



1:1 Computing Programs

District Leadership Forum

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1) Executive Overview

Key Observations

Involve faculty, staff, and parents in the 1:1 implementation to increase stakeholder satisfaction and receive feedback. Districts can prevent difficulties during 1:1 program implementation by providing early training to faculty and parents before students receive their 1:1 devices. These trainings ensure that key stakeholders involved in the program possess basic knowledge of the device and program to assist students. Additionally, **District A**, **District B**, and **District F** solicit input on 1:1 program decisions from Technology Committees composed of parents, teachers, and staff to increase the transparency of the program and mitigate concerns from stakeholders. Technology committees at these districts also provide feedback on the 1:1 program to districts administrators.

Adjust technological infrastructure to meet demands of 1:1 programs. Contacts at profiled districts emphasize the importance of proper infrastructure (e.g., bandwidth, access points) to support 1:1 programs prior to implementation. At **District C** and **District H**, technological problems occurred during their implementation process that caused 1:1 devices to be unusable in classrooms for extended periods of time. To assess bandwidth needs before implementation, contacts at **District G** recommend the non-profit organization [Education Superhighway](#).

Divide technology department staff into supportive and instructional roles to meet the needs of 1:1 programs. Technology department staff at profiled districts possess two distinct responsibilities: provide technological support (e.g., routine device maintenance) and help teachers integrate technology into the curriculum. At some profiled districts, technology directors divide these responsibilities between technicians and technology integration coordinators. Technicians provide only technological support, which allows technology integration coordinators to focus on providing personalized instructional support to teachers.

Provide multiple professional development opportunities that allow teachers to guide their own development based on level of expertise and interests. All teachers at profiled districts require a basic level of technological expertise. However, district leaders should allow teachers who have mastered basic technological skills to explore their interests in technology integration to continue their professional development. Yet district leaders must also ensure that teachers with less technological understanding are not overwhelmed by advanced instruction. To meet all teachers' needs, profiled districts provide a variety of professional development opportunities (e.g., summer sessions, after school classes, online modules) on different topics. These topics require varying levels of existing expertise to comprehend. Teachers choose to participate in opportunities that align with their interests and technological proficiency.

2) Implementation

Overview

1:1 Programs Prepare Students for Online Tests, Increase Technological Literacy, and Support Pedagogical Initiatives

Three profiled school districts, **District A**, **District C**, and **District E**, all began 1:1 initiatives partially because their states began to administer tests online.

In addition to online tests, contacts at profiled districts cite pedagogical initiatives as one reason to implement 1:1 programs. District administrators at District E continue to encourage schools to implement 1:1 programs to support their personalized learning pedagogy, despite Tennessee scaling back their implementation of online tests. At **District F**, administrators implemented their 1:1 program to allow students to collaborate and learn 24 hours a day.

Contacts across all profiled school districts also noted the importance of technological literacy for students. 1:1 programs allow students to learn in the same technologically saturated environment as college students and much of the workforce.

All Profiled Districts Except for *District E* Implemented 1:1 Programs District-Wide

At all profiled school districts except for **District E**, district administrators made the decision to implement a 1:1 program. However, at District E, the largest district profiled in this research, school administrators made the decisions to implement 1:1 programs at their campuses with encouragement from district administrators.

In 2011, District E added a regional STEM school which implemented a 1:1 program. The program positively impacted student learning, so district administrators invited other schools in the district to bid for internal grants to implement 1:1 programs for the 2012-2013 school year. A panel of district administrators reviewed proposals and in-person presentations from interested schools. Based on these proposals and presentations, the panel selected 11 schools to implement 1:1 programs.

After the 2012-2013 school year, district administrators at District E did not provide internal funding for 1:1 programs but continued to encourage interested schools to launch 1:1 programs. Interested schools obtained funding necessary for their programs either from Title 1, school-level fundraising initiatives, or partnerships with foundations. Additionally, a few newly established schools included 1:1 program funding in their budgets. Currently, about one-third of the 92 schools in District E operate 1:1 programs.

Device Selection

Most Profiled Districts Use Chromebooks as Their 1:1 Device

Districts researched for this project use the following devices for their 1:1 programs: Chromebooks, iPads, Windows Laptops, MacBooks and Tablets (non-Apple). At all profiled districts except for **District E** district administrators select devices for all schools in the district. At District E, school administrators choose devices when they implement a 1:1 program at their campus.

Chromebooks are the most popular device among profiled 1:1 programs. Of the eight districts profiled in this research, six administer chromebooks as a 1:1 device for at

least some students. Among profiled districts that use more than one device, middle school and high school students use Chromebooks or MacBooks while the youngest students (i.e., pre-Kindergarten into elementary school) use either an iPad or touchscreen Chromebook.

Device Choice by Profiled District and Grade Level

One Device Type

Chromebooks



District D: Grades 6-12
District G: Grades 6-12
District H: Grades 6-12

iPads



District B: Grades 6-12

Windows 2-in-1



District F: Grades 6-12

Multiple Device Types

Chromebooks + iPads



District C:
 iPads used for Pre-K & K students
 Chromebooks used for grades 1-12

Chromebooks + Touchscreen Chromebooks



District A:
 Touchscreen Chromebooks used for grades 1 & 2
 Chromebooks used for grades 3-12

Chromebooks + MacBooks + iPads



District E:
 iPads and Chromebooks used for Elementary Schools
 MacBooks and Chromebooks used for Middle and High Schools

All profiled school districts except **District C** and **District E** refresh their devices every three to four years. District C does not currently maintain a refresh policy, while individual schools in District E determine their own refresh cycle. **District B**, **District F**, and **District G** refresh student devices in sixth grade and then again in ninth grade. Students at these districts use the same device throughout middle school, and then receive a new device to use throughout high school.

Profiled districts that implemented a district-wide 1:1 program gradually introduced program devices to older students (i.e., middle or high school students) before expanding the 1:1 program to younger students. Five profiled districts only implement 1:1 programs for middle and high school students, though they may use retired devices in elementary schools to increase the level of technology available to these students.

Consider How Device Options Support 1:1 Program Goals to Determine the Best Device for Your District or School

Chromebooks proved to be the most popular with district administrators due to their comparatively lower price, their keyboard, and the accessibility of the Google Apps Suite on the devices. However, contacts across all profiled districts report both advantages and drawbacks to their device choice. Contacts add that district leadership chose 1:1 devices according to the specific goals they articulated for their 1:1 program and their budget requirements. For example, the administration at **District F** wanted their 1:1 program to provide students 24-hour access to information and collaboration.

Further, administrators wanted to ensure that the 1:1 program prepared students for a digital world post-graduation. Thus, District F selected Windows Laptops as their 1:1 device because Windows provided access to the greatest variety of resources and their laptops are the most similar to devices used in the workforce and academia.



Invite School Administrators to Test Potential Devices to Assess How Well They Meet Program Needs

At **District E**, district-level Educational Technology staff invited school administrators to test potential 1:1 devices for their school. The district assembled multiple device types and asked administrators to perform a series of tasks on the devices. These tasks included creating a word documents, sending an email, opening a web browser, locating a file, and opening an application. School administrators then used a rubric to score the devices based on how functional they were for adults. School administrators also scored the devices based on how they thought students would perceive the device.

Device Advantages and Disadvantages

Chromebooks



Advantages:

- Lower initial cost
- More durable than iPads
- Google designed apps and systems specifically for educational purposes
- Access to Google Education Apps (i.e., G-Suite)
- High user accessibility (including well-designed admin panel)

Disadvantages:

- Google pushes out live updates frequently, interrupting service
- Not compatible with Windows applications
- Lack the processing power of a Windows laptop or MacBook

iPads



Advantages:

- Touchscreen capabilities
- Greater mobility
- Greater creative flexibility on a tablet than a laptop computer

Disadvantages:

- Higher cost than Chromebooks
- Compatibility issues because of Apple IOS
- Apps update frequently, creates compatibility problems with older devices
- Lack of keyboard
- Apple is not as user-friendly for teachers and administrators as Google

Windows Laptops



Advantages:

- More processing power than Chromebooks
- Greater similarity to devices students will use in college and the workforce
- Not as confined to Google-supported programs and applications as Chromebooks
- Laptops support specialty programs (e.g., Photoshop) that are not supported by Chromebooks or Apple

Disadvantages:

- Higher initial cost
- May not be as compatible with Google Apps and programs

MacBooks



Advantages:

- More processing power than Chromebooks
- Greater similarity to devices students will use in college and the workforce
- Not as confined to Google-supported programs and applications as Chromebooks

Disadvantages:

- Higher initial cost
- May not be as compatible with Google Apps and programs
- Apple is not as user-friendly for teachers and administrators as Google

“Bring Your Own Device” Programs Allow Flexibility for Parents, But Create Logistical Problems for Districts

In addition to providing devices for students, **District B**, **District F**, and **District H** all allow students to use their personal computers or tablets as part of Bring Your Own Device (BYOD) programs. Students may use their personal devices at school (instead of school-provided devices) if the devices meet requirements that ensure they are compatible with the district’s technology and curriculum. While BYOD programs appeal to some families, only a small percentage of students at profiled districts bring their own devices. Contacts at District B estimate that about 100 students bring their own devices, and contacts at District H estimate that 25-30 students across the district bring their own devices.

District A, **District C**, **District D**, and **District G** do not allow students to bring their own devices to school. Contacts at these districts cite problems with device compatibility as the predominant reason why they do not allow students to bring their own devices. Additionally, contacts at District G report that the district prefers to own all devices students use at school to manage them (e.g., filter content, inspect or monitor devices if there is evidence of bullying or inappropriate behavior).

Reasons Why Parents Elect for Students to Bring their Own Device

Already own a device and don’t want to pay program cost/fees

Concern about student’s ability to care for a school-owned device



Concern about the district’s ability to monitor the device

Preference for a different model of device

Pilot Programs

Contacts at both **District A** and **District C** cite online state assessments as one reason why they chose to implement a 1:1 program. These districts chose classes in which students took one of the new online state tests to participate in their pilot program.

Use Pilot Programs to Assess Devices, Identify Potential Problems with Implementation, and Increase Buy-In

All profiled school districts except **District B** and **District E** tested aspects of their 1:1 initiatives through pilot programs. Pilot programs varied in length at profiled districts from one semester at **District H** to one year at **District C**.

Both **District D** and **District G** used pilot programs to test different types of devices for their 1:1 program. These pilot programs assessed the compatibility of devices with classroom instruction and the district’s technological infrastructure and systems. At District D and District G, principals and technology integration coordinators selected teachers to participate in the pilot program. Administrators also asked for volunteers to find teachers to participate in the pilot programs. Similarly, administrators at District C and **District A** asked teachers to volunteer to participate in their pilot programs. Pilot programs at these districts occurred after the device selection process and focused on ensuring the chosen devices would integrate well into the classroom. The success of these pilot programs and the enthusiasm of teachers participating in them increased buy-in among teachers for the full implementation of the program. They also allowed technology specialists to troubleshoot potential problems that might affect the implementation of the full 1:1 program.

Infrastructure Needs

The Federal Communications Commission's E-Rate program funds infrastructure improvements. The E-Rate program's process also ensures districts receive the best value on their infrastructure purchases.

Assess and Improve Technological Infrastructure to Avoid Problems During Implementation

Contacts at all profiled districts stress the importance of up-to-date technological infrastructure to support 1:1 programs before staff begin implementation of the 1:1 program. At **District F**, the technology department completely updated their network eight months prior to implementation. **District A** hired a firm to evaluate their schools' current technological infrastructure. The firm recommended District A overhaul their technological infrastructure at each school in the district.

The technology staff at **District C** attempted to estimate their infrastructure needs for the 1:1 program internally; these estimates were not correct and created serious problems with implementation, which negatively impacted initial satisfaction with the 1:1 program. Contacts at District C recommend technology staff ensure that a district's technological infrastructure can adequately support the 1:1 program before implementation.

Contacts at several districts offered specific recommendations to mitigate problems with implementation and address technology infrastructure needs.

Tips to Avoid Technological Infrastructure Problems



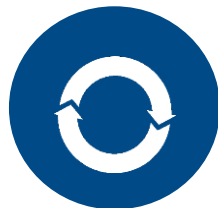
Adjust the Firewall to Prevent Blockages

Contacts at **District H** advise districts to check the address tables on their firewall to ensure there is no limit on the number of sessions that can run at one time. Initially, technicians at District H did not expand these address tables. Thus, at times of peak use, some users could not access the internet. District H's service provider did not anticipate this problem either, and it caused problems for nearly a month before the district identified and corrected the problem. Contacts recommend districts consider the raw number of sessions a firewall will need to support at maximum usage, and not just at a static load.



Consider Using an Outside Consultant to Estimate Bandwidth Needs

Contacts at **District G** recommend the non-profit organization [Education Superhighway](#) to help estimate bandwidth needs. The organization offers free tools and technical assistance to districts seeking to upgrade their networks. They also help districts find the best rates for broadband coverage.



Consistently Evaluate Infrastructure Needs to Prevent Future Problems

The technology departments at all profiled districts consistently evaluate their usage data to ensure they maintain adequate technological support. Contacts at **District F** report that whenever they surpass 40 percent of their bandwidth usage they increase bandwidth limits to avoid future bottlenecks.

3) Program Operation and Administration

Staffing

Hire Staff with Instructional and Technical Skills to Meet the Needs of a 1:1 Program

At most profiled districts, the Technology Director oversees the 1:1 program or shares those responsibilities with a Director of Instruction. Regardless, staff within the technology department handle the day-to-day operations of the program at all profiled districts except **District E**. Technology staff at profiled districts maintain two responsibilities: technology integration and IT assistance. At smaller profiled districts, all technology staff may combine and share these responsibilities, while at larger profiled districts technology directors separate staff into technicians (who address technical problems) and technology integration coordinators (who help teachers use technology in their instruction). Contacts at all profiled districts report that they do not employ technology staff that focus solely on the 1:1 program. Rather, technology department staff support all technology infrastructure in the district.

All profiled school districts except for **District B** added additional staff to meet the demands of their 1:1 program. However, contacts at **District A**, **District D**, and **District H** note that their 1:1 program did not significantly increase the number of staff in their technology departments. 1:1 programs allow technology department staff to eliminate older Windows machines in school computer labs because students now have their own computers. Since older windows machines require much more maintenance than new Chromebooks, technology directors can replace unnecessary technicians with technology integration coordinators. At District A, District D, and District H, the technology department laid off unnecessary technicians and hired additional technology integration coordinators to meet the needs of the new 1:1 program. Therefore, while the implementation of the 1:1 program in these districts resulted in staffing changes, it did not result in a dramatic increase in overall technology staff numbers.

Most oversight of the 1:1 programs at **District E** occur at the school level, rather than at the district level. At District E, the district-level Director of Educational Technology maintains responsibility for encouraging 1:1 initiatives within schools across the district. The eight district-level staff that report to the Director help interested schools plan their 1:1 program implementation, and assess the program on a yearly basis. However, technology integration coordinators hired by schools in the district maintain responsibility for the day-to-day operations of the 1:1 program. For technological problems or damaged devices, 1:1 schools either hire a permanent technician, or work with the district-level Information Technology department.



Train Student Technicians to Address Basic Technical Problems with 1:1 Devices

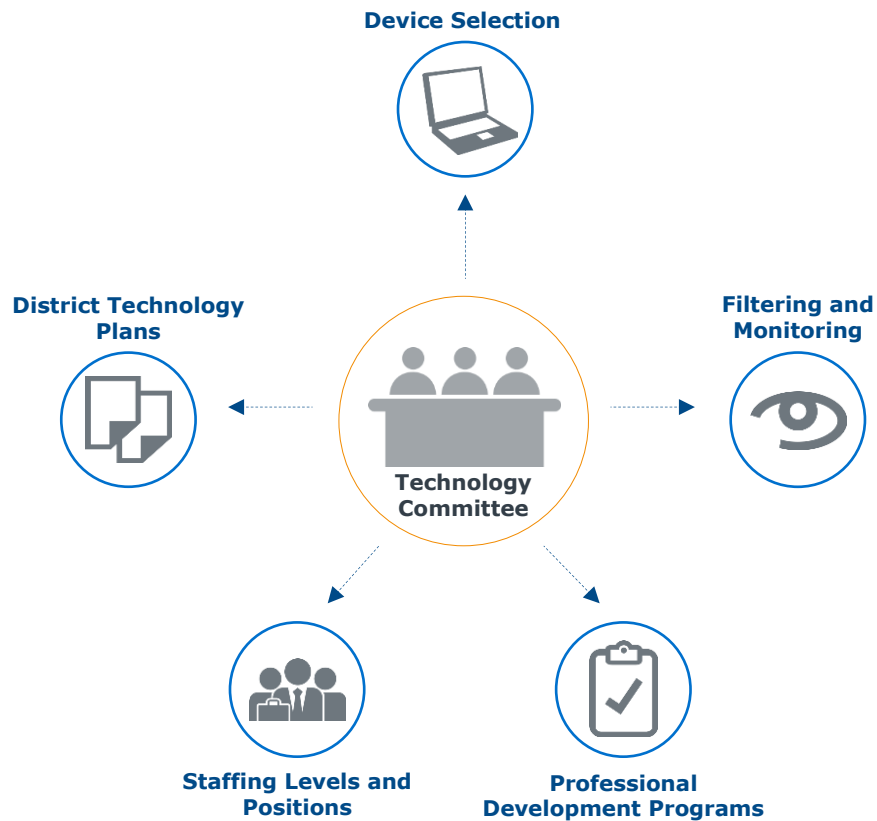
To help address basic technical problems, **District F** created a help desk at the high school staffed by student interns. Technicians in the technology department train the interns to troubleshoot basic technological problems. These interns serve as the first point of contact for simple technological problems. The interns receive school credit for their work at the help desk, as well as practical work experience. Further, the help desk provides technicians with increased time to focus on more complex technological problems.

Organize Technology Committees to Increase Buy-In for 1:1 Programs and Transparency Around Decisions

Administrators at **District A**, **District B**, and **District F** seek input from a Technology Advisory Committee on administrative decisions for their 1:1 program. The committee at District A is comprised of teachers, administrators, community members, and parents. At District B, the committee currently includes teachers, specialists, and administrators, but will in the future also include parents and community members. District F maintains a committee composed of 15 teachers.

These committees offer recommendations about their districts' 1:1 programs to the school board. However, the committees do not set policies for the program. Contacts at District A state that the committee often possesses a broad understanding of what has worked well with the program and where to improve. District administrators that follow committee recommendations may increase satisfaction with the 1:1 program among faculty, staff, parents, and community members, because each constituency is represented on the committee.

Areas Where Technology Advisory Committees Provide Recommendations



Policies for Device Use

At all profiled school districts, students in some grades are allowed to take their 1:1 devices home with them. All elementary school students and sometimes sixth and seventh grade students may be asked to leave their devices at school overnight to mitigate damage to the devices.

Allow Students to Personalize 1:1 Devices to Mitigate Damage to Devices

At **District F**, the Technology Committee recommended that the district encourage students to decorate their devices. While many districts profiled or researched for this report maintain policies to restrict students from decorating their devices because they do not want damage to the devices, contacts at District F find that a sense of ownership mitigates damage. Staff foster students' sense of ownership over the devices by allowing them to personalize their wall paper, decorate the outside of their device, and embellish their laptop bags and carrying cases. At District F, only 10 to 15 computers a year experience significant damage. Conversely, contacts at **District H** and **District B** report very high rates of willful (i.e., not accidental) damage to their 1:1 program devices. Contacts at District F note that their school culture may impact the low rate of damage to devices; however, they credit their policy that allows students to personalize the devices with their success in mitigating damage to devices.

Hold Mandatory Information Sessions to Ensure Parents Receive Consistent and Clear Information About Devices

Clear communication with parents is essential for the smooth implementation of 1:1 programs. At **District A**, parents must attend a training and information session before staff will issue their students a Chromebook. Parents can attend one of five sessions held during the summer. Parents may also come to school at any time to speak with a technology resource teacher and watch a prepared version of the presentation delivered at summer sessions. For parents with disabilities (or who are otherwise unable to come to the school in person) technology resource teachers provide training over the phone. The technology resource teachers document all parent participation in the trainings in the district student information system. The district only requires parents to complete the training once, regardless of how many children they have in the school district.

The trainings allow staff to allay parent concerns with the 1:1 program and answer frequently asked questions.

Elements of the 1:1 Program Covered in Parent Trainings at *District A*



- **Rationale for the 1:1 program**
- **Features of the Chromebook**
- **Privacy and internet use at home**
- **School email accounts**

Implement a Filtering System on 1:1 Devices to Comply with Regulations and Prevent Distractions

All profiled districts install some form of content filtering system on their 1:1 devices, and contacts at **District G** note that filtering is a legal requirement for school districts using the federal E-Rate program. Most districts use a passive filtering system, which blocks certain sites and content without the need for human review.

At most profiled school districts, the technology department, the school board, and school administrators share the task of determining what websites to filter. Contacts at **District A** suggest that staff permit multiple individuals within each building to add or subtract sites from the list of filtered content. This allows teachers to more efficiently access filtered sites and content they need, as well as more quickly stop potential distractions.

At **District E**, the district’s Information Technology Department maintains the filter systems. However, the district’s Educational Technology Department maintains responsibility for informing parents that the filters do not apply off the school internet.

Filtering and Monitoring Policies at Profiled School Districts

District A **District G:**

Same Filters at School and at Home

Both **District A** and **District G** use the same filtering system for devices at school and at home.

Specifically, at District G a VPN allows the district to filter content when students are at home and not on the school’s network.

District B **District E:**

Filters Only at School, No Filters at Home

The IT staff at **District B** and **District E** do not possess the resources to filter the devices when they are off the school’s network.

- District B requires parents to acknowledge that they are responsible for monitoring and filtering content when students are at home.
- Educational Technology staff at District E provide parent education focused on internet safety to address the lack of filtering at home.

District H:

Different Filters at School and at Home

District H’s system filters content both when the device is at home and at school. However, the technology staff establish stricter limits on what is filtered during school hours and on school grounds.

- At school the district filters Netflix, gaming sites, and other potential distractions.
- At home, the filter only blocks the most egregious sites (e.g., adult websites).

Consider Monitoring Student Activity Online to Prevent Bullying and Address Concerning Behavior

In addition to filtering, some profiled districts actively monitor communications and content on student devices. At **District A**, the technology department maintains a list of 700 words and phrases related to bullying and inappropriate topics. The filtering system automatically tags student messages or posts containing these words and phrases for administrators to review, and places the most urgent at the top of the queue. If an administrator sees content that should be elevated to someone higher in the district (e.g., a social media post about a potential assault), the monitoring system can suggest the appropriate person at the district to alert. Contacts at District A report that this system allows administrators to quickly address problems and has been extremely well-received by parents.



Use Caution When Monitoring Students to Avoid Legal Problems

District H does not monitor content on devices when a student is not on school property. Contacts at District H refer to white papers released by the American Civil Liberties Union (ACLU) of Rhode Island on student privacy and student freedoms online. Extreme forms of monitoring can create legal problems for school districts. The ACLU of Pennsylvania sued Lower Merion School District to for violating student privacy. The district lost their case and had to pay large settlements to students whose privacy they violated. When establishing a 1:1 program, districts should consult their local laws and implement transparent policies for monitoring and filtering content to avoid legal pitfalls.

Insurance, Warranties, and Damage Policies

Some states maintain laws preventing self-insurance policies. District staff should consult the law in their state before creating a policy.

To Recoup Repair Costs Associated with Damage to Devices, Offer Insurance Policies to Families

District B and **District H** request parents purchase insurance from the district to partially cover the costs of lost or damaged devices. District B charges a 35 dollar insurance fee and a 100 dollar deductible for repairs. While the technology department at District H has not fully implemented their insurance program yet, their insurance policy will cover a first repair and reduce the cost of a second repair. At both District H and District B, if a student declines to purchase the school’s insurance for their device, then they must pay the full amount for all repairs or replacement. Contacts at District B report that their insurance policy provides the district with the funds to repair and refresh devices without creating a significant financial burden for families in their district.

Contacts at District H recommend outsourcing the creation of self-insurance system. District H’s technology department is currently developing their own system internally but has experienced numerous delays and problems that prevented them from properly collecting payments for damaged devices.

While **District A** does not provide insurance, parents do pay warranty costs for their students’ Chromebooks. Parents pay the school three installments of 12 dollars across the three-year life span of the device.



District D and District G Pay for All Device Repairs and Replacement Costs to Ensure Equity

District D and **District G** do not charge families and students for device repair or replacement. At both districts, the technology department purchases some insurance to cover costs of replacement and repairs. District D uses less-restricted district management funds to pay for this insurance. Contacts at District D note that the insurance allows all students to participate in the 1:1 program because there is no financial obstacle.

Cost Sharing Covers Damages and Increases a Sense of Student Ownership of the Device

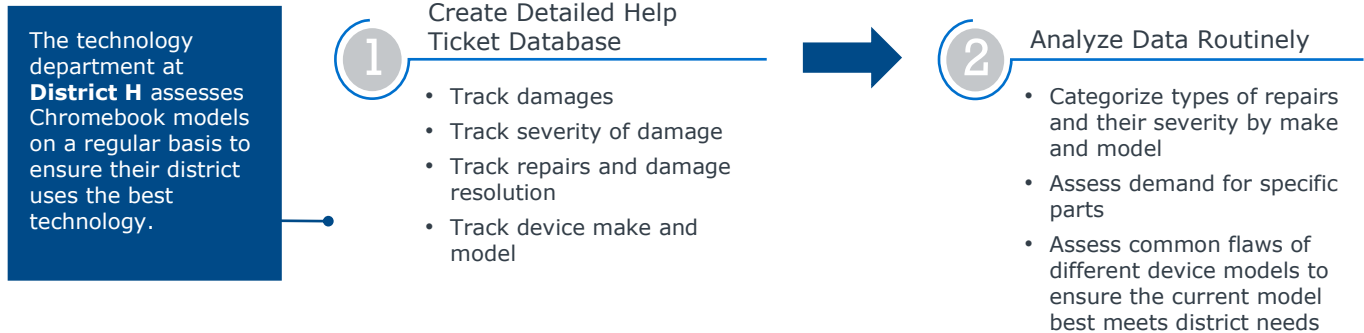
District F administrators use a cost-sharing method to provide funds for the repair and replacement of their devices. Student pay a yearly fee to cover the cost of their laptops. At the end of their four years of high school, students may purchase their laptop with another small payment. This cost sharing provides the school district with funds to repair the laptops. Further, the opportunity to purchases the device upon graduation increases the likelihood students will take care of their device.

Additionally, cost sharing increases students' sense of ownership over the devices, which makes them more cautious and respectful of the devices. Contacts at District F attribute their low damage rates to the strong sense of ownership created by cost sharing and device personalization. This cost-sharing program also provides low income students with low-cost laptops that they can use for college or professional life.

Track Damages to Evaluate Device Choice and Maintain Necessary Repair Materials

The technology department at **District H** tracks damages and repairs to each of their devices through a help ticket database. This data they collect through the help ticket databases allows technicians to assess the durability of their current model of Chromebook and alerts them to potential problems with other models. For example, if the hinges on one model of Chromebook always break, the technicians test other models of Chromebook to see if their hinges are stronger, or if these devices also use weak hinges.

Tracking Device Damages at *District H*



4) Professional Development

Device Training

Train Teachers Before 1:1 Program Implementation to Prepare Them to Use the Devices

Contacts at **District A**, **District B**, **District G**, and **District H** emphasize the importance of beginning professional development for teachers at least several months prior to the implementation of a 1:1 program to prepare teachers to use the devices. In District G, the technology department began offering optional professional development related to the 1:1 program several years before they implemented their 1:1 program. This professional development allowed interested teachers to develop their ability to integrate technology into the classroom before the introduction of the 1:1 program device. Many of these early adopters then became models of the device use for other teachers.

While most profiled districts emphasize the importance of early training, the technology department at **District D** did not offer intensive training before they implemented the district's 1:1 program. Contacts at District D report that their technology department considered the training more effective after teachers gained experience with how to integrate the devices into the classroom. Most of the districts who implemented early training already owned carts of the device for their program, which allowed teachers to use the devices in the classroom while they prepared for the 1:1 program implementation.

Focus Initial Training on Core Competencies to Prepare Less Technology Savvy Teachers for Device Adoption

Apart from providing early professional development to interested teachers, **District B** and **District F** offered initial trainings with basic information about how to use the device and its associated technology prior to implementing the 1:1 program. At District F, teachers who demonstrate these basic competencies can pursue more in-depth professional development related to use of technology in the classroom. However, district leaders require all teachers to establish a basic level of technological knowledge to use the 1:1 devices properly in the classroom.

Sample Core Technology Competencies



Posting syllabi and homework assignments on an LMS



Using Google Apps, such as Google Drive



Leading online discussions



Basic troubleshooting for common problems

Ongoing Professional Development

Allow Teachers to Guide their Professional Development to Address Varying Interests and Levels of Expertise

Administrators at **District A**, **District D**, **District F**, and **District G** allow teachers to guide their own professional development as they progress beyond the core

technological competencies, rather than requiring all teachers to attend specific lessons. This system allows more advanced teachers to pursue their interests while simultaneously providing support to teachers who may need more help.

Methods of Professional Development Delivery at Profiled Districts

District A

Year-Round Trainings

The Technology and Teaching and Learning Departments offer 20 sessions of professional development at each school throughout the year. Teachers choose 12 of these to attend.

Teachers also submit and receive feedback from their administrators on three lesson plans per six-week grading period. These lesson plans must use the 1:1 technology.

District D

Professional Development Day

The Technology Department holds 20 to 25 sessions during a full professional development day. Teachers choose which sessions to attend.

Sessions include basic instruction about how to use technologies, as well as more in-depth sessions on subjects such as techniques for personalizing instruction using 1:1 devices.

District G

Badges and Incentives

The Technology Department does not require trainings but allows teachers to earn badges and certificates based on specific areas of expertise.

Administrators offered online modules that teachers needed to complete to earn a Chromebook from the district. If they chose not to complete the modules, they could still use older computers for instruction.

District F

Professional Learning Plan

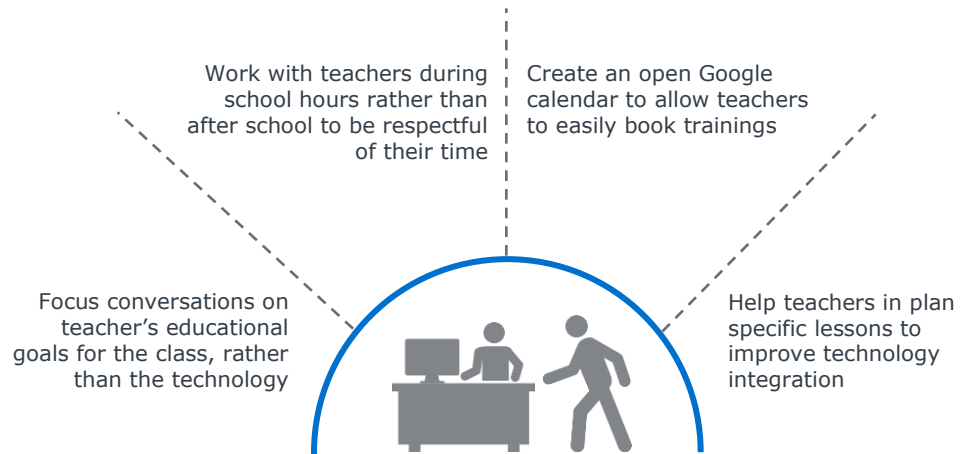
Individual teachers develop professional learning plans based on their own interests. Principals and superintendents must approve the plans.

The district offers a variety of trainings. They offer face-to-face and online trainings and assistance with self-guided topic exploration.

Provide Personalized Support to Teachers to Encourage Full Use of 1:1 Technology in the Classroom

Technology integration coordinators at **District A, District C, District D, District F, District G, and District H** provide teachers with personalized support. At these districts, coordinators provide individual or small-group trainings during planning periods or after school. Coordinators also co-teach lessons with classroom teachers during the school day to provide additional support. Teachers or schools can request the aid of the technology integration coordinator, or the coordinator can proactively offer their support.

Tips for Technology Integration Coordinators Providing Personalized Support



Use Early Adopters and Existing Device Experts to Enhance Professional Development for Other Teachers

Early adopters and teachers with existing expertise can assist district technology staff with other teachers' professional development. After their initial pilot program ended, **District C** promoted the teacher who demonstrated the most expertise and interest in the 1:1 program to the role of Technology Integration Facilitator. The Facilitator teaches two graduate courses on 1:1 device integration and teaching applications through the local teachers' union. Teachers enrolled in these courses create products based on their lessons and share them with the rest of the class. These teachers can use these resources and templates in their own classrooms. Contacts at **District D** note that Iowa's Teacher Leadership Program allows the district to use existing teacher expertise to improve professional development for their 1:1 program. This program gives teachers release time equivalent to half a school day to conduct professional development workshops for other teachers.

All profiled districts note that enthusiastic teachers provide additional professional development support to their peers. The technology integration coordinators at **District G** work to highlight and champion these existing device experts by profiling them in the district's regular newsletter. These profiles highlight teachers who create innovative ways to use technology in the classroom or develop expertise in a new application or process. Contacts report that teachers who may have been intimidated by technology integration coordinators' expertise respond well to these newsletter profiles. By highlighting peer success, the Technology Integration Coordinators increase buy-in for the 1:1 program among teachers and encourage them to pursue more advanced professional development.

External Consultants

Consider Using External Consultants Familiar with the 1:1 Device to Enhance Initial Trainings

District B and **District C** used external consultants as part of early professional development. Contacts at both districts report that teachers appreciated the professional development and that the external consultants delivered useful information specific to their devices and educational applications. However, both districts used these external consultants only for the initial 1:1 program training.

District C uses Chromebooks as their 1:1 device and invited Google to their district to provide initial training on the G Suite for Education (formerly called Google Apps for Education). Contacts at District C report that the professional development day with Google trainers (called a "Googlepalooza") was a success to begin the program. However the technology integration coordinators have since provided internal trainings instead. Internally-developed trainings are cheaper and build upon the foundation established by Google.

Consider Using Vendor-Provided Trainers for Existing Experts to Minimize Unnecessary or Unhelpful Professional Development

Many technology vendors provide training sessions to districts who purchase their products. Contacts at **District D** report that while vendor trainers possess helpful information about how the products can assist teachers in a 1:1 program, the vendor trainers may not deliver the information in an engaging or helpful manner. To improve their professional development and glean the most helpful information from vendor trainers, District D adopted a "train the trainers" model, where vendor trainers instruct only the teachers with existing expertise in using technology and integrating it into the class rooms. These expert teachers then instruct other teachers. Contacts report that these expert teachers can disseminate information from the vendors to their peers with more skill. This method of delivery improves reception and effectiveness of professional development. It also ensures that teachers who may be more skeptical about the 1:1 program do not attend potentially unproductive or uninteresting trainings.

5) Research Methodology

Project Challenge

Leadership at a member school district approached the Forum with the following questions:

- What did contact districts prioritize when selecting a device?
- Did contact districts create pilot programs to test and gather feedback on multiple devices?
- What advantages and disadvantages do contact districts find with their device choice?
- Who oversees 1:1 initiatives within contact districts, at the school level and the district level?
- How many technology staff support 1:1 initiatives at contact districts?
- How many instructional staff support 1:1 initiatives at contact districts?
- What unforeseen staffing needs did contact districts need to address after implementation?
- How do contact districts cover costs associated with lost or damaged devices?
- How do contact districts estimate infrastructure needs?
- What initial professional development opportunities do contact districts provide for teachers?
- What ongoing professional development opportunities do contact districts provide for teachers?
- Did contact districts partner with outside consultants to deliver professional development?
- How do contact districts use existing teacher expertise to bolster professional development for other teachers?

Project Sources

The Forum consulted the following sources for this report:

- EAB's internal and online research libraries (eab.com)
- National Center for Education Statistics (NCES) (<http://nces.ed.gov/>)

Research Parameters

The Forum interviewed technology and education directors at school districts that operate 1:1 programs and serve between 2,000 and 65,000 students.

A Guide to Districts Profiled in this Brief

School District	Location	Approximate Number of Students
District A	Mid-Atlantic	2,500
District B	Pacific West	4,500
District C	Northeast	2,500
District D	Midwest	14,000
District E	South	60,500
District F	Mid-Atlantic	3,500
District G	Mid-Atlantic	5,500
District H	Northeast	9,000