DCPS Technology Challenges and Opportunities

PARENT PERSPECTIVES FROM WARDS 1,5,6

SEPTEMBER 28, 2018

Key Findings

- The current state of DCPS technology **falls short of stated policy** and results in **inadequate technology** at many schools
- **No one knows the technology situation at all DCPS schools** due to data gaps and challenges with the DCPS official inventory
- **Access to technology is an equity issue**, with large variation in technology at DCPS schools
- Failure to address these challenges will result in **continued negative impacts on students,** including their performance on online assessments and college/career readiness
- This is an opportunity not just to address a deficit but to **position DCPS as a national model** and an increasingly attractive option for families

Key Findings

Current State of DCPS Technology

- The purchase and refresh of technology is not centrally managed by DCPS. This places the burden on schools, which lack the expertise and funds to put in place a sustainable technology plan.
- This results in a shortage of technology and/or unreliable, outdated devices at many schools*

"Interviewees reported **limited amounts** of key technology resources (six of eight schools), and said that existing technology was **frequently unavailable** because it was **outdated** and or **poor quality** (seven of eight schools)."

– DC Auditor, Oct. 2017

*See school snapshots in Back-up Slides

Key Findings

Gap Analysis

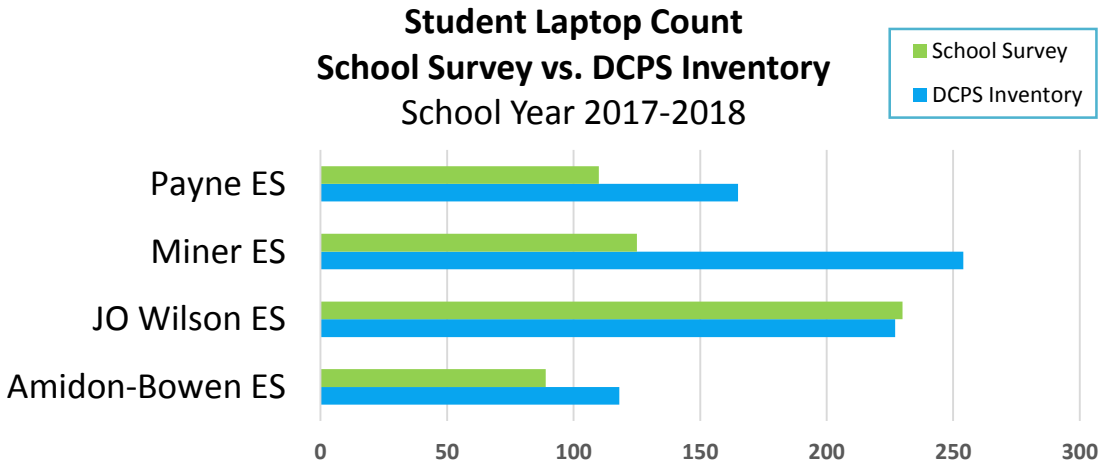
	Policy	Reality
Student computers	Minimum of 3:1 student-device ratio in online testing cohort, replaced every 4 yrs at min.*	Many schools lack funding to get to 3:1 for reliable, working devices. DCPS inventory includes devices that are 9-11 years old.
IT support	OCTO technician assigned to each school. Schools have the option of budgeting for IT positions.	At elementary schools, often an existing staff person (e.g., teacher, asst. principal) takes on extra duty of managing IT. OCTO has no spare parts for repairs. It's on schools to provide parts but they may not have funds to purchase. OCTO has limited ability to address Internet access problems. Some schools have areas w/unreliable Internet access, which makes it difficult to take online student assessments.
Instruction	Many schools use online programs for remediation and blended learning.	Students are unable to use programs for the recommended amount of time due to unreliable computers.

*Source: School Budget Development Guide FY 2019

Key Findings

No one knows the technology situation at all DCPS schools due to data gaps and challenges with the DCPS official inventory

- DCPS official inventory* does not distinguish between working and non-working devices
  - It's not clear how to track devices that OCTO does not service (e.g., Chromebooks or HP laptops funded by DonorsChoose.org)
  - Need to define "working" device, or will get inconsistent responses from schools
- Based on a preliminary survey of four schools taken at the end of SY17-18, the DCPS inventory often overstates the number of working laptops at schools



*From 2018 FOIA request and cited in *CityPaper* article, "Access to Technology in DCPS Public Schools Is Deeply Unequal"

Key Findings

Access to technology is an equity issue, with large variation in technology at DCPS schools

The three main variables influencing technology access at schools are:

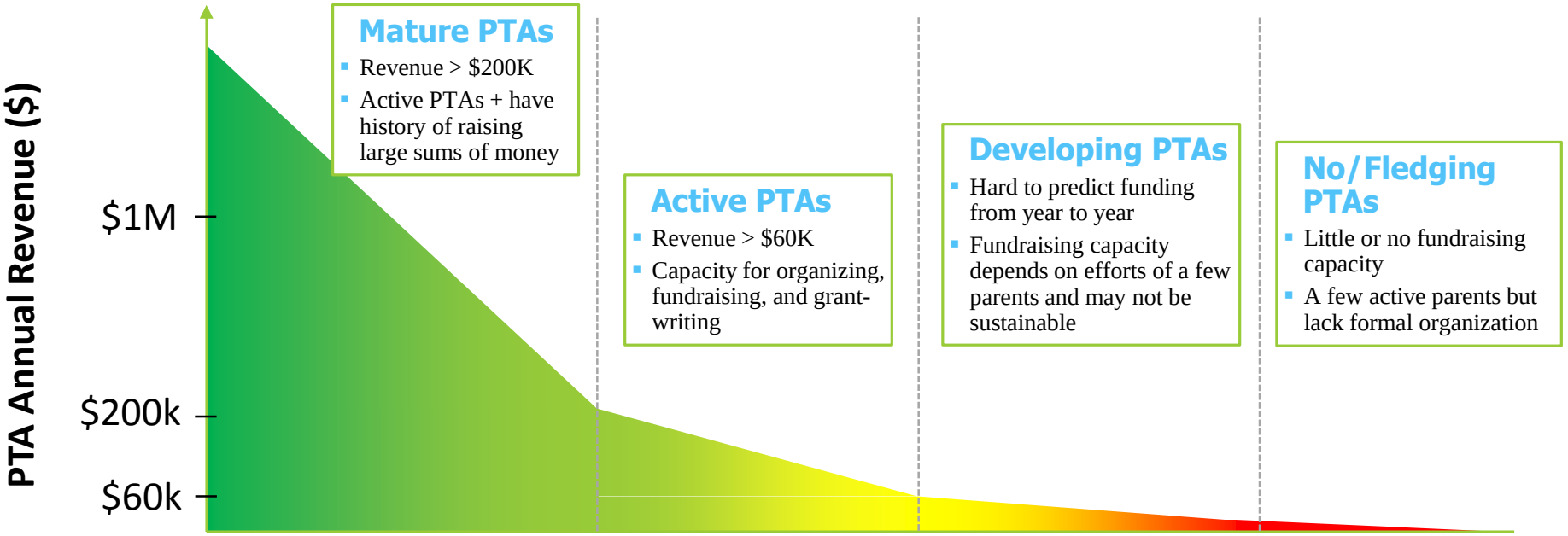
(1) time since the school's most recent modernization

(2) presence of strong PTA or other external support, and

(3) flexibility in school budget, tied to competing priorities to meet significant student needs (e.g., special education, behavior support, math/reading intervention)

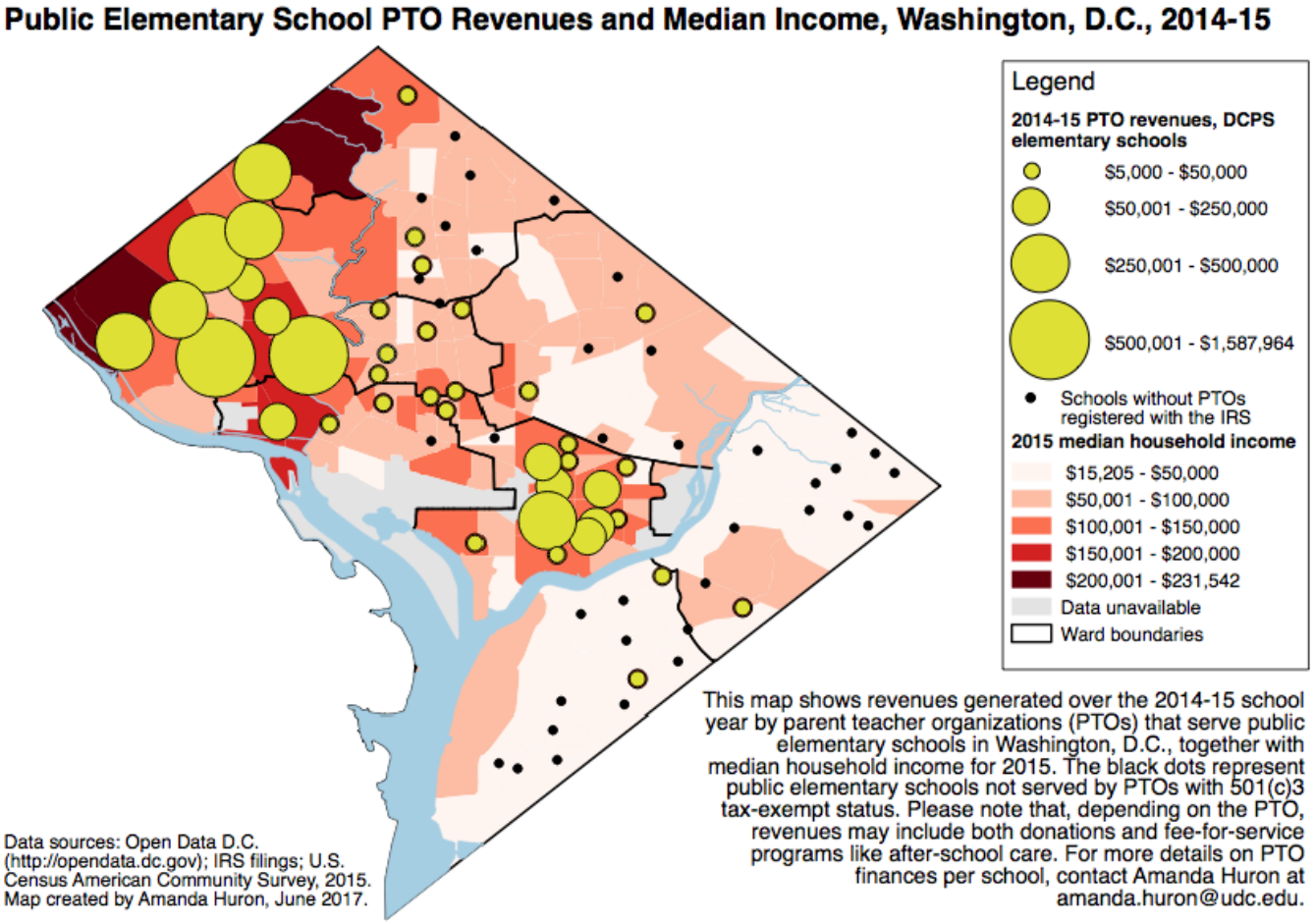
Graph is illustrative (not exact)

Key Findings: PTA support



- There is large variation in the ability of PTAs to raise money for schools
- Even schools w/developing or active PTAs may not have predictable funding streams from year to year, which makes it hard to plan for large investments in technology
- Developing PTAs may have a parent who is a “go-getter” and able to get a one-time grant, but that ability may be gone after the parent leaves.

Key Findings: PTA support



Key Findings: Flexibility in School Budget

Lack of budget flexibility for high-need schools makes it difficult to carve out adequate funding for technology

Cleveland ES FY19 Budget
>50% at-risk; 14% SPED

Budget Item	Cost
Afterschool Program	$53K
Psychologists	$52K
Social Workers	$157K
Special Educ. Coordinator	$51K
Supplies (Educ., Gen., Office)	$25K
Technology	$6K

At-Risk Budget $344k

~$15K needed annually to replace student laptops*

Amidon-Bowen ES FY19 Budget
>70% at-risk; 23% SPED

Budget Item	Cost
Afterschool Program	$37K
Behavior Tech	$93K
Dean of Students	$99K
Instructional Aide	$32K
Literacy Partners	$10K
Manager of Special Education	$107K
Reading Specialist/Teacher	$105K
Social Workers	$60K
Technology	$5K

At-Risk Budget $548k

~$17K needed annually to replace student laptops*

* Assumes 3:1 student-device ratio, replaced every 4 years, DCPS-approved vendor; excludes teacher laptops, smartboards, and other classroom tech

Key Findings

- Schools seeking innovative ways of getting technology are hampered by strict OCTO/DCPS IT requirements on approved devices
- OCTO will only maintain and put software on a limited number of models
- DCPS-approved vendors charge high prices

LAPTOPS

LATITUDE 3380 NON-TOUCH	LATITUDE 3480 NON-TOUCH	LATITUDE E5480 NON-TOUCH
Student	Teacher/Staff	Teacher/Staff
Pricing		
Laptop: $562 (add up to 12% for CBE costs) - *Absolute included* - Installation: $45.00	Laptop: $945.00 (add up to 12% for CBE costs) - *Absolute included* - Installation: $45.00	Laptop: $1134.90 (add up to 12% for CBE costs) - *Absolute included* - Installation: $45.00

Source: Purchasing Guide for Computers, Boards, and Carts

Key Findings

Negative Impacts on Students

- Students who lack familiarity with computers are unprepared for college and the workforce. They are also at a disadvantage when taking computer-based tests like the PARCC.
- Curriculum/intervention programs don't work like they should
  - Students are unable to get online for programs like iReady for the recommended amount of time per week due to lack of/unreliable computers
  - For blended learning, teachers spend time dealing with malfunctioning computers instead of being focused on small group instruction
  - Smartboard features go unused (see Back-Up Slides)

"In the past, we have had issues with computers slowing down, malfunctioning and working improperly; in return **this causes students to get frustrated and sometimes even shut down** in the middle of a test. When this happens our students are **misrepresented** and **we cannot get a clear picture of their actual academic needs.**"

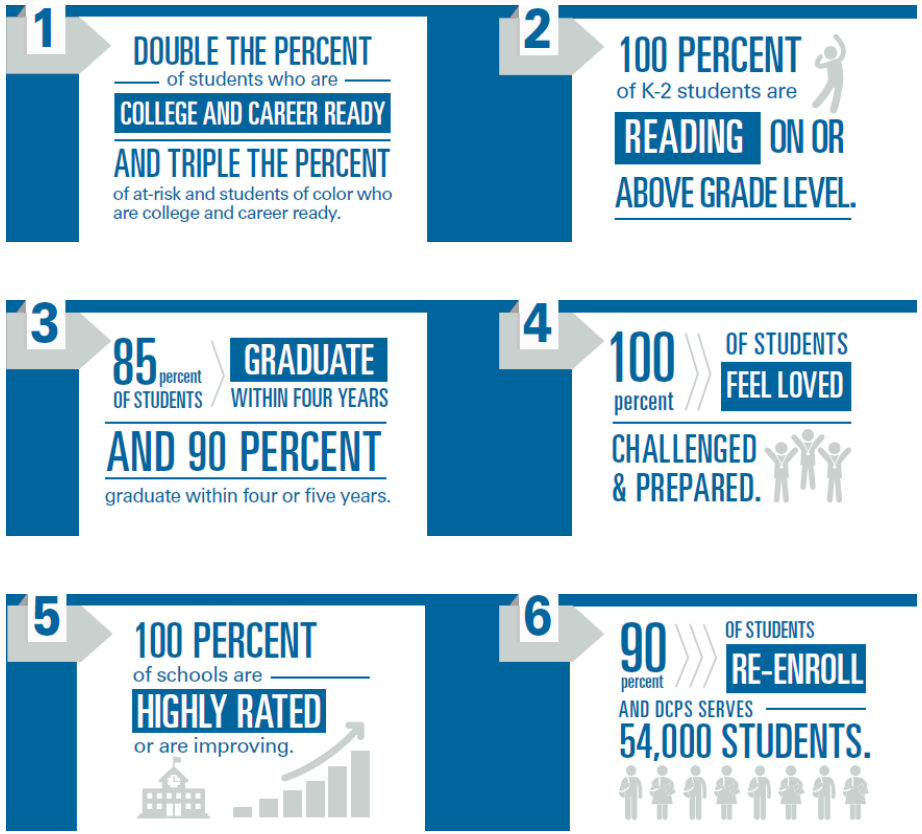
– Ward 7 ES teacher

Next Steps

This is an opportunity not just to address a deficit but to **position DCPS to lead in the future**

- A review of >70 research studies shows that technology, when used effectively and with teacher support, can raise **student achievement and engagement***
- Technology can enable teaching of coding and other **STEM** education skills, which in turn will open up STEM career choices to students
- A well-executed technology plan tied to instructional goals could give DCPS an **edge over other local education agencies (LEAs)**

DCPS Strategic Plan Goals



*Darling-Hammond, Zielezinski, Goldman, "Using Technology to Support At-Risk Students' Learning," Sept. 2014

Next Steps

We have an opportunity not just to “catch up” schools to a minimum baseline, but to implement a comprehensive technology strategy and plan that helps all students

Recommendations:

1. “Catch Up” Schools

- **Devices:** What can be done this school year to ensure all schools have reliable computers at a student-device ratio that supports curriculum and testing needs? [We think the ultimate goal should be 1:1 student-device ratio.]
- **Address Data Gaps:** What is the process and frequency for updating the DCPS school tech inventory to accurately reflect condition and usability?
- **Simplify Device Procurement:** How can we move toward more centralized purchasing or leasing to remove that burden from individual schools and to get better pricing for DCPS?
- **IT Support:** Should we reassess the current construct of using OCTO for tech support?

Next Steps

2. Develop a comprehensive technology strategy and plan that addresses the following:

- How does technology fit into the overall vision & goals for DCPS?
- What should be the model for technology procurement & refresh and how can we leverage partnerships with industry?
- How should these efforts be funded? We need a sustainable funding model to remove the burden from schools and provide stability.
- How do we support teachers to ensure they have the training to use technology to achieve stated goals?

Is there an existing DCPS tech plan that can serve as a starting point?

"DCPS should **create and make public a multi-year technology plan** to define and provide adequate technology to each school. The plan should included expected costs and planned funding sources."

– 2017 DC Auditor report

Next Steps

This is doable. Other school districts have implemented comprehensive tech plans.

	DC	Arlington County (Virginia)	DeKalb County (Georgia)	Orange County (Florida)
Number of Students	~49,000	~28,000	~102,000	~203,000
Percent Free or Reduced Price Lunch	71%	31%	72%	70%
Technology Plan with Vision and Goals	?	X	X	X
Gap Analysis of Current Situation	?	X	X	X
Stakeholder Engagement/Feedback	?	X	X	X
Professional Development For Teachers	?	X	X	X
Student-Device Ratio (Desired or Actual)	?	1-to-1	1-to-1	1-to-1
Dedicated Funding Stream	?	X	X	X

Next Steps

Headlines we'd like to see:

DCPS Brings 21st Century Learning to Classrooms

Mayor Announces Public-Private Partnership to Bring Technology to Schools

DC Leads the Way in Closing the Digital Divide

Homegrown DC Workforce Ready for Tech Jobs

Our coalition is open to continuing to working with DCPS on this issue by:

- **Providing feedback, perhaps through an advisory committee**
- **Helping to advocate for resources**

Back-up Slides

This section includes the following additional information:

Slide 18: Smartboards

Slide 19: Teachers on Technology Needs

Slide 20: Tech Snapshot of Cleveland Elementary

Slide 21: Tech Snapshot of Miner Elementary

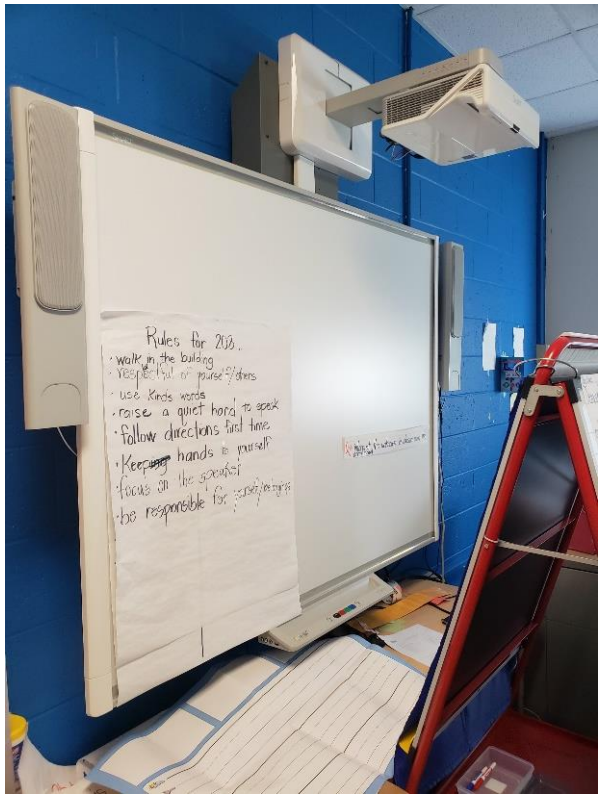
Slide 22: Tech Snapshot of Amidon-Bowen Elementary

Slide 23: Tech Snapshot of JO Wilson Elementary

Slide 24: Tech Snapshot of John Burroughs Elementary School

Smartboards

Similar to the situation with computers, schools are struggling to maintain Smartboards



- OCTO can only replace Smartboard bulbs if a school purchases and provides the part to OCTO
- Repair of a Smartboard is not straightforward and may require the services of DGS, OCTO, and/or the Smartboard vendor, depending on the problem
- Photo: 8 out of 21 Smartboards at this Ward 6 elementary school are fully functional. Since the Smartboard does not work, the teacher is using it as a regular whiteboard.

Teachers on Technology Needs

"I can already predict that there will be hassles with the current computers and their low battery life… Currently, **half the time during computer cart day is spent fixing problems** on the computers."

– Ward 5 ES Teacher

"Many of my students don't have technology at home and this resource can be one of the first times they get to use high level technology to help them understand mathematics"

– Ward 5 HS Teacher

"How can I prepare my students to be college and career ready if they are not computer literate?"

– Ward 4 ES Teacher

"We have access to amazing online intervention programs such as Lexis Core 5 and iReady that offer a variety of interactive interventions at each child's individual level … All of my students are performing below grade level and are in need of Chromebook laptops to utilize the intervention programs online."

– Ward 6 ES Teacher

"Having these devices will free me as a teacher to deliver targeted lessons to individuals or small groups …"

– Ward 8 ES Teacher

"My students are varying grade levels behind in their math skills…we use personalized learning programs through our laptops. **The problem is we do not have enough laptops for even half of the students to use them at the same time.**"

– Ward 6 ES Teacher

"My students need laptops in order to apply for college and complete projects via the Internet. **We do not have enough working computers or laptops to allow students to complete their school assignments."**

– Ward 7 HS Teacher

"[These laptops] give my students critical opportunities to practice typing out their math explanations, and using virtual math tools and manipulatives as they explore math concepts."

– Ward 6 ES Teacher

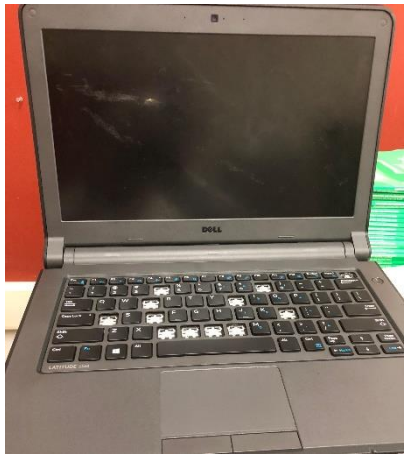
"Many of my students don't have access to technology at home, so completing required assignments on the computer is a challenge…Our Title One school currently has several laptop carts at its disposal however, many of our computers are outdated and unusable." – Ward 1 ES Teacher

Snapshot: Cleveland Elementary

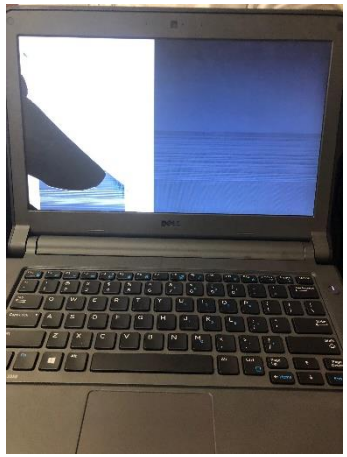
Of the 159 computers available for student use, only 99 are in working condition. Of the 60 that are damaged and not usable, the issues range from missing keys to broken or cracked screens.

The shortage of fully functional computers means it takes a long time to conduct online assessments for students (online testing stretches over several weeks) and only small groups of students can access online programs at any one time. This adversely affects our most vulnerable students who are below grade level or lack regular access to IT. Their lack of familiarity with computers places them at a disadvantage for end-of-year online testing.

This year, five teachers were assigned computers which are formatted for student use. It remains to be seen how well these computers will work for teacher use. Additionally, teachers spend on an annual basis $540 for software programs to support student learning.



Photos:
Laptops with missing keys and broken screens



Snapshot: Miner Elementary

Prior to the start of SY 2016-2017, DCPS removed 80 computers from Miner that were approximately a decade old. In return, central office provided 30 laptops for staff use, but the devices were configured for students instead of staff, which made staff utilization difficult. To mitigate the need for additional computers, a staff member acquired a small number of used computers.

A 2017 DC Auditor report quoted a central office staff member as stating "Miner student technology is in desperate need of an upgrade."

For Miner ES to refresh its student computer supply per DCPS guidelines (i.e., every four years and assuming a 3:1 student-device ratio), the school would need almost $17K per year, far more than what can be accommodated within existing budgets. This calculation excludes teacher laptops and classroom technology such as Smartboards.

350 students X 1/3 = 117 X $570/student device = $66,500 x 1/4 = $16,625 needed every year for laptop replacement

Snapshot: Amidon-Bowen Elementary

Students are expected to use i-Ready (online program) for 40 minutes per week to work on math skills but struggle to get enough time due to laptops that shut down frequently, fail to hold the battery charge, and/or have missing keys. The school IT lead (a teacher taking on additional duties) gets 1-3 repair requests per day from teachers. She writes down the complaints and leaves the laptops for the OCTO technician, who visits two afternoons a week. More than a dozen laptops were deemed unusable and scrapped last school year.

Prior to SY 2015-2016 Amidon-Bowen was able to get some used HP computers donated (from government surplus). However, in 2016 the school had to return 80 HP laptops because OCTO was no longer servicing HP computers and would only service computers from DCPS-approved vendors (e.g., Dell).

Photo:
Stack of broken laptops
ready to be trashed

Snapshot: JO Wilson Elementary

For the 2018-2019 school year, the technology teacher position is vacant. Therefore, computers were not distributed to the classrooms prior to the school year. It is unclear when that will happen.

The first priority is working computers for grades 3-5. Therefore, K-2 lose their computers to the upper grades. According to a preliminary count at the beginning of the 2018-2019 school year, more than a dozen computers are out of service with no schedule for their repair or replacement. The special education classrooms lack computers and other associated technology.

Currently all classrooms fail to meet a 4:1 ratio of computers in classrooms (when the computers aren't pulled for PARCC or other testing).

Early elementary grade teachers are required to introduce Lexia, iReady, but without computers for all students, that is impossible. Students' PARCC and other assessment scores are impacted because the barriers to using the tools supersedes the knowledge the kids have about the subject matter. They are graded not on their knowledge, but how well or quickly they can use a computer.

Teachers in the upper elementary grades are teaching basic computer literacy when they should be focused on the core curriculum subjects. Ten or fifteen minutes of basic computer literacy per class adds up to a lot of time not spent on core subjects.

Through a partnership with a local Daughters of the American Revolution chapter, the PTA got a donation of 39 two-year-old HP computers at the start of the 2018-2019 school year. These computers have not been inspected or integrated into classrooms. The two previous years, the PTA used money from the annual fundraising auction to purchase two laptop carts (24 laptops per cart) for the upper grades. These 87 "new" computers are more than what has been provided by DCPS in the last three school years.

Snapshot: John Burroughs Elementary School

The school recently received, via OCOO (Office of Chief Operating Officer), 1 new laptop cart with 25 student laptops and 20 new Dell desktops in the computer lab. Last school year Burroughs received a new laptop cart with 19 laptops, via OCOO to support PARCC testing, which the school was allowed to keep. Burroughs maintained a total of 31 laptops previously purchased 4 years ago, resulting in a total of 75 student laptops and 20 desktops. These 95 computers cover the student body of nearly 300 students. K-5th grade classrooms share these computers, with priority going to testing during March through May. Additionally, Burroughs has 53 iPads (21 minis and 32 Generation 3), of which the iPad minis are 2 years old and the rest 5-6 years old.

The computer lab schedule provides K-5th grade two 45-minute blocks for blended learning each week. The three laptop carts are also shared on a rotating schedule that provides K-5th grades one day each week with student laptops. For teacher use, the school purchased 21 new laptops, at a total cost of $20k out of its non-personnel budget. Out of 26 classrooms only 12 have working Smartboards. The other 14 classrooms are either totally without or only with non-working Smartboards.

There are ongoing technology issues (e.g., software updates, WIFI, hardware issues) that the school tries to troubleshoot on a daily basis. The school receives ticket-based IT support via OCTO for half days on Tuesdays and Fridays each week.

Due to its tight budget, the school must phase in technology purchases, as there is not enough to cover all needs in any one year. The school's Parent Teacher Organization has only ever raised at most $8,500 annually for its total operating budget since its founding in 2015 and cannot fund technology.