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BEYOND THE BUZZ

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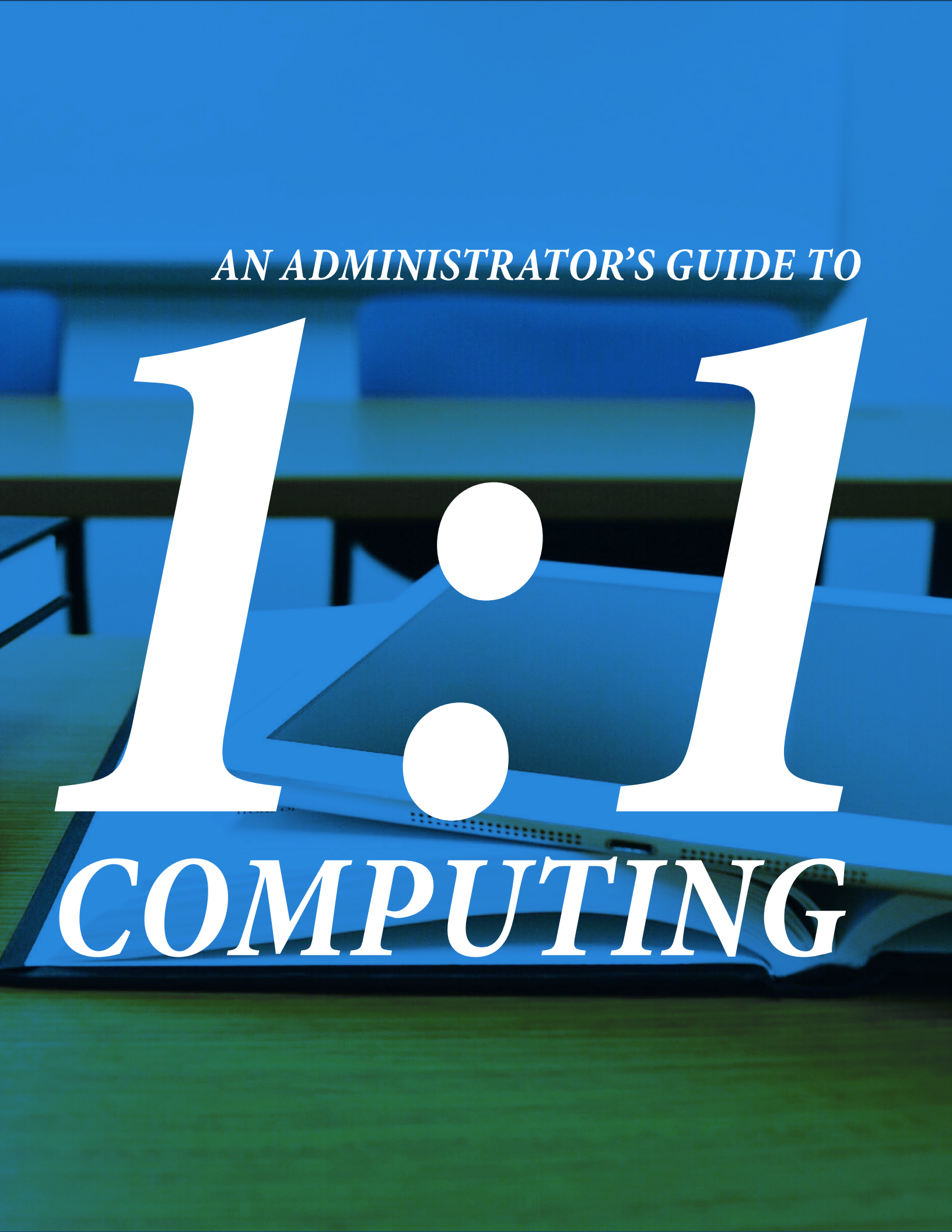
An Administrator's Guide to One-to-One Computing



AN ADMINISTRATOR'S GUIDE TO 1:1 COMPUTING

EXECUTIVE SUMMARY

This latest edition of Beyond the Buzz has been developed to provide district administrators with a collection of best practices, discussion topics, and considerations for implementing a one-to-one (1:1) technology program. We have organized the content around five main themes:

Integration and Training
Management Logistics
Policy Considerations
Stakeholder Involvement and Rollout Strategies
Infrastructure, Replacement, and Funding

This document is the result of a collaborative exchange of ideas among CNYRIC staff and district technology administrators, many of whom have been on the front lines of administering a 1:1 program. We also reviewed the latest research in the field, taking insights from early adopters and other practicing professionals. As with prior editions, our intent is to provide a high-level overview that stimulates discussions, leads to more informed decision making, and improves outcomes for districts.

INTEGRATION AND TRAINING

It's easy to buy devices, hand them to students, and hope for the best. Unfortunately, the most important ingredients in the recipe for 1:1 success -- integration strategies and training -- are often the most neglected. For starters, developing a plan for technology that is an integral component of a district's larger strategic plan is essential. Too many times, districts develop a technology plan that is completely isolated from the ongoing work around curricular standards and professional development. Embedding technology into these efforts helps keep technology front and center with student learning. It also helps building leaders create a culture that embraces innovative learning practices.

QUESTION

Are your integration strategies embedded within your district goals?

Districts can connect 1:1 technology to the instructional plan by infusing technology standards such as those established by the International Society for Technology in Education (ISTE), and/or by adopting paradigms such as the Substitution Augmentation Modification Redefinition (SAMR) model. SAMR provides a continuum that helps educators identify levels of student engagement by analyzing how activities impact teaching and learning. The ISTE standards provide benchmarks for student and teacher literacy. It should be said, however, that being too heavy handed with technology standards can bog down the change process and frustrate teachers to the point of withdrawal. We are fortunate to be in an age where computers and software no longer need to be clunky and burdensome. Today, they can be transparent tools in the learning process. As such, while having a 1:1 integration plan is important, it should seamlessly support the efforts of teachers, not serve as yet another *thing* that has to be done.

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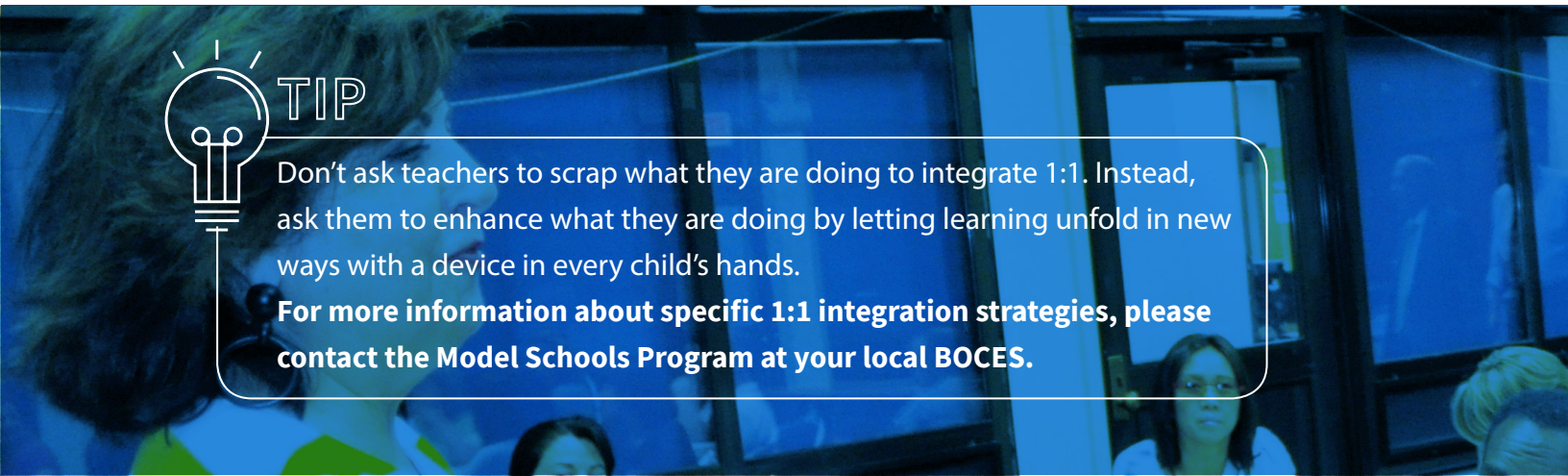
For more info about the SAMR model, visit: www.schrockguide.net/samr.html
To view the ISTE Standards, visit: www. ISTE.org



TIP

Don't ask teachers to scrap what they are doing to integrate 1:1. Instead, ask them to enhance what they are doing by letting learning unfold in new ways with a device in every child's hands.

For more information about specific 1:1 integration strategies, please contact the Model Schools Program at your local BOCES.

Next is the need for ongoing, embedded technology training in the classroom. The days of after school Microsoft Publisher workshops are long gone -- the fruits of which never blossomed anyway. It takes a dedicated, shoulder-to-shoulder effort to bring teachers into the 1:1 learning space. Technology integration specialists can work with teachers through a cycle of planning, modeling, co-teaching, and evaluating, right in the comforts of the teacher's classroom. Compared to the workshop approach, the chance for sustainable change is dramatically improved with help by your side. Districts that have integration specialists report significantly higher adoption rates for teachers, which translates into greater technology use for students. Most practitioners, if not all, would say it is a required component when deploying 1:1. Executive Director of Planning, Development and Technology from the East Syracuse Minoa (ESM) School District Kieran O'Connor says, "Integration specialists are instrumental in bringing resources to our teachers and administrative staff as we strengthen our 1:1 program. They bring a wealth of classroom experience and combine it with latest integration strategies. They are a valuable part of our district's professional development team."

Last but not least, is the move to break free from the legacy mindset about software and gadgets. Too many educators still see a piece of software or a new tech tool and ask, "How can I use this in the classroom?" History has shown us that this is the wrong approach. Technology should rarely drive instruction in that way. We need to empower teachers to let learning unfold in the presence of 1:1 technology, and spend less time contriving ways to inject it.

The current trend toward project-based, hands-on, learner-centered environments synchronizes perfectly with 1:1 computing. Teachers no longer have to worry about crafting a marvelous lesson around a piece of software or a SMART board. Instead, they can focus on their curricular objectives and let learning transform itself with student driven technology. Even at the most fundamental levels, with devices in hand, students can help evolve a tech-less lesson plan with a little guidance. They can research, collaborate, peer review, organize, design, and produce thoughtful work. The result is a new learning climate that provides a comfort zone for digital natives, and one that engages them far more than textbooks and lectures. In addition, with cloud-based, easy-to-deploy applications like Google Classroom (and others), teachers now have platforms to guide learning more efficiently than ever before.

QUESTION

Does your district have dedicated technology integration specialists?

QUICK SUMMARY

Embed technology integration strategies into the overarching curricular goals.

Adopt standards and processes for technology literacy, but keep it manageable.

Consider technology integration specialists as a way to move teaching and learning forward.

Avoid sea change. Instead, empower teachers to let teaching and learning evolve in new ways with 1:1.

MANAGEMENT LOGISTICS

Managing a fleet of 2,000 Chromebooks takes proper staffing and an awareness of the logistics that result from administering a 1:1 program. The first question that dictates much of this is whether or not students will be permitted to take their devices home. Across the Central New York region, we have districts like Ithaca that do, others like ESM that don't, and others that permit students to bring devices from home (i.e. Bring Your Own Device [BYOD]). Poverty, home internet access, damage, and theft/loss are all important considerations when making this decision. The purpose of this section is not to delve into the philosophical tenets of home use, but to identify the management needs that exist on both sides of that decision.

In either scenario, devices are being used in school, so let's start there. The basic list of management considerations includes:

Instances of damage and theft/loss:
Will we repair devices or replace them? Will we keep extra units on hand or buy them as we go? Will we purchase insurance or protective cases, or both, or neither?

Charging and Battery Life:
How long will a device last on one charge? Where will students plug in during class? Should we have storage stations for security and overnight charging?

Device Management:
Do we have sufficient staff (and knowledge) to image devices? Who will manage accounts and access? How will we manage software updates? How will we assign devices to students and track inventory?

"A single technician equipped with the right management application can support 1,000 Chromebooks... but the staffing needs double or triple for devices like iPads or laptops."

For those districts that ultimately decide to allow students to take their devices home, the list of management considerations includes some additional items:

Home access to the Internet and content filtering: How will students gain access to the Internet from home, and what tools will we use to filter inappropriate website content?

Increased instances of damage and theft/loss: Will we need additional funds to compensate for this?

Legal implications: Is inappropriate use or cyberbullying that is done at home from a district owned device the district's responsibility? Do we have appropriate policies in place?

Practitioners in the field don't always agree on the answers to the questions above, but there are some common themes that emerged through our discussions. For starters, repairing devices only makes sense if the replacement cost is higher, keeping in mind that "repair" includes hardware and labor costs. Therefore, as the cost of devices continues to drop, replacement is becoming the preferred option. Likewise, many districts are opting to not purchase insurance or extended warranties on devices given the low replacement cost. One district also found that devices were still breaking even with protective cases, so again, repair/replacement was the better option for them. In terms of theft and loss, the data suggest that this is not a significant issue for most districts in our region. It is often discussed in the early planning stages, but it rarely materializes into a costly problem.

For districts that don't permit students to take devices home, in-classroom charging stations are a must. Lockable storage/charging is an option

too, if security is a concern. For those districts that allow students to take their devices home or opt for BYOD, making sure there are sufficient power outlets (on classroom walls or through power strips) is an important consideration. Some devices can go ten hours on one charge, but students won't always bring devices into school fully charged.

Regarding the important issue of IT staffing, districts must have a plan for imaging, deploying, and supporting all devices in the district. They must also have sufficient human resources to manage that plan. Finding a similarly sized district that has a 1:1 program is a good place to learn more about staffing needs. However, a lot depends on the other technology assets in the district (e.g. laptops, desktop computers, digital white boards, peripherals, etc.), whether the server infrastructure is onsite or outsourced, and the type of 1:1 device that is selected. CNYRIC Project Manager Joe Scott says, "A single technician equipped with the right management application can support 1,000 Chromebooks... but the staffing needs double or triple for devices like iPads or laptops."

TIP

The CNYRIC can provide a comprehensive review of a district's technology deployment plan and make recommendations for the staffing levels needed to support it.

Lastly, when it comes to home use, there are several products that allow for efficient management of devices and filtering of internet content. Go Guardian is one of the more popular tools used by schools in this region. The more challenging issue is dealing with households that don't have internet access, and managing the expectations for doing schoolwork at home. If a teacher uses Google Classroom for their instruction, how will students complete work at home if they can't connect? Former CNYRIC Director of Technology Dominick Lisi worked extensively with the Ithaca City School District on their 1:1 rollout. "There were many discussions on this topic and many alternative strategies given to teachers to accommodate students with no home access," Lisi said. "Flipped instruction is a great way for teachers to prepare lessons that students can download in school and watch offline at home."

Even with devices such as Chromebooks, there are options for working offline. Therefore, while it's important to have alternate strategies in place, 1:1 is no longer a deal breaker when a student can't connect from home. That said, it is a wise choice to begin your 1:1 program by keeping devices in school for at least the first year. This allows you to assess staffing and management needs while learning the ropes of 1:1.

How does all of this change if a district lets students bring in their own devices (i.e. BYOD)? Assuming the district will not support personal devices (highly recommended), you can take the resources associated with repair, replacement, theft, loss, damage, and software management off the table. While this may seem like a more appealing option, with BYOD comes several new considerations:

-If a student's device breaks and the parent doesn't replace it, how will the student continue to work online?

-How will districts prevent viruses and allow secure connections to their network from devices they don't control?

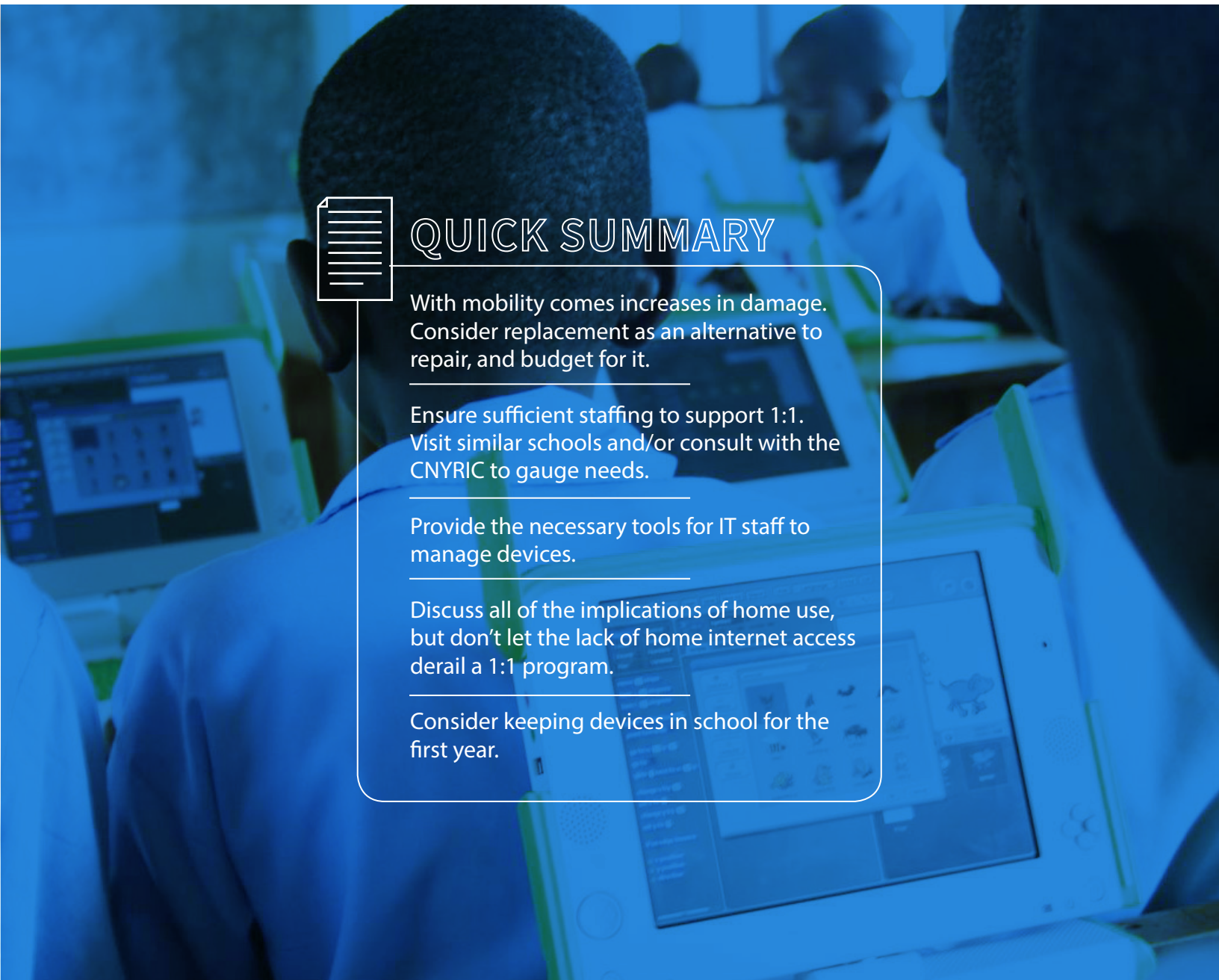
-How will students who can't afford devices be given equal access to 1:1 technology?

-How will teachers facilitate instruction when students are using different devices with different operating systems?

While we won't get into the details here, there are answers to all of these questions and many successful BYOD programs across the country. However, it is important to fully explore these topics before considering a BYOD initiative. Many districts have adopted hybrid BYOD models where students can bring technology into school, but if they don't have a device (for whatever reason), one can be loaned from the district.

TIP

To learn more about BYOD or to connect with a 1:1 school district, contact Rick Pollard at the CNYRIC.



QUICK SUMMARY

With mobility comes increases in damage. Consider replacement as an alternative to repair, and budget for it.

Ensure sufficient staffing to support 1:1. Visit similar schools and/or consult with the CNYRIC to gauge needs.

Provide the necessary tools for IT staff to manage devices.

Discuss all of the implications of home use, but don't let the lack of home internet access derail a 1:1 program.

Consider keeping devices in school for the first year.

POLICY CONSIDERATIONS

Another important consideration when planning for a 1:1 implementation is the adoption of relevant policies and procedures. It is often the case that existing Acceptable Use Policies (AUP's) don't address many of the unique factors that come with 1:1. Especially if your district chooses to permit students to take devices home, there may be additional language that is needed to cover the use of district owned equipment off school grounds and off the school network. There is also the potential for increased liability around instances of cyberbullying that are done by students outside of school, but on a district device.

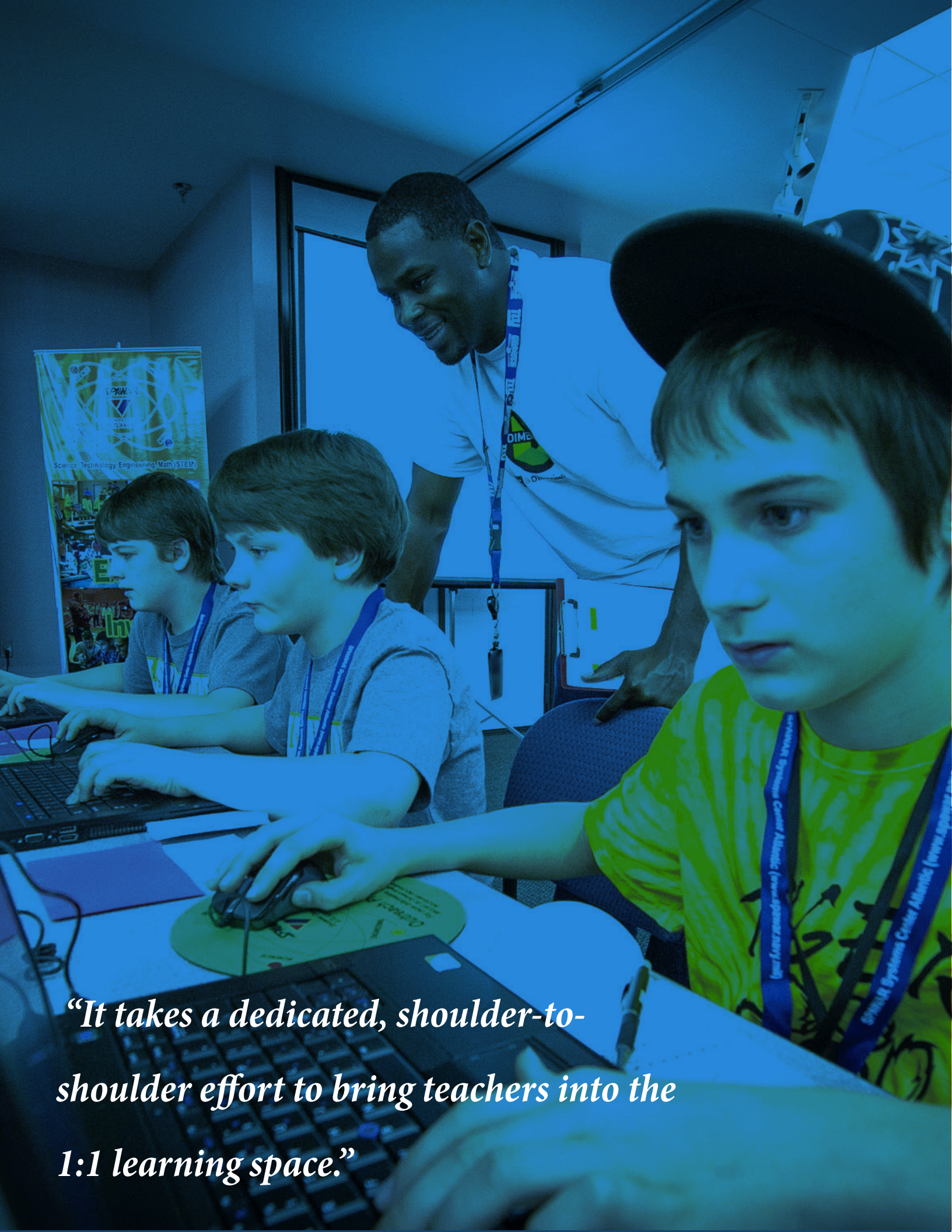
Erie 1 BOCES provides a comprehensive policy service that can help districts update Board of Education policies and procedures around these topics. Over the years, they have added language to their technology policies to cover mobile device use, personal device use (i.e. BYOD), and other relevant issues. Most importantly, it is recommended that districts conduct periodic reviews to make sure that the language in their AUP's stays current with changing technology.

QUESTION

When was the last time you reviewed your AUP, and does it contain language around mobile devices, personal devices, and home use?

LINK

For more information about the Erie 1 BOCES policy service, visit: **www.e1b.org**



"It takes a dedicated, shoulder-to-shoulder effort to bring teachers into the 1:1 learning space."

STAKEHOLDER INVOLVEMENT AND ROLLOUT STRATEGIES

Through all of our discussions, the most common characteristic of successful 1:1 rollouts was communication. It was reiterated often that communication with staff, students, and parents -- both before, during, and after implementation -- was essential for buy-in and adoption. Attending parent meetings, sending home literature, setting aside time at staff development days, and discussing 1:1 plans with students were some of the many ways districts made this happen.

The most successful communication strategies were those aimed at obtaining stakeholder involvement in the 1:1 program. In many districts, parental involvement was a heavy emphasis during the early stages of the program. One district reported arranging a deal with their hardware vendor to offer parents a discounted rate on the same model Chromebook the district was buying. This provided instant buy-in with parents by letting them learn alongside their son or daughter and explore the new technology. Having a parent "Tech Night" for hands-on learning is yet another way to get parents engaged.

Next up: Teachers. Their involvement in the process is paramount. Students can't show up to class with their devices without the teacher being fully aware and ready from day one. Teachers should have the exact same device in-hand for months prior to rollout so they can build a comfort level with the technology. Too often, teachers have desktop computers or laptops with virtually no similarities to the mobile devices students will be assigned. This is a major oversight, and one that leads to unnecessary hurdles in the implementation process.

Another great strategy to engage teachers is the creation of content, building, or grade-level teacher implementation teams. This provides teachers with a small group of like-minded colleagues with whom they can share ideas and learn. It also allows for curricular-focused discussions that can lead to the development of innovative teaching practices and higher adoption rates. Leaving a teacher to fend for themselves is almost certainly a setup for withdrawal from the 1:1 culture. Here again, the importance of technology integration specialists can't be overstated.

Students are equally important in the 1:1 adoption process. They are pre-wired for digital learning and fully versed in the language of personal computing. They will not only embrace the technology, but as we already mentioned, they will help transform learning in exciting new ways. Informing students of the 1:1 program by engaging them in dialogue is a great way to set expectations. Most districts use these conversations to discuss the important concepts of acceptable use, social media, digital footprints, digital citizenship, and cyberbullying. These topics need to be emphasized heavily early on, then assimilated into the 1:1 culture.

Lastly, the district administration has to be 100 percent on board with the 1:1 initiative. Leading by example with devices in hand, the superintendent, directors, and principals are all key to the program's buy-in and sustainability. 1:1 is about a culture shift, so it must be a priority throughout all levels of the organization.

QUESTION

What is your plan for communicating with stakeholders and engaging them in the 1:1 program?

Creating a delivery strategy is another essential part of the 1:1 implementation. Some districts choose to stagger the assignment of devices by grade level, while others prefer whole building rollouts. Much of this depends on district funding and how the school buildings are configured. Most districts also find success in assigning devices from a central location like the library. Devices can be barcoded and scanned in/out from the library database like any resource. This is a great way to track assets and manage replacements when the time comes.

QUICK SUMMARY

- Use communication strategies that lead to stakeholder involvement, not just awareness.
- Don't forget about parents in the process.
- Create teacher teams that encourage collaboration around 1:1 integration strategies.
- Develop an effective delivery strategy to get your program off on the right foot.

INFRASTRUCTURE, REPLACEMENT, AND FUNDING

We certainly could have started this document with a segment on infrastructure. After all, a 1:1 program simply can't take place without it . It bears repeating then, from our last edition of Beyond The Buzz, that the most important element in a district's technology deployment is a stable, accessible, and robust network infrastructure. In today's mobile world, this means a substantial wireless network to accommodate the need for teachers and students to connect to the Internet with a variety of devices. Ubiquitous access in all spaces on a campus is the standard, with sufficient access points and bandwidth to handle hundreds of simultaneous user connections. Many districts have a Wi-Fi network with decent coverage, but one that is not ready for mass use. Make sure to consult with professionals to survey the coverage zones and design a Wi-Fi network to handle today's mobile demands.

It is also essential to build a replacement plan for the network infrastructure, and, for that matter, all of the district's hardware. This includes 1:1 devices, laptops, desktop computers, access points, switches, servers, and peripherals like printers and projectors. Buying 2,000 Chromebooks with Smart Schools Bond Act funds without a set replacement schedule (or a future funding source) is a formula for disaster. Simply put, the entire technology infrastructure must be replaced every three to five years, and district administrators need to plan for it. Leasing through a BOCES/RIC is an effective way to spread costs out over several years.

QUESTION

Do you have a replacement schedule that identifies all district technology assets, end-of-life dates, and the plan for funding new purchases?

FINAL THOUGHT

Collectively, we believe that a well-planned 1:1 program can be the starting point of a new learning culture that engages students like never before. We hope you can use this document to stimulate internal discussions that lead you down the path to success.

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