

Virginia e-Learning Backpack Initiative Summer Institute

Executive Summary

On August 12-13, 2013, the Virginia Department of Education hosted the Virginia e-Learning Backpack Initiative Summer Institute at the Richmond Marriott. This institute was part of an initiative proposed by Governor Robert F. McDonnell and approved by the Virginia General Assembly. The goal of the event was to assist school divisions as they transition to tablet computers and digital content. It provided division personnel with information and strategies to implement digital initiatives. In addition, exhibitors displayed cutting-edge technologies, including tablet computers, peripheral devices, content, and applications. The following is a summary of the proceedings.

Parent and Community Engagement

Launching a one-to-one computer-to-student program at the school or division level can be an expensive and potentially complicated proposition. Without a comprehensive strategy, schools might not maximize precious resources and secure the support of key stakeholders: administrators, teachers, parents, and students.

It is important for school leadership and schools to embrace technology and to involve all stakeholders. Parents typically have one characteristic in common—they are concerned about the potential negative impact of technology on their children. As a starting point, school administrators should communicate to their constituents why they elect to use particular digital devices. Schools should teach parents how the devices work and how to take care of them, keep parents and school boards up-to-date about the progress of digital projects, and showcase student work on class Web sites—parents should be invited to offer feedback on this work and even help contribute to the Web sites.

Another way to engage the community is to offer opportunities for expanded learning, community services, and civic participation with the school as a hub. Schools should share technology resources with the community. Providing access to WiFi or offering training specific to tablet devices are examples of ways that schools can engage the community and increase support for their initiatives. In addition, schools should consider community projects that enable students to use their tablets to address issues of local concern.

Policy

Schools are finding that policies can be both stumbling blocks and stepping-stones when implementing a tablet initiative. Teachers need policies that help them introduce innovations rather than stifle these efforts.

Many school boards are rushing to implement new policies to cover the myriad problems posed by technology. In reality, many existing policies already cover these issues. For instance, schools usually have policies which address damage to school property. Tablets would be covered under this current policy though specific information can be developed regarding replacement procedures, costs, optional insurance, etc. In anticipation of future technological developments, school boards should craft these types of policies as broadly as possible.

In terms of content, every division has an acceptable use policy (AUP); much of the language in these is mandated by federal law, such as prohibitions on accessing pornography or other material harmful to juveniles. The AUP, which must be reviewed and agreed upon by faculty and students, has to be updated at least every two years; at that time, additional policies for handling any new types of devices, such as tablets or cell phones, should be added. Existing policies against harassment or discrimination often cover problems like cyberbullying, existing copyright policies cover intellectual property issues, and existing laws cover crimes like cyber predation.

Another policy issue relates to the problem of access. Since educational content is increasingly being placed online, it is essential for students to have high-speed access at school, at museums and other educational sites, and at home—if not, schools are creating a new *digital divide*.

In terms of policies that protect students from potential online dangers, schools need good Internet filters; however, these systems are not foolproof and cannot protect children outside the school. The use of filtering does not negate the need for teachers to teach students how to cross the “digital street” or explain that their digital footprints will follow them throughout life. Additionally, there must be some flexibility with unblocking sites. Teachers should be able to appeal on a case-by-case basis to unlock certain blocked sites, like YouTube.

Infrastructure

The mobility and personalization afforded by tablet computers will be realized only when teachers and students have consistent and reliable Internet access. Nationally, a number of long-term trends are driving the need for broadband: the shift from print textbooks and paper-and-pencil assessments toward online learning and testing, the growth of “Big Data,” bandwidth-intensive activities, and numerous concurrent users of

digital textbooks/content and online assessments. These types of resources are no longer just supplemental; they are part of the core business of education.

The move to bring your own device (BYOD) models also requires that schools carefully examine their infrastructure. BYOD implementations can dramatically increase the demand for bandwidth and the support needed to maintain the infrastructure.

A 2010 FCC survey showed that 80 percent of schools lack the bandwidth to teach their initiatives. The nonprofit EducationSuperHighway is conducting a national survey, the National SchoolSpeedTest, to denote which 80 percent of schools need improved bandwidth. Speed can be affected by a variety of other factors, including the use of outdated or noncompatible routers, firewalls, filters, wiring, and switches. As a result, many divisions are not even achieving the amount of bandwidth for which they are paying. Divisions should centrally manage as much wireless coverage as possible and shift loads among different access points when needed.

The State Educational Technology Directors Association (SETDA) has set two targets for broadband in schools:

- By 2014-15, all schools should have an external Internet connection of at least 100 Mbps per 1,000 students/staff; by 2017-18, they should have at least 1 Gbps per 1,000 students/staff.
- By 2014-15, internal WAN connections—from the district to each school and among schools in the district—should be at least 1 Gbps per 1,000 students/staff; by 2017-18, they should be at least 10 Gbps per 1,000 students/staff.

In making this shift, educators should consider five factors:

1. The infrastructure/broadband must come first, both in and out of school.
2. The devices schools adopt should be flexible, taking into account their multiple uses by various populations with different needs. Broader deployments will require districts to consider enterprise management and address whether the rollouts of new technology can be centralized.
3. Districts must consider integration and interoperability with new software and apps.
4. Instructional and technical support are essential.
5. The shift must be integrated into long-range planning, budgeting, and policies.

Devices and Device Management

The variety of tablets with different operating systems, features, and peripheral devices provides seemingly endless choices as school divisions embrace tablets. These devices provide immediate feedback to teachers and present numerous opportunities, such as learning analytics, personalized learning, game-based learning, augmented reality, collaborative problem solving, and peer-to-peer communication. They also present challenges: best practices are not yet clear, and device management, security, safety, and legal requirements are ongoing concerns. When balancing the opportunities versus the challenges, schools should focus on pedagogy, allowing the curriculum and learning goals to drive the use and management of the devices.

Schools are beginning to explore bring your own device (BYOD) options as a way to ensure that all students and teachers have access to personal computing devices. BYOD initiatives present both unprecedented opportunities and challenges and careful planning is essential to success. In terms of managing administrative privileges and responsibilities, divisions must determine which devices are permissible and which users (e.g., administrators, teachers, students) can use their own devices. Each device should be assigned standard operating rules based on the type of user.

As noted, Internet safety and security are a continual concern. It is important to keep the community informed about problems with inappropriate material, cyberbullying, and similar issues; schools should share details of specific incidents with the local PTA to help parents understand all the ramifications of any incident. In addition, teachers need training to ensure they are properly prepared to address problems which occur. Parents also need training if students are using devices at home. Parents also should be permitted to opt out their children from using certain unblocked sites.

Digital Content and Textbooks

To support students with tablets, school divisions need a comprehensive set of applications and online services for teaching and learning, productivity, learning management, collaboration, and assessment. Access to digital content has grown to the point now that Virginia teachers and students—even in the elementary grades—are regularly creating their own digital resources, including electronic books.

Consistent access to digital resources is a primary challenge due to the fact that highly-interactive multimedia resources require significant bandwidth. To give more students access, resources should be reallocated within buildings when necessary, placing electronic resources where they are needed most. Despite the move toward digital resources, divisions should still purchase some hardcover textbooks for students who

prefer them and for those who do not have broadband access at home. To accommodate students without access, divisions should expand lab times at least in one community school, which could become a local hub. To make technology even more accessible, students should be able to check out devices and “smart spots” from their school libraries. In addition, staff at public libraries and community centers should be familiar with online textbooks so they can help students.

Digital devices also can enable more student-driven learning and computer-adapted curriculum based on students’ preknowledge. New developments in software design provide opportunities for students and teachers to gain an educational experience unlike those of the past. This type of adaptability is most often seen in the world of video games—depending on what actions the user makes, the game changes. New educational software can work like a “game” with both content and challenges constantly changing based on the students’ actions. Other important digital trends include the use of authentic technologies, such as rapid prototypers, which allow students to develop actual industry-specific software, and virtual environments, which allow students to transport themselves digitally to various places around the globe.

Accessibility for students with disabilities should be a major focus for every school. In 2004, the U.S. Department of Education reauthorized the Individuals with Disabilities Education Act (IDEA), which anticipated the growth of digital content and textbooks by including accessibility requirements. In response, the Virginia Department of Education helped create the Virginia Accessible Instructional Materials Center at George Mason University to convert all existing resources in Virginia into accessible formats. Although an increasing number of publishers are now putting content into universally designed formats, some resources still are not accessible; as a result, the Commonwealth still converts any of these resources upon request.

Professional Development

One-to-one computing provides enormous opportunities to enhance learning and teaching. Despite the ease of use of most tablet computers, professional development is still essential to ensuring that educators learn to use these technologies and digital resources in transformative ways.

As a general rule, old systems of professional development are fundamentally broken and need to be completely redesigned. Today’s teachers should have access to hands-on training customized to their individual learning needs. In addition, professional development should provide actual tools that teachers can use with their students and offer follow-up assistance as needed; along this line, teachers should use tablets on

their own before ever introducing them to students. The training also should be tailored specifically to different audiences (e.g., administrators, teachers).

Online professional development is becoming increasingly prevalent because it can occur throughout the school year—as opposed to just in summer—and can be flexible enough to fit teachers' busy schedules. Best practices for professional development, either face-to-face or online, include the following:

- Outcomes should drive the technology choice—start with the instructional outcomes and work backwards.
- Free items are not always best; sometimes, a small investment is worth the cost.
- Know your audience and provide incentives—buy-in is critical.
- Good design promotes learning, so develop challenging, interactive, engaging, and visually appealing content.
- Get the word out early and explain what the participants will learn and how they will be able to use their newly acquired skills in their classrooms.

Due to teachers' busy schedules, it also is important for divisions to create more on-demand resources, such as wikis and blogs, and to develop a professional development focus for the entire school year.