The High Cost of Connectivity Has a Disparate Impact on Public School Students

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About the Author

Stacey Baxter is a licensed social worker with a background in community development and policy administration. Before coming to the broadband sector, Stacey worked as a mental health therapist at a Title I school in Prince George's County, Maryland. While supporting the students at their school, she witnessed first-hand the disadvantages low-income families face in trying to maintain their student's academic success in a technology-dependent school system. From increased disciplinary actions to low academic achievement, students without home Internet and without financial resources to sustain functional digital devices are subject to disadvantages that have immense impacts on future opportunities. It is the hope of this author that with increased knowledge of how educational technology policies negatively affect low-income and minority students, local officials and school administrators will be motivated to create digital equity policies that help alleviate the burden currently placed on students and families that cannot afford broadband subscriptions, computing devices, or digital skills training they need.
Introduction

Education can take a child anywhere. Not only does it provide the foundations of life-long learning, but it helps children develop the skills and tools needed for a successful future. Access to an equal educational experience is a legal right in the U.S. With the overwhelming dependence of technology in today’s educational system, Internet access should also be the legal right of every student.

As our reliance on the Internet has radically expanded, the burden has landed on the individual and their family to establish their own device and means of broadband connection. Students who cannot afford computing devices and families who cannot afford the costs of quality home Internet service are also deprived of equal educational opportunities. Students should not pay the price for an educational system’s decision to rely on resources that have not been made publicly available and reasonably affordable.

Communities are counting on local officials to develop policies that support each person’s right to educational opportunities. The lack of equitable and affordable Internet access and device ownership is crippling this generation’s – and future generation’s – ability to succeed academically and professionally. Students and families that depend on public education deserve a high-quality experience that prepares them for the future. In the twenty-first century, that involves affordable and reliable high-speed Internet access and digital skills training. Right now, too many students do not have either. Being stuck on the wrong side of the digital divide undermines possibilities for them to thrive in a digital society.

This report will outline the reliance on technology in the public school system; why internet access for children is essential to creating a flourishing society; the disparities that exist related to broadband access and device management; and recommendations for local officials to effectively change policies and champion federal programs that truly allow for equitable educational opportunities.


Technology and Education

When writing the landmark *Brown v. Board of Education* decision establishing the right to an equal education, the idea that technology would one day replace chalkboards and textbooks probably never crossed Chief Justice Warren’s mind. Even so, in 2023, students are more likely to work on computers than use a pencil and paper.

As of March 2021, approximately 90 percent of school districts reported providing a digital device to every student in grades six through twelve. Eighty-four percent of those districts reported providing digital devices to each student in elementary school as well. The definition of an equitable educational opportunity in the twenty-first century must include reliable Internet and device access, given the dependence on technology both inside and outside of the classroom.

Even though classrooms look very different in 2023 compared to 1954, the basic premise of public schools remains the same – to provide a high-quality education that allows children to develop into well-rounded and productive members of the workforce and society. In addition to the many positive outcomes associated with student’s learning through technology, many of the in-demand jobs of today’s workforce were created as a result of the advancement of technology.

Currently, there is a substantial vacancy in the Science Technology Engineering and Math (STEM) careers that require well-educated tech-savvy graduates for an increasingly technological world. Jobs that historically did not require digital knowledge are now becoming more technologically dependent. Experts recommend that in order to fill this gap, students need to utilize online learning and attain advanced digital skills. Doing so would enable students to be a part of the highly-skilled and lucrative segment of tomorrow’s workforce.

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In the past, educational systems relied heavily on textbooks and lectures to relay information to students. As technology advanced, so did the educational tools used to teach. Today, technology plays a vital role in student’s learning and future success. Digital educational tools and learning platforms encompass all the foundational elements for academic success. They provide a database of information for students and parents, and include almost all the educational tools used by teachers to facilitate and reinforce learning. **Success in classwork, homework, and assessments is dependent on students’ ability to access and effectively use online platforms and digital programs in the classroom and at home.**

Students’ use of educational devices such as Chromebooks, tablets, laptops, and desktop computers has a positive effect on academic performance and job readiness. Use of technology in the classrooms is highly correlated with enhanced academic outcomes, especially in reading and writing, increased graduation rates, and increased classroom engagement. Lesson plans that utilize technology allow teachers to accommodate different learning styles and students to engage in personal learning. These nuanced approaches can positively impact a student’s self-confidence, willingness to learn and interest in learning.

In the past few decades, schools have continued to increase the use of technology for educational purposes. In 2019, the COVID-19 pandemic forced school systems to switch from in-person learning to virtual learning pathways in order to keep children safe while also upholding their educational obligations. This new virtual learning environment made Internet access the essential component to maintaining the academic success of students. Without a high-speed connection and a working device to get online, students were unable to log onto their virtual classrooms, complete online classwork and required homework, and could not communicate with their teachers when they needed assistance.

**Almost overnight, digital equity became the single-handedly most important element of a student’s educational experience.** For students who already had...
high-quality broadband connections in their homes prior to the pandemic, the switch to virtual learning was simple. However, students with slow, unreliable, or nonexistent Internet connections were confronted with a new set of challenges and disadvantages. Millions of students in every corner of the country were forced to either rely on mobile hotspots, find their own means of connection, or simply not attend virtual school at all.

## The Digital Divide and The “Homework Gap”

The term “digital divide” is nothing new. For three decades advocates have been talking about the distinction between those with and without access to the Internet and digital devices. In 2014, Federal Communications Commission Chairwoman Rosenworcel coined the term “homework gap” to describe the breach between students who have access to high-speed Internet at home and those who do not. Prior to the pandemic, this gap referred solely to homework, but as online classes and virtual learning became the norm for students, this “homework gap” expanded. With the changes brought on by the pandemic, the digital divide became an increasingly important topic for children and families. In order to attend school during the pandemic, over 50 million public school students across the nation were expected to maintain capabilities to learn from home which required three fundamental components: a computing device; a broadband connection; and baseline digital skills to navigate the application. However, of these 50 million students, 30 percent, or about 15 million students, lacked either sufficient broadband or digital devices to effectively participate in virtual learning, while 9 million students were missing both. Although these statistics represent students nationwide, every state and every community is affected by the digital divide. Students stuck on the wrong side of the digital divide had much more significant negative effects on their overall academic success.

The ripple effects of learning loss and digital disadvantages associated with the pandemic are still prevalent in rural and low-income communities. In rural

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communities, 37 percent of students do not have home Internet, compared to 25 percent in suburban households and 21 percent in urban areas. A 2020 study by Pew Research found that 59 percent of parents with lower incomes reported that their child[ren] would likely face at least one significant challenge while trying to participate in online learning, whether it be a lack of high-speed and reliable home Internet or a lack of access to a digital device.

Despite the changes brought on by the pandemic that made the Internet essential for student success, income discrepancies remain a major factor in the digital divide. Individuals and families in lower income levels have significantly less access to the Internet and digital devices such as computers or tablets. In 2021, only 57 percent of households earning less than $30,000 a year reported having home Internet service and 41 percent lacked a desktop computer or laptop. However, households earning more than $30,000, only 17 percent lacked home Internet, and 16 percent lacked a desktop computer and/or laptop.

As with geographical location and income level, disparities in the digital divide persisted along racial and ethnic lines. Households that lacked Internet access were more prominent in Black or African-American, Latino or Hispanic, and Native American communities. In White households, only about 18 percent lacked home Internet, while in Latino or Hispanic households this number increased to 26 percent, 30 percent in Black or African American households, and 35 percent in Native American homes. Students who belong to these historically marginalized groups are more likely to face obstacles related to digital divides.

### Dependence on Technology in Public School Systems

In today’s classrooms, students, teachers, and parents utilize technology for almost every part of the learning experience. Two-thirds of teachers report using digital learning tools on a daily basis to teach, support, and make learning interactive, and report wanting to use these tools even more frequently. They

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18 Id.


20 Id.


22 New Schools Venture Fund & Gallup, Education Technology Use in Schools, (2019), http://www.newschools.org/wp-
use applications, programs, videos, websites, online games, and other digital tools to create innovative learning experiences that help students learn. Both inside and outside of the classroom, students are using digital tools. Approximately seven out of ten students report using them at home, at least a few days a week, in order to complete required classwork and homework.\textsuperscript{23}

An overwhelming majority of teachers and school administrators see the value that technology brings to their students and understand the importance of continuing to use digital tools. They support the increased use of digital learning tools and agree that these tools are just as effective, if not more effective than non-digital tools, particularly as it relates to preparing students for the future.\textsuperscript{24}

\textbf{Digital Platforms for Students, Parents, and Teachers}

Across the nation, schools rely on online platforms to communicate with students and families. Digital platforms provide access to critical information for students and families, including school closures, upcoming events, classroom schedules, contact information, community resources, and more. Teachers also rely on online platforms for daily communication with parents to report student behavioral issues, create homework assignments, provide classroom updates, and record student attendance.

Likewise, students rely on digital platforms for their overall academic success. They access student portals to keep track of their assignments, homework, grades, attendance, and collaborative projects – all of the fundamental components of educational instruction. MYMCPS,\textsuperscript{25} Google Classrooms,\textsuperscript{26} Canvas,\textsuperscript{27} and StudentVUE\textsuperscript{28} are examples of digital platforms that support daily learning. Broadband access, computing devices, and digital skills training are prerequisites for accessing these platforms and crucial for academic success.

\textsuperscript{24} Id.
\textsuperscript{25} See Montgomery County Public Schools, Technology Information and Support For Parents, https://www2.montgomeryschoolsmd.org/parents/tech-info-support (last visited Aug. 7, 2023).
\textsuperscript{27} See District of Columbia Public Schools, Technology, https://dcspsstrong.com/sy20-21/resources/technology/ (last visited Aug. 7, 2023)
\textsuperscript{28} See Fairfax County Public Schools, Student Information System (SIS) - StudentVUE, https://www.fcps.edu/resources/technology/student-information-system-sis/sis-studentvue (last visited on Aug. 7, 2023).
Reliable access to digital platforms is also very important to parents and families of public school students. Parent portals, such as ParentVUE or Parent Square, allow them to communicate with their child’s teacher, review grades, submit attendance notifications, keep track of school events, and complete required paperwork. Online portals are essential for parents to be active participants and active supporters in their child’s education, and may provide some of the only avenues for communication with their child’s teacher. As digital platforms become the norm for many of the vital elements of school functioning and communication, parents and students must be equipped with the broadband connectivity, equipment, and know-how to engage online.

**Schools Depend on Digital Educational Tools for Daily Instruction**

School systems depend on digital educational tools for daily classroom instruction and homework assignments. Students can access school administered platforms through their mobile and computing devices. Content ranges from fundamental lessons in phonics and mathematics to test prep and interactive educational games. Dozens of applications are carefully selected by school districts to support student learning and teacher instruction.

Across the nation, teachers use these digital tools as part of their daily lessons and acknowledge they have positive effects on student academic achievement. Using education tools such as Dreambox and interactive programs like i-Ready, teachers can assess a student’s needs and provide individualized instruction. Students in today’s classrooms are spending a significant amount of time, between one to four hours a day, using these online tools for daily instruction. After school, students spend the same amount of time online, or even more, completing homework and studying for upcoming assessments. That is why being able to get online at home and during school is essential for academic success.


Technology Policies in Public Schools

Currently, technology policies in schools reinforce the digital inequities faced by marginalized communities.

For all the benefits that the Internet can add to a student's academic success, the challenges that student's face in obtaining access to the Internet and maintaining a digital device may outweigh the educational benefit. Currently, technology policies in public schools are used to bookend the appropriate uses of technology, the purpose of integrating educational technology in classrooms, issues of privacy, and the potential consequences that arise from failing to adhere to the rules. What most of these technology policies do not outline is the financial cost to families to maintain a school-issued digital device. Without consistent and cohesive technology policies, individual schools determine the costs for damaged devices, leaving low-income families in difficult situations with expensive ramifications.

One-on-one technology policies, which are in effect for a majority of public school districts across the nation, ensure each student receives their own electronic device supplied by the school. Students are expected to bring the school-issued device to class each day and bring it home with them each night. Although some schools distribute protective cases to their students, accidents do happen, particularly when young children are transporting a digital device to and from school each day. There are expensive consequences for students and families for lost or damaged devices. In fact, some schools and districts charge families anywhere from $25 to $779 for a device replacement and up to $260 for screen replacement.34

Expensive Internet Plans Contribute to High Costs for Families

Alongside expensive repair and replacement costs of digital devices is the high price of home Internet service. Typically, household Internet usage exceeds the minimum broadband requirements set out by the FCC in 2015. The higher the speed rate, the more capacity the connection can hold and the faster the connection will be. Video conferencing, such as Zoom, takes much more bandwidth than other online tasks such as emailing or surfing the web. Because schools are increasingly relying on digital learning, including virtual classrooms and online tests and homework, families need upgraded speeds to accommodate for the expanding dependence on technology.

Upgraded speeds may mean increased costs for families. On average, U.S. families pay over $90 a month for high-speed Internet service. This is an extremely expensive component of public education that many families cannot continue to afford, especially considering that families who remain offline can only pay as much as $10 a month for Internet, if at all.

Although some school districts have taken legal steps to address the digital divide, like enacting legislation focused on technology equity, these laws solely address Internet access and digital skills training. These are two very important elements to solving the digital divide, however the legislation does not address affordability barriers related to maintaining monthly broadband subscriptions or the cost of obtaining a computing device. If students are going to have an equal opportunity to succeed academically, then affordability must be factored into digital divide solutions.

Public school students are often assigned digital devices as part of their educational experience (not requested by the student but assigned to students). Educational systems are relying on digital educational tools for learning. And we know that electronic devices are exceptionally useful tools in supporting a student’s academic success. Then, why are parents, particularly low-income families, liable for expensive Internet plans and financial

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obligations of school-supplied educational devices? Although some schools mention that they will work with families who cannot afford to pay their obligations, there is no policy in place that supports low-income families who cannot afford to pay for damages to school-assigned technology.

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**Recommendations for Local Officials**

As local officials with the power to improve the lives of students in your district, here are three things you can do to ensure that every student has the opportunity for a high-quality education.

1. Support state and federal legislation that identifies the Internet as the necessity that it is. The Internet is an essential service for children and families to succeed in a digital society.

2. Champion federal programs that enable affordable access to the Internet. The [Affordable Connectivity Program](https://www.fcc.gov/acp) (ACP) offers subsidies up to $30 a month for eligible families, which include families on free and reduced-prices school lunch programs. Despite the critical need, the program is on track to run out of funding in 2024. Currently, over 20 million Americans depend on the ACP for Internet access, namely students.

3. Collaborate with county and state broadband offices, school staff, and Parent-Teacher Organizations to create policies that ensure every student has affordable high-speed Internet in their homes that enables them to thrive in digital classrooms and a high-skilled workforce.

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Conclusion

Technology will continue to be vital to the educational experiences of students today and in the future. If steps are not taken to protect students’ abilities to effectively participate in their education, it will have devastating effects on innovation, workforce development, and more. Legally, every child deserves a quality education. In 2023, that cannot happen without reliable broadband, access, computing devices, and digital skills.

Despite the challenges in getting every American connected to the Internet, there are federal and state initiatives that have continued to support student’s access to the Internet and maintain digital devices. Many states and school districts received funding to get students online when in-person schooling was no longer an option during the pandemic. Post-pandemic, some areas have continued to provide Internet access to low-income students despite federal funding rollbacks.

For instance, Franklin County, North Carolina, continued its use of hot spots post-pandemic, given how beneficial they were for students during inception.43 In the District of Columbia, the public school system created a Technology Equity Act of 2021,44 made into law in 2022, which outlines the steps that the district will take to address internet access and digital skills training. This legislation focuses on two fundamental components of closing the digital divide, broadband access and acquiring the digital skills needed to flourish online.

In June of 2023, the Department of Education partnered with Civic Nation to launch the Online for All campaign. This campaign utilized a diverse set of over 300 agencies and organizations to work together to close the digital divide. This joint effort aimed to increase sign-up for the Affordable Connectivity Program as well as increase awareness of the millions of people who are still without Internet access. In essence, students depend on local, state, and federal officials to take the burden off of families and make sure that every student has the digital tools they need to succeed.

43 Rebecca Torchia, K-12 Schools Seek to Connect 12 Million Students Without Home Broadband Access, (March 2, 2022), https://edtechmagazine.com/k12/article/2022/03/k-12-schools-seek-connect-12-million-students-without-home-broadband-access