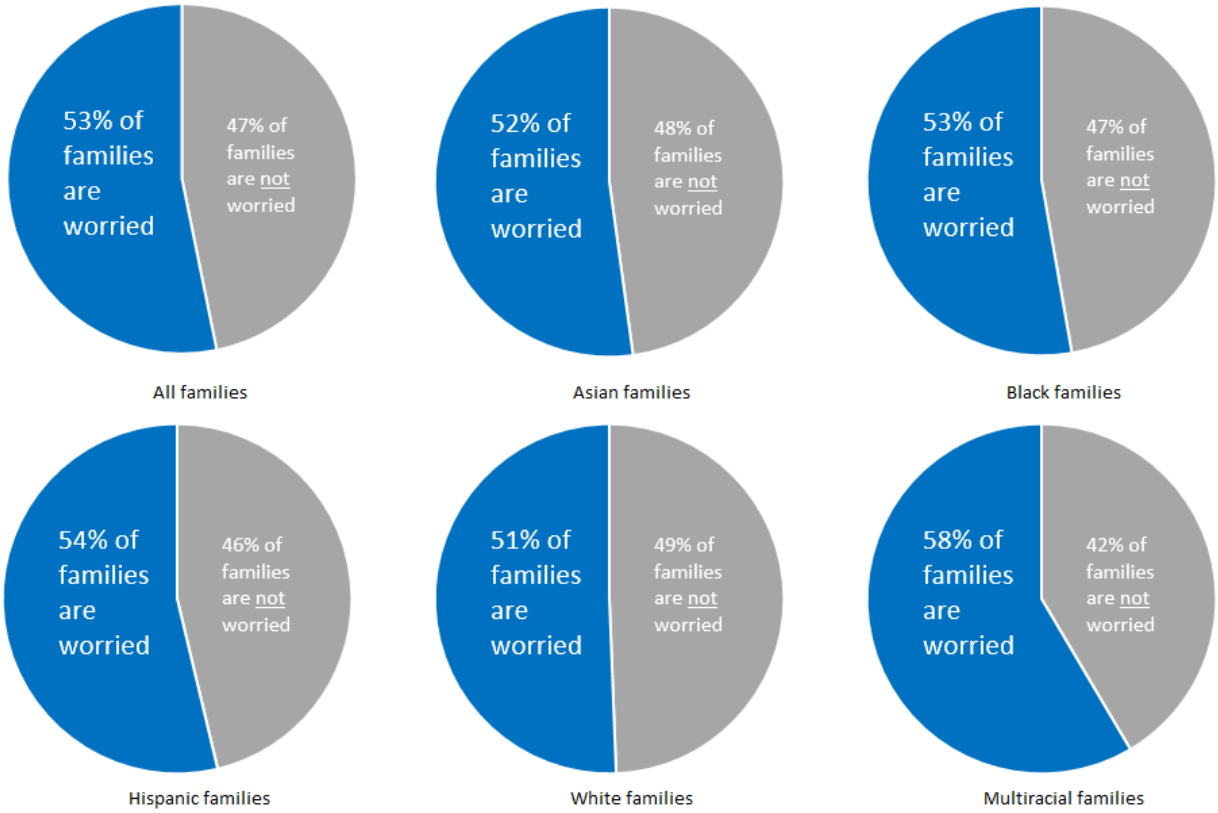
Source: Gulf Coast Coronavirus (COVID-19) Community Impact Survey

Differences in students' access to the internet and a digital device for school work were observed by race/ethnicity, primary language spoken in the home, and household earnings. Children from Black, Hispanic, and multiracial families were more likely than children from white and Asian families to lack access to internet or an adquate device for doing schoolwork (Figure 1). Non-English speaking households, in particular households where the primary language spoken was Spanish, were more likely than households where the primary language spoken was English to be without the technological resources to fully engage with online education. Finally, the digital divide was largest between households with the lowest and highest annual incomes. Specifically, nearly half of all households with annual incomes less than $20,000 per year reported not having access to the internet or a device for children to do schoolwork, compared to only 4% of families earning $100,000 per year or more.

Worries about Student Readiness

More than half of parents responding to the survey reported being worried their children would not be ready for the 2020-21 school year (Figure 2). Similar levels of worry were expressed across a variety of different families in the first six months of the pandemic. A little more than half of all Asian families, Black families, Hispanic families, and white families reported being worried their children would not be ready for the start of the 2020-21 school year. About half of English-speaking families and about half of Spanish-speaking families reported being worried. Even at different income levels, about half of families reported being worried their children would not be ready for the upcoming school year.

Figure 2. More than half of families across most race/ethnic groups in the Greater Houston area worried that their children would not be ready for the 2020-21 school year.

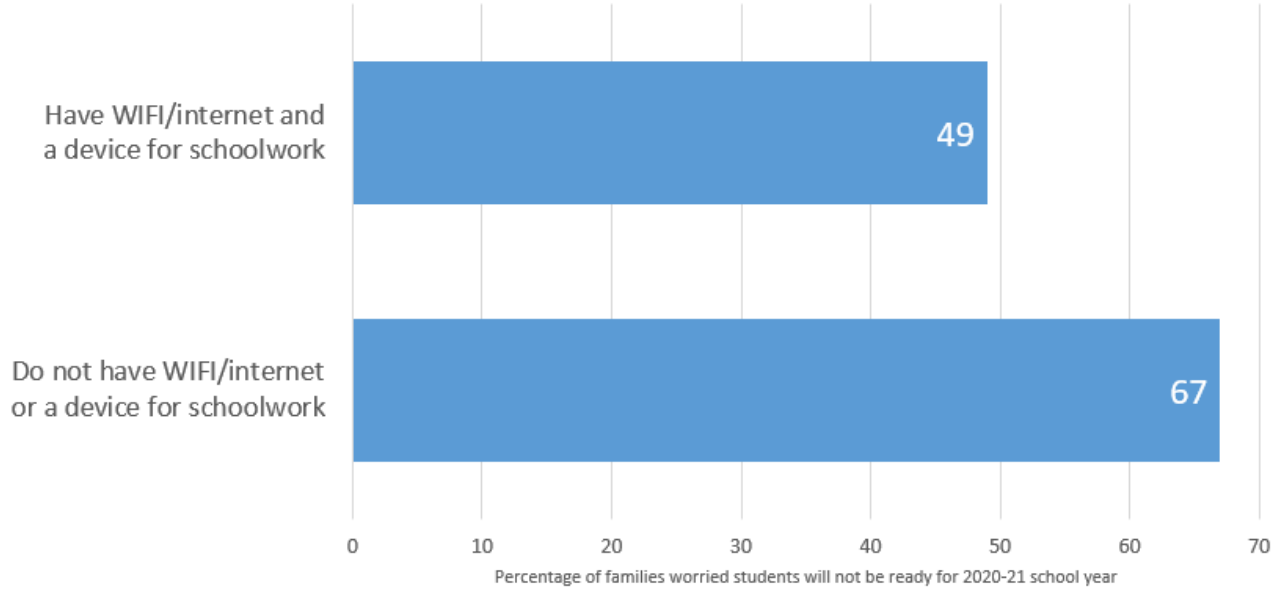


Note: Chi-square used to test association between race/ethnicity and worry about student readiness ($p = 0.001$). n = ~9,330.

Source: Gulf Coast Coronavirus (COVID-19) Community Impact Survey

One exception to this consistent pattern was between families with and without the technological resources to engage in online learning; i.e., along the lines of the digital divide. Among households with internet access and a digital device for children to use for their schoolwork, about half of parents reported being worried their child would be ready for the 2020-21 school year. In contrast, among households without internet or a device to do schoolwork at home, nearly two-thirds of parents reported being worried their child wouldn't be ready for the 2020-21 school year (Figure 3).

Figure 3. Families who did not have access to the internet or a digital device for children to use for schoolwork were more likely to be worried children wouldn't be ready for 2020-21 school year.



Note: Chi-square used to test association between digital divide and worry about student not being ready for 2020-21 school year ($p < 0.01$). n = ~9,330.

Source: Gulf Coast Coronavirus (COVID-19) Community Impact Survey

Successful School Communication

When schools shifted to 100% remote learning in the spring 2020, a lot of uncertainty existed for students and families. It wasn't clear how long school would remain online or what would happen with course grades and end-of-year exams. In light of the unknown, the vast majority of parents and families responding to the survey felt schools did a good job communicating and sharing information as it became available. Almost 90%, about nine in 10 families, reported they were receiving information from their children's school or district (Figure 4). A slightly lower percentage of households earning less than $20,000 per year (87%) and Black households (88%) reported receiving information from schools and districts. These responses suggest schools were successfully providing information to parents and families in the Houston area.

Figure 4. Schools and districts successfully communicated with families during the pandemic – only one in 10 families in the region said they lacked information.

Note: n = ~9,330.

Source: Gulf Coast Coronavirus (COVID-19) Community Impact Survey

Discussion and Recommendations

While hundreds of thousands of families around the country have grappled with the death of a father, mother, brother, or sister, the consequences of COVID-19 extend beyond its immediate health impacts.

This report focused on one such consequence--experiences with changes to education and schooling. Educating students, while keeping them, their teachers, the staff, and the surrounding community safe, has been a monumental undertaking. Often local school districts found themselves in the position of having to create policies and protocols for themselves. In the early months of the pandemic, schools and districts around the Houston region opted to close their buildings in favor of 100% virtual instruction.

The shift to online instruction created learning environments that were neither equal nor equitable, and produced widespread parental concern about whether students were learning what they needed in order to be ready for future school years. Inequalities in technology resources meant children from families without available digital devices or access to reliable internet were unable to engage with learning in the same way as students from families with these resources. These divergent experiences in the online learning space likely contributed to expanding existing educational inequalities and might have significant short- and long-term effects on educational outcomes for children across the nation (Masonbrink & Hurley, 2020).

Since the early days of the pandemic, much has changed in the educational landscape of the Houston area. As a temporary stop-gap solution to the problem of digital divide experienced by Black and Hispanic families, and families with lower incomes, Houston area school districts produced and distributed print versions of all school materials (Carpenter & Webb, 2020). During the summer of 2020, Houston area school districts spent millions of dollars buying laptops, tablets, hotspots, and other technology devices to ensure all students had the resources to engage with school from any location (Carpenter, 2020). But even as schools opened their doors to in-person instruction in fall 2020, not all students returned and for those who did, not all were able to engage with learning in the same way or to the same extent as before the pandemic.

Enrollment numbers across the Houston area were down at the start of the 2020-21 school year, and remained lower than in past years (Webb, 2020). This is especially true for pre-Kindergarten, in which some Houston area districts have seen enrollment declines exceeding 20% (Carpenter, 2021). This has potential impacts for future learning given the importance these early grades have in children's cognitive and social development.

For those students who returned to school, many came with new or heightened responsibilities. In light of the massive layoffs, many teenagers needed to seel employment or work more hours at an existing job to help with family expenses (Klemko, 2020; Leone, 2020). Others were tasked with providing care to younger siblings and/or older family members at home. In addition to these added responsibilities, students of all ages were faced with the stress and anxiety that accompanies living through a pandemic (Kreitz, 2020; Tate, 2020). The full extent of the educational consequences of COVID-19 will not be known for years.

However, as schools adapted and innovated to meet the demands of the moment, there were new policies and practices developed out of necessity that may prove useful beyond the pandemic. In particular, the information sharing and communication from schools and districts to parents and families may be a practice worth holding onto even after the pandemic is a thing of the past.

Data shared in this report provide evidence of how families and households experienced the pandemic during its early days, with this report specifically highlighting changes to education and schooling. The immediate consequences of the pandemic on the education system were large and widespread. Problems due to technology-related inequities emerged in the early days, with many families, particularly Black, Hispanic, and lower-income families not having the resources to provide their children with a

digital devices for schoolwork. There was also widespread worry from parents about whether their children were being academically prepared for the upcoming school year.

While the full consequences of the pandemic on students' education and schooling will not be known for some time, and while many of the challenges highlighted in this report were addressed during the summer of 2020 (to an extent), there are still a few recommendations these findings motivate.

1. Regularly monitor and equitably address issues with technology resources in order that all students can engage successfully in learning. Houston area school districts took decisive action in the summer 2020 to ensure students had access to devices and technology to allow them to engage with learning in an online or in-person format at the start of the 2020-21 school year. As students continue to opt for online instruction, and especially if curricula continue to shift to digital platforms, it will be important for districts to monitor and address access to technology resources in an ongoing, equitable manner. Even if circumstances for learning created by COVID-19 were unique, the pandemic made clear that modern education requires modern technology. Not all families have the resources to provide technology for their children, and equitably ensuring students have access to and regular maintenance of technology and devices would help address ongoing educational inequalities.
2. Research and follow academic progress of students. Throughout the Houston area, parents worried the pandemic disrupted their children's education and left them unprepared for the next school year. Since then, data on students' learning during spring 2020 and fall 2021 have started to emerge. Research is needed to understand what gains or losses students made, if they were similar in size to the gains or losses students made in the past, and if losses were larger, then where there are possible opportunities for targeted interventions. Moreover, this research needs to not only describe current learning taking place, but also follow students over time. Many acdemic subjects like math are taught sequentially, with earlier topics serving as the foundation for later topics. If the pandemic disrupted sequential learning, its consequences may not emerge for years.
3. Keep up the communication beyond the pandemic. Teachers, schools, districts, and superintendents engaged in an ongoing and honest dialogue throughout the early months of the pandemic that resonated with the parents of their students. Continuing these communication efforts beyond the pandemic may strengthen relationships between teachers and students, schools and parents, and districts and communities. Technologies and systems that can be put in place to support this increased communication while minimizing the added burden placed on teachers, principals, and superintendents may require additional investment but provide long-term benefit.

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Appendix: Details of Gulf Coast Coronavirus (COVID-19) Community Impact Survey

The Gulf Coast Coronavirus (COVID-19) Community Impact Survey was an online survey launched on March 23, 2020. The survey was accessible to anyone with an internet connection living in the Gulf Coast region. The survey's website, with accompanying interactive data dashboard, is located at the following URL: https://www.gulfcoastcovidsurvey.org/. Data for the analyses contained in this report were downloaded September 18, 2020.

The survey consisted of about 50 questions, and was designed to serve two purposes. First, to gather information about family and household needs so that Connective (previously Harvey Home Connect) could link respondents with non-profits and other organizations around the Houston region who were providing assistance. Connective was able to use survey responses to inform families and households about utility assistance, food banks, food-delivery programs, rental assistance, financial counseling, telemedicine/telehealth, domestic violence resources, and childcare assistance. The second purpose of the survey, and the one most relevant for the current report, was to collect information on the economic, social, and personal impacts of the pandemic on families and households around the region.

The survey asked respondents about the impacts of COVID-19 in three major areas: wages and employment, education and schooling, and family and well-being. Wages and employment questions asked respondents if members of their household had earned less money, worked fewer hours, lost a job, or been forced to close a business because of the pandemic. Education and schooling questions asked respondents about communication from schools/districts regarding the pandemic, worry over student preparedness for the fall, and whether students had access to reliable internet and a suitable device for doing schoolwork. Family and well-being questions asked about issues providing supervision to children, food and home goods shortages, and experiences of mental health strain and conflict in the household.

In addition to collecting information on the impacts of the pandemic, the survey also gathered basic household demographic information, such as household size, presence of children, race/ethnicity, and annual earnings. This demographic information allows for comparison of the impacts across groups in the population, such as looking at how COVID-19 impacted different race/ethnic groups and higher- and lower-income households.

Appendix Table 1 provides a comparison of respondent characteristics from the survey, with recent estimates from the American Community Survey for Harris County, Texas. In general, the Gulf Coast Coronavirus (COVID-19) Community Impact survey has slightly more white respondents and fewer Hispanic respondents than in the Houston area overall. There is also an over-representation of households earning less than $35,000 per year and an under-representation of households earning over $100,000 per year in the survey data. Given these differences in sample versus population characteristics reiterates the need to interpret findings from this report with caution, and not over-generalize. It is, however, worth noting the survey data reflect much of the diversity in Harris County, both in terms of race/ethnicity and household income.

Appendix Table 1. Survey Estimates Compared to Population Estimates, Harris County

	Gulf Coast Coronavirus (COVID-19) Community Impact Survey	American Community Survey Data (2019)
Race/Ethnicity		
Asian	0.03	0.07
Black	0.18	0.19
Hispanic	0.39	0.48
White	0.31	0.25
Multiracial	0.05	0.02
Annual Household Income		
Under $35,000/year	0.34	0.23
$35,000/year to $50,000/year	0.13	0.12
$50,000/year to $75,000/year	0.15	0.18
$75,000/year to $100,000/year	0.12	0.14
$100,000/year or more	0.28	0.34

Source: American Community Survey (ACS), Harris County, Texas, five-year estimate, 2014-2019. Gulf Coast Coronavirus (COVID-19) Community Impact Survey.

About HERC. Focusing on the most pressing challenges facing the region, the Houston Education Research Consortium (HERC) is a research-practice partnership between Rice University and 11 Houston-area school districts. HERC aims to improve the connection between education research and decision making for the purpose of equalizing outcomes by race, ethnicity, economic status, and other factors associated with inequitable educational opportunities.

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Image from the Centers for Disease Control and Prevention