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

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Key findings

School divisions responded to the COVID-19 pandemic by increasing their use of remote technology for instructional purposes. Our analysis of three dimensions of that use during the 2020-21 school year found the following:

- A strong majority of school divisions in Virginia guaranteed access to technology to all its students (83% for all elementary students and 92% for all secondary students).
- Divisions with higher concentrations of minoritized students and students from economically disadvantaged circumstances were more likely to guarantee students' access to technology than divisions with fewer of these marginalized groups.
- Divisions were more likely to rely on community hotspots to assist students with connecting to the internet than to assist some or all students connecting at home.
- Divisions in which more residences had access to broadband internet were more likely than divisions with less access to assist students in connecting to the internet at home.

- Most divisions (60%) provided technological support to students, but fewer (26%) stated these supports were also offered to staff.

These three dimensions, when presented in this order, allow us to illustrate the levels of academic support for remote learning made available to students across the Commonwealth during this unprecedented school year.

Understanding the Dimensions of Remote Technology

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, therefore, needed to make many decisions on how to provide instruction in each student's home. This brief considers three of those decisions each related to the technology required for remote learning: access to technology, access to the internet, and access to 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 and coded over a thousand documents pertaining to the SY 2020-21 operations of Virginia's 132 school divisions. These documents included the divisions' reopening plans and revisions to those plans that they submitted to VDOE. We also scoured each division's website (including archived sites via the Wayback Machine), 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 coders reviewed all documents for information on 32 dimensions. With all documents reviewed and coded, we collapsed the codes across the documents within each division to arrive at a final set for each division that characterize how the division operated over the course of the full school year.

Our characterization of division operations during SY 2020-21, therefore, reflect what the divisions said they would do or were currently doing. If a division never referenced a given dimension of operations in their documents, websites, or social media, we coded the division as "no information". 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 examine how operations varied with the divisions' concentration of minoritized students (quartiles), concentration of economically disadvantaged students (quartiles), 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 (0-40%, 41-60%, 61-80%, 81-90%, and 91-100%).

Access to Technology

We coded the documents for information on whether and to which students the divisions provided a personal computing device, such as a tablet, a Chromebook, or laptop. The data on this dimension are coded for each grade level prekindergarten through 12th grade and recorded if the division committed itself to providing devices to all students, some students, or no students.

A strong majority of school divisions in Virginia guaranteed access to technology to all its students. Eighty-three percent of divisions provided all elementary students (PK-5) with a personal device, and 92% of divisions provided all secondary students (6-12) with a device. Other divisions committed to providing personal devices to some elementary students (12%) and some secondary students (5%).

As shown in **Figure 1** on the following page, 94% of divisions with the highest concentrations of minoritized students guaranteed a computing device for all elementary students, compared to 73% of divisions with the second to lowest concentrations of minoritized students (quartile 2), a 21-percentage point difference. There was a similar but smaller difference (15 percentage points) in the provision of computing devices to secondary students (97 versus 82%). For both elementary and secondary students, the decisions that divisions in quartile 1 (lowest concentrations) made regarding providing students with devices mirror those made by divisions in quartile 3.

The differences were similar with respect to divisions' concentrations of economically
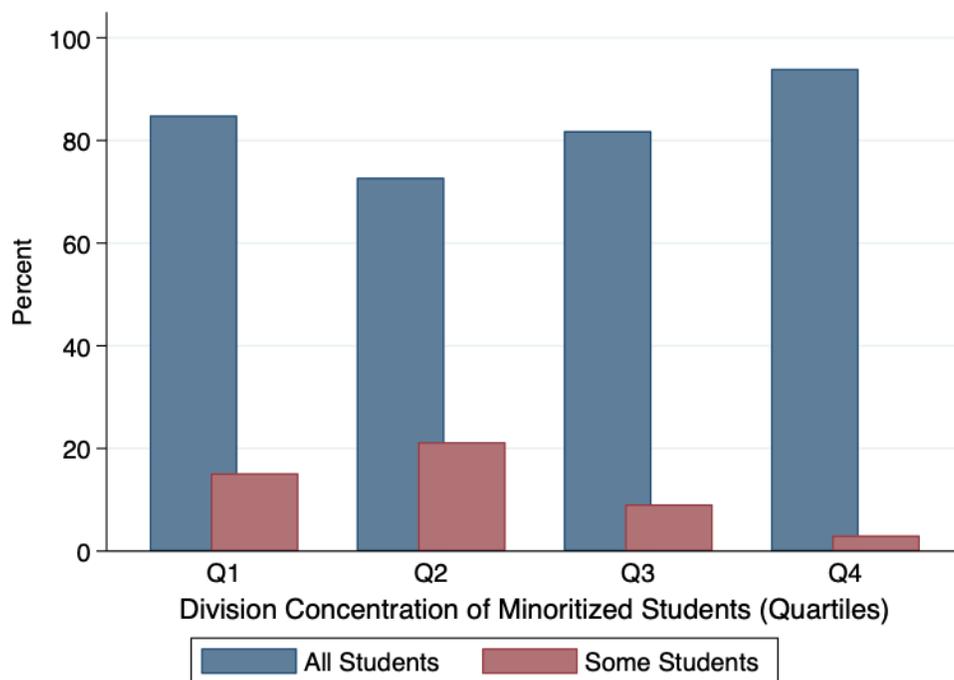
Figure 1. Division-Provided Technology to Elementary School Students by Divisions' Concentration of Minoritized Students

versus 78-88%) and secondary students (100% versus 85-94%). There were no consistent patterns across the divisions' community's broadband internet infrastructure in the divisions' provision of devices to elementary or secondary students.

Access to Internet

We collected data on whether and how divisions assisted their students connecting to the internet for remote learning. Specifically, we recorded if the division

disadvantaged children. There was a 18-percentage-point difference between quartile 1 and 4 divisions in providing all secondary students with devices (79 and 97%, respectively). This difference was 12 percentage points for elementary students (73 versus 85%, respectively).

The opposite patterns exist with respect to divisions' decision to guarantee personal devices for some students. The divisions with the lowest concentrations of minoritized and economically disadvantaged students were more likely than divisions with higher concentrations of these marginalized students to provide technology to some, but not all, of their students. This partial provision often targeted only those students who needed a device, recognizing that many students were likely to already have a computer or tablet at home.

City divisions were slightly more likely than divisions in suburbs, towns, and rural areas to provide devices to all elementary students (93%

provided access outside of the home via community hotspots (e.g., parking lots of schools, libraries, community centers, etc.) or inside the home via a router and modem or MiFi device. If the division provided connectivity inside the home, we recorded whether that assistance was provided to some or all students.

Divisions were most likely to rely on community hotspots to assist students with connecting to the internet. Sixty percent of divisions provided access to the internet via community locations, 41% of divisions committed themselves to getting all themselves to getting all students online at home, and 23% indicated they would help some, but not all, students connect at home. However, several school divisions offered students a combination of at-home access and a community hotspot. For example, 20% of school divisions offered all their students at home internet access as well as community access, and 15% of school divisions committed themselves to getting some students connected

at home as well as guaranteeing community access. The documents from 11% of divisions included no information on this dimension.

School divisions with the highest concentrations of minoritized students were 37 percentage points more likely to provide at-home inter-net to at least some students than com-munity hotspots. Contrarily, divisions with the lowest proportion of minoritized students were 22 percentage points more

Figure 2. Division-Provided Internet Access Type by Division Locale

likely to provide access to community hotspots than at-home connectivity for any student. A similar but somewhat less pronounced pattern existed with the concentration of economically dis-advantaged students. Divisions with the lowest concentrations were 22 percentage points more likely to support community than at-home connectivity compared to divisions with the highest concentration who were 22 percentage points more likely to support at-home connectivity.

The connectivity assistance that divisions provided varied by locale. **Figure 2** shows that city and suburban divisions prioritized at-home internet access, while divisions in towns and rural areas prioritized community access. Eight percent of city divisions and 74% of suburban divisions committed themselves to getting at least some students connected to the internet at home, while only 68% of town divisions and 55% of rural divisions did. However, 72% of rural
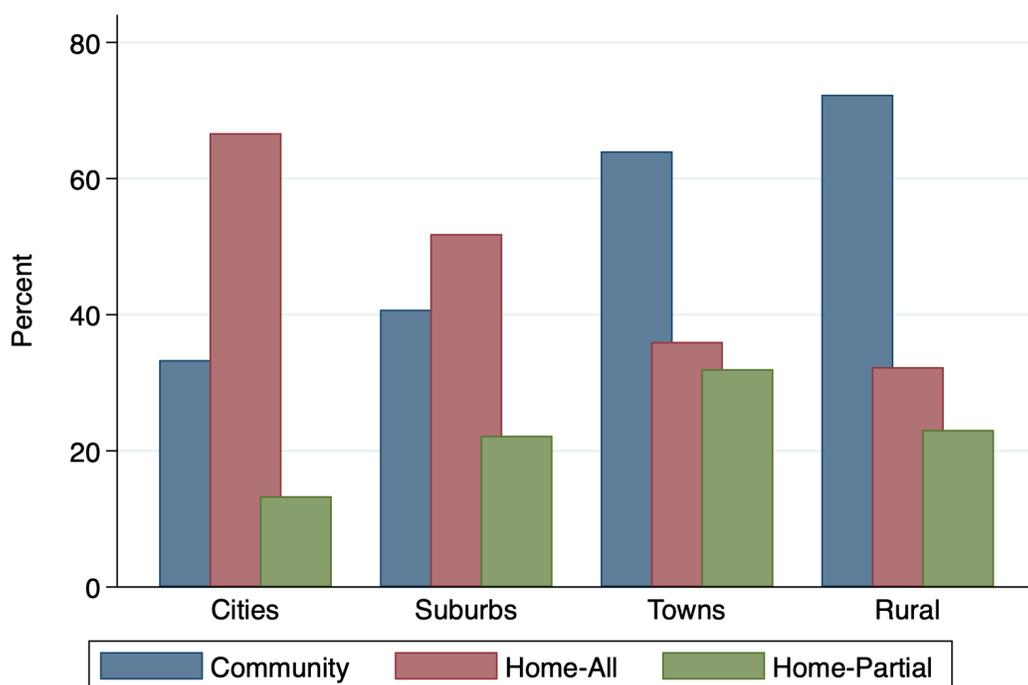
divisions and 64% of town divisions provided community hotspots to students, compared to 33% of city divisions and 41% of suburban divisions

Only those divisions with the greatest access to broadband were more likely to assist students connecting to the internet at home than connecting in the community. Among divisions where 91 to 100% of residences could connect to broadband, 75% supported home-based.

Only those divisions with the greatest access to broadband were more likely to assist students connecting to the internet at home than connecting in the community. Among divisions where 91 to 100% of residences could connect to broadband, 75% supported home-based internet access for at least some students and 43% supported access in the community. **Figure 3**, shown on the following page, shows that among the divisions with less access to broadband, they were between 5 and 21 percentage points less likely to support at-home
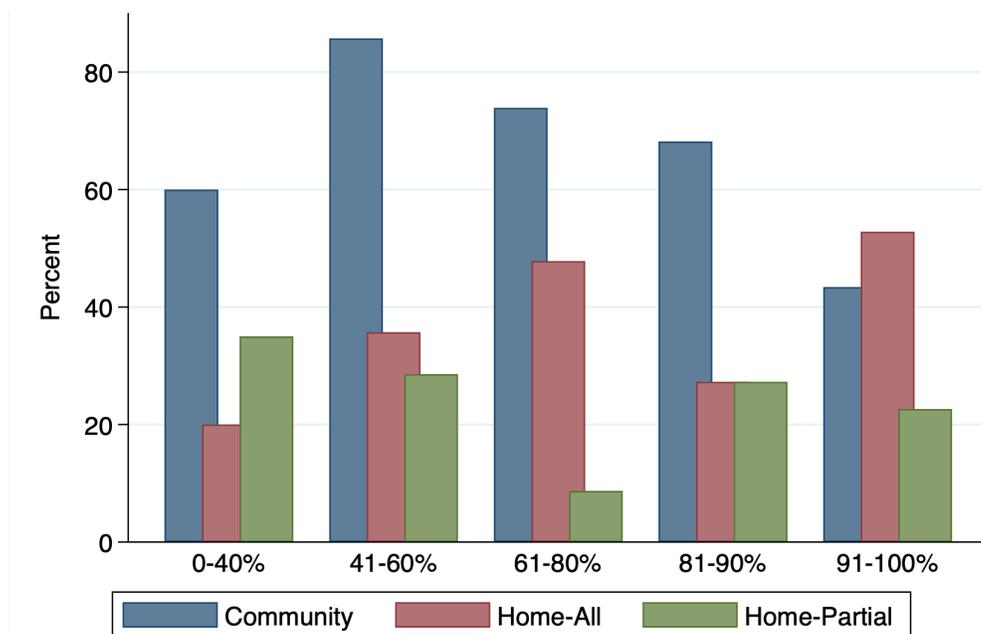
Figure 3. Division-Provided Type of Internet Access by Broadband Infrastructure Access within Division

the lowest and highest concentrations of economically disadvantaged students: 52 and 64%, respectively. Rural divisions were less likely to offer tech support than suburban, town, and city divisions (46% versus 63, 76, and 87%, respectively). There were no consistent patterns across the division's community's broadband internet infrastructure in the divisions' provision of technological support.

versus community connectivity.

Access to Technological Support

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, staff, or both. Most divisions provided technological support. Divisions were more likely to state they would provide support to students than to staff. Sixty percent of divisions provided students with technological support, while only 26% of divisions provided staff with technological support. More than a third (37%) of divisions provided no information on this dimension.

Divisions with higher rates of marginalized students were more likely to offer support to their students. For example, 52% of divisions with the lowest concentration of minoritized students offered students tech support, while 73% of divisions with the highest concentrations provided students with tech support. A similar difference is also evident between divisions with

Conclusion

In the 2020-2021 school year, divisions needed to act quickly to address the needs of their students. In our analysis, we found that school divisions' decisions regarding the use of technology for remote learning varied with their concentrations of minoritized and economically disadvantaged students, access to broadband internet infrastructure, and locale. During such an unprecedented school year, it is important that we identify the heterogenous responses of school divisions across the state. Our future work will connect these dimensions of technology use for remote learning to outcomes for students and teachers.

Acknowledgement