

School Division Operations During SY 2020-21: Use of Technology for Remote Learning

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Summary

In response to the COVID-19 pandemic, Virginia school divisions limited the amount of time students spent learning in-person in school building during the 2020-21 school year. Divisions shifted instruction from in-person to remote. This shift to instructing students in their homes required divisions to increase their use of remote technology for educational purposes. Divisions had to consider whether to provide some or all students with a personal computing device, whether and how to connect students to the internet, and whether to provide remote technological support to students and staff.

As part of a research project in partnership with the Virginia Department of Education (VDOE), we collected over a thousand documents pertaining to the SY 2020-21 operations of Virginia's 132 school divisions. These documents included divisions' initial reopening plans and revisions to those plans. A team of 14 trained researchers reviewed all these documents for information on 32 dimensions, including 3 related to the use of technology to support remote learning that we examined in this brief. Our analysis of divisions' approaches to providing technology to students, assisting students with connecting to the internet, and providing students and staff with technological support found:

- Providing Computing Devices: Most divisions committed themselves to providing a personal computing device to all their elementary and secondary students.
- Providing Computing Devices: Divisions with higher concentrations of minoritized or economically disadvantaged students were more likely than divisions with lower concentrations to provide devices to all their students.
- Providing Internet Connectivity: Divisions were slightly more likely to help students connect to the internet in their homes than to provide students with community hotspots.
- Providing Internet Connectivity: Divisions with very high access to broadband internet were more likely than divisions with lower access to support students connecting to the internet at home.
- Providing Technological Support: Most divisions provided technological support to students, but fewer stated these supports were extended to staff.
- Providing Technological Support: Divisions with higher concentrations of minoritized or economically disadvantaged students were more likely to offer students tech support than divisions with lower concentrations.

There is the potential for the decisions divisions

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made regarding the use of technology for remote learning to have had an impact on students' academic performance and teacher job satisfaction and retention. We will examine these associations in future briefs.

Understanding the Dimensions of the Use of Technology for Remote Learning

The COVID-19 pandemic forced Virginia school divisions to limit the amount of time students spent learning in-person in school buildings during the 2020-21 school year. Divisions, in shifting instruction from in-person to remote, needed to make many decisions on how to provide instruction in each student's home. This including the use of technology for remote instruction. In this brief, we considered three decisions related to technology required for remote learning: providing technology to students, assisting students with connecting to the internet, and providing students and staff with technological support.

Characterizing Division Operations during SY 2020-21

As part of a research project in partnership with the Virginia Department of Education (VDOE), we collected over a thousand documents pertaining to the SY 2020-21 operations of Virginia's 132 school divisions. These documents included divisions' initial reopening plans and revisions to those plans. We also scoured each division's website (including archived sites), Twitter feeds, and Facebook pages for additional information on division operations and how they changed over the course of the year. A team of 14 trained researchers reviewed all the collected documents for information on 32 dimensions. With all documents summarized, we characterized how the division operated over the course of the full school year.

Our characterization of division operations during SY 2020-21 reflect what the divisions said they would do

or were currently doing at the time the documents were released. If a division never referenced a given dimension of operations in their documents, websites, or social media, we coded the division as having "no information" for that dimension. It is possible the division did make a decision regarding this dimension of its operations but chose not to communicate its decision with students and families through these readily accessible means.

In addition to describing the variation in how divisions operated on a specific dimension, we also examined how operations varied with the divisions' concentration of minoritized students (four groups, or quartiles, with quartile 1 being the lowest and quartile 4 the highest), concentration of economically disadvantaged students (quartiles with 1 being the lowest and 4 the highest), locale (city, suburb, town, or rural), and the percent of residences that have access to (but are not necessarily connected to) broadband internet speeds of at least 100 mbps (Very Low: 0-40%, Low: 41-60%, Medium: 61-80%, High: 81-90%, or Very High: 91-100%). [1]

Dimension #1: Providing Personal Computing Devices

One key decision facing divisions was whether to distribute personal computing devices, such as a tablet, a Chromebook, or laptop, to students and, if so, whether to provide devices to all or only some students. As we searched the documents, we noted the decisions each division made for students in pre-kindergarten through 12th grade. We characterized each division's decision for each grade level as:

- All students – Division committed itself to providing devices to all students in the grade.
- Some Students – Division committed itself to providing devices to some students in the grade (e.g., only students needing a device, all available devices were distributed, etc.).
- No Students – Division explicitly states that it

will not provide a device to any students in the grade.

- No Information – The division’s documents provided no clear indication of whether students would be provided a device. This does not imply that they provided no devices to students.

We present our analysis of these data at two grade bands—elementary (kindergarten through grades 5) and secondary (grades 6-12).

Nearly all divisions clearly indicated their intention to provide personal computing devices to at least some students. Most divisions guaranteed a device for all their students but were slightly more likely to guarantee a device for all secondary students than all elementary students (92 versus 83%). Six divisions provided no clear indication on whether they would provide devices to elementary students, and five divisions provided no clear indication with regard to secondary students. All remaining divisions committed to providing personal devices to some elementary students (12%) and some secondary students (5%).

As shown in **Figure 1**, divisions with higher concentrations of minoritized students or higher concentrations of economically disadvantaged students were more likely than divisions with lower concentrations to provide devices to all their students. For example, among divisions with higher concentrations of economically disadvantaged students (quartiles 3 and 4), 97% provided a computing device to all their secondary students compared to 86% of divisions with lower concentrations (quartiles 1 and 2). The difference between the two groups of divisions was smaller for secondary students (86% versus 80%, respectively).

City divisions were the most likely to provide devices to all elementary and all secondary students (93% and 100%, respectively). Suburban divisions were the

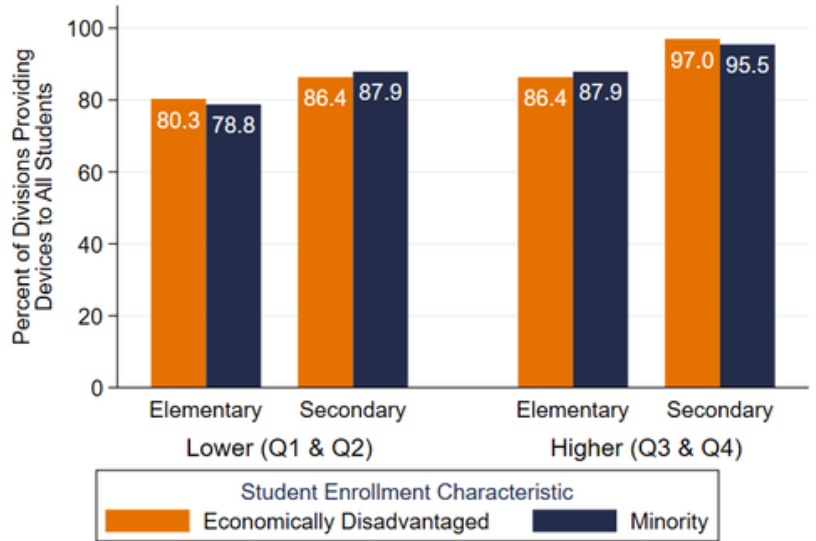


Figure 1. Provision of Devices to All Students by Division Student Enrollment Characteristics

least likely (78% for elementary students and 85% for secondary students). Division decisions about providing devices to students was not consistently related to the degree of community access to broadband internet.

Dimension #2: Providing Internet Connectivity

As divisions thought through how they would provide curriculum and instruction to students remotely, they had to consider whether and from where students could connect to the internet. Many students’ families could not afford home internet service, or their homes lacked the ability to connect to the internet. We collected data on whether and how divisions provided students with internet access for remote learning. Through our review of the documents, we characterized each division along two aspects: connectivity at home and connectivity within the community.

- Home – Division committed itself to getting at least some students connected to the internet in their homes through a wired connection or cellular hotspot.

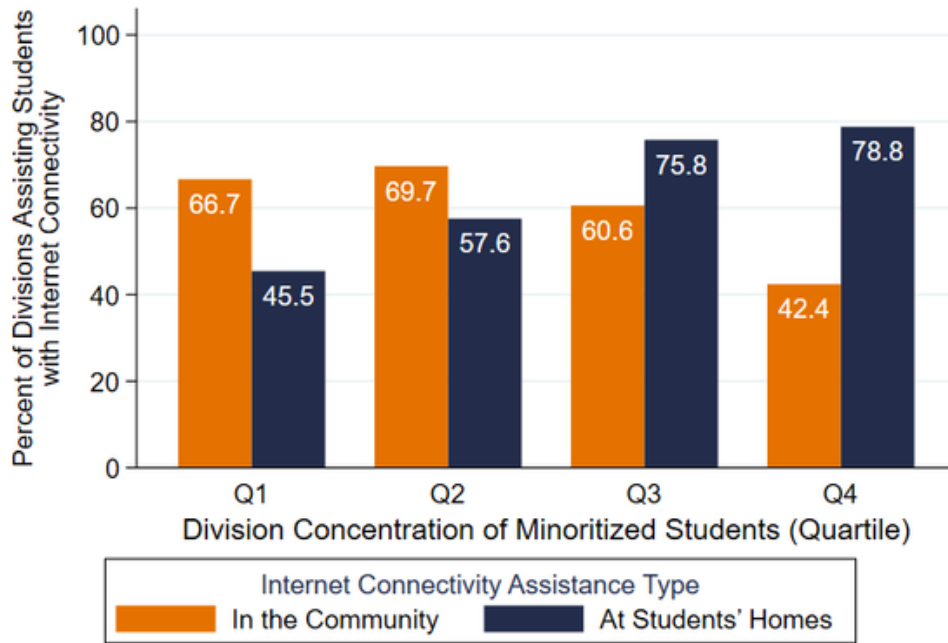


Figure 2. How Divisions Assisted Students with Connecting to the Internet by Division Concentration of Minoritized Students

- Community – Division committed itself to providing hotspots at certain locations within the community (e.g., parking lots of schools, public library, public security buildings, community centers) where students could connect to the internet.
- None – Division explicitly stated it would not assist students with connecting to the internet.
- No Information – The division's documents provided no clear indication of whether it would support student internet connectivity. This does not imply that they provided no assistance to students.

Recording these two aspects allowed us to capture when divisions supported student internet connectivity both in their homes and in the community. For divisions that supported home connectivity, we noted whether they committed themselves to getting all or some students (e.g., until supplies were exhausted or to students without an existing connection) connected at home.

Divisions were slightly more likely to help students connect to the internet at their homes than to

provide students with community hotspots. Sixty-four percent of divisions assisted students with home-based connectivity, and 60% provided access at specific locations within the community. Many divisions decided to do both (36%). Of the divisions that helped students connect at home, more than two-thirds indicated a commitment to ensure that all students had home internet connectivity (41% of all divisions). One division stated it would not assist students with connectivity, and 15 provided no clear indication of their information.

The decisions made by divisions with higher concentrations of minoritized students were different than those made by divisions with lower concentrations of minoritized students. Divisions with higher concentrations of minority students were more likely to provide internet connectivity at home and less likely to provide connectivity via community hotspots, as shown in **Figure 2**. For example, 79% of divisions with the highest concentrations (quartile 4) supported home connectivity compared to 45% of divisions had the lowest concentrations (quartile 1). Conversely, 42% of quartile 4 divisions provided community access compared to 67% of quartile 1 divisions. With respect to community access, the same pattern existed with the concentration of economically disadvantaged students where divisions with the highest concentration (quartile 4) were less likely to provide community access than divisions with the lowest concentrations (quartile 1) (42 versus 70%). There were no noteworthy differences in the divisions' support for home connectivity across the quartiles of economically disadvantaged students.

The connectivity assistance divisions provided

varied by locale and broadband access. As shown in **Figure 3**, city and suburban divisions were much more likely than town and rural divisions to support home connectivity (80 and 74% versus 68 and 55%). Rural and town divisions were more likely to provide community hotspots than suburban and city divisions (72 and 64% versus 41 and 33%). With respect to broadband access, divisions with very high access were more likely to support home connectivity and less likely to provide community hotspots than divisions with lower levels of broadband access, as shown in **Figure 4**.

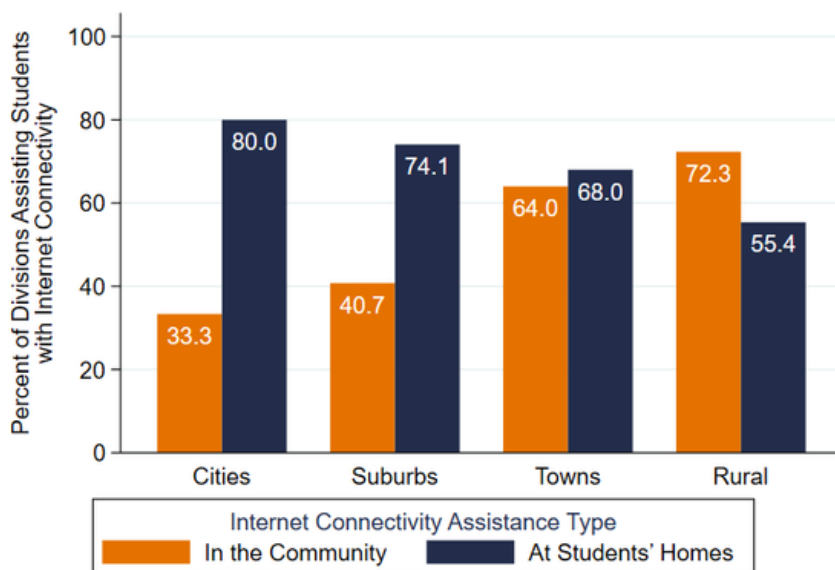


Figure 3. How Divisions Assisted Students with Connecting to the Internet by Division Locale

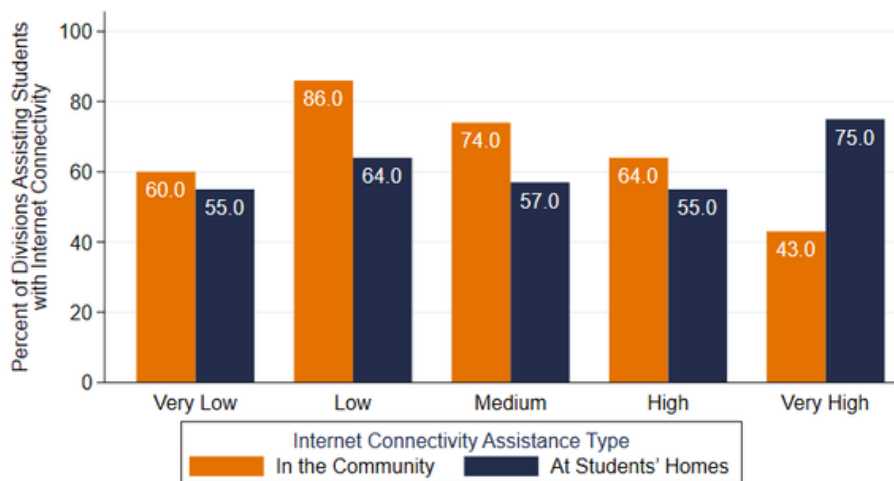


Figure 4. How Divisions Assisted Students with Connecting to the Internet by Community Access to Broadband Internet

Dimension #3: Providing Technological Support

The expanded use of technology for remote learning increased the need for technological support for students and staff. We collected data on whether divisions provided technological support (e.g., software and/or hardware assistance via a help desk or other means) to students and staff. After reviewing the documents, we characterized each division as:

- Students – Division indicated it would provide tech support to students.

- Staff – Division indicated it would provide tech support to staff.
- Both – Division indicated it would provide tech support to both students and staff.
- No Information – The division's documents provided no clear indication of whether it provided tech support. This does not imply that they provided no tech support to students and/or staff.

Most divisions provided technological support. Sixty percent

of divisions provided students with tech support, while 26% clearly indicated they would provide staff with tech support. More than a third (37%) of divisions provided no indication as to whether and to whom they would provide tech support.

Divisions with higher concentrations of minoritized or economically disadvantaged students were more likely to offer tech support to their students than divisions with lower concentrations, as shown in **Figure 5** on the next page. For example, 73% of divisions with the highest concentration of minoritized students (quartile 4) offered students

tech support, while 52% of divisions with the lowest concentrations (quartile 1) did the same. Rural divisions were less likely than others to provide students with tech support; however, the documents for almost half the rural divisions offered no information on this dimension. Community access to broadband did not appear to impact a divisions decision to provide tech support.

Conclusion

As divisions shifted their instruction from in-person to remote during the 2020-21 school year in response to the COVID-19 pandemic, they needed to make plans for about how to leverage technology for remote learning.

Divisions needed to decide whether and to which students to provide a personal computing device, whether and how to assist students with connecting to the internet, and whether to provide students and staff with technological support. Our analysis of divisions' plans found that: (1) most divisions committed themselves to providing devices to all their students, (2) divisions were slightly more likely to help students connect to the internet in their homes than via community hotspots, and (3) most divisions provided technological support to students. Divisions' decisions varied with the characteristics of their students and community. Divisions with higher concentrations of minoritized and or economically disadvantaged students were more likely than divisions with lower concentrations to provide devices and tech support to all students and provide tech support to students. Divisions with higher concentrations of minoritized students were also more likely than those with lower concentrations to assist students connecting to the internet at home. The differences across community locale existed by the nature of those differences were inconsistent across the three dimensions. There is the potential for the decisions divisions made regarding the use of technology for remote learning to have had an impact on students' academic performance and teacher job satisfaction and retention. We will

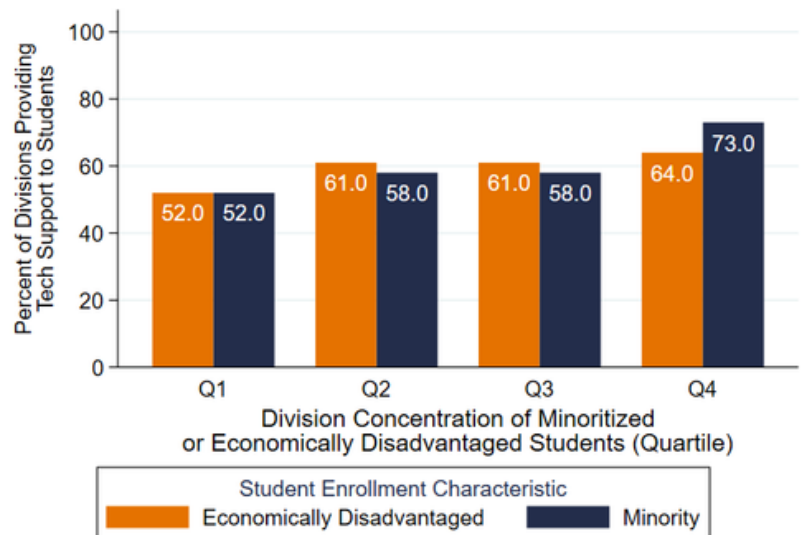


Figure 5. Provision of Technological Support to Students by Division Student Enrollment Characteristics

examine these associations in future analyses.

Endnote

[1] Information on each division's concentration of minoritized and economically disadvantaged students comes from VDOE's Fall Membership website. Each quartile (minoritized and economically disadvantaged students) includes 33 divisions. Information on each division's locale comes from the National Center for Education Statistics' Education Demographic and Geographic Estimates program. Fifteen divisions are classified as city, 27 as suburb, 25 as town, and 65 as rural. Information on broadband internet access within each division's community comes from the website Broadbandnow.com. The percent of a division's residences with access to internet speeds of at least 100 mbps was between 0 and 40% in 20 divisions, between 41 and 60% in 14 divisions, between 61 and 80% in 23 divisions, between 81 and 90% in 22 divisions, and between 91 and 100% in 53 divisions.

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