

EDUCATION LEADERS ON...

Planning the Inevitable: IT Management of Anytime-Anywhere Learning



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Learning and instruction are changing in education. A growing number of schools and districts are moving toward a more personalized, student-centric approach, designed to meet individual learning needs. As schools and districts move forward in adopting a dynamic teaching methodology governed by rapidly changing technologies, what procedures and policies should they adopt to make a smooth transition? As cloud computing, virtualization, and mobile devices begin to transform the teaching, learning and sharing of educational content, what can administrators and academics do to meet future demands while fulfilling their current obligations?

T.H.E. Journal spoke with three industry thought leaders to get insight on how to build an IT infrastructure that supports the ever-changing landscape of 21st century learning.

MEET THE CONTRIBUTORS



SHAWN NUTTING,
director of technology and
facilities, *Trussville City Schools*,
Trussville, Alabama



KEN VEON, director of
curriculum and technology,
Beachwood City Schools,
Beachwood, Ohio



TAMARA CLOSS, senior
consultant, business development
and strategic planning, *Education
Vertical, Verizon*

1. Today's students are accustomed to an array of digital tools and don't want to be tethered—to a device or a classroom. How does virtualization and cloud computing support anytime-anywhere-any-device learning?

SHAWN NUTTING: Virtualization offers a host of advantages that include a constant uptime or seamless fail over, real-time backups, and an accurate test environment. Virtualization is also the key to supporting a large server infrastructure with limited personnel. This is more advantageous in our current economy, especially with education budget pressures. Server maintenance can be performed without end users knowing it, and all of these features allow students to access the cloud's services 24/7.

Cloud computing, in most cases, allows a district to be platform independent. Due to the rapid adoption of HTML5, developers are increasingly making their products work in the mobile space. If you use internally hosted cloud services, the threat of viruses and malware are reduced because all requests come through the firewall over traditional Web ports, and your servers can be hardened accordingly. Externally hosted cloud services place the uptime and security burden on the vendor, which is a huge advantage for a small IT shop on a limited budget.

KEN VEON: Cloud computing allows students to access information from almost anywhere and at any time. Whether they use a tablet, laptop or cell phone, they can get to their homework, assignments, video tutorials and so much more. This allows them to work around their schedules. Many students are actively involved in sports, arts and more after school. By using mobile devices and cloud computing, they can access their information 24/7. No more excuses. Students can't forget their homework at home, and the dog can't eat it. They can access everything at school, at home, on vacation, anytime. The cloud is a wonderful technology that is gaining momentum in schools.

TECHNOLOGY INSIGHT FROM VERIZON: Learning is on the move. Mobile technologies—laptops, netbooks, tablets, e-readers, even smartphones—are helping educators and students reinvent the learning experience and expand it beyond the walls of a classroom. Educators are deploying mobile strategies to enable students to learn on the go. This type of dynamic learning environment requires robust support to allow students to be able to access learning apps and data from their mobile devices.

Virtualization and cloud computing allow K-12 school districts to focus resources on core competencies and evaluate how they can enhance those competencies by sharing resources and optimizing service delivery models to ensure their offerings align to rapidly evolving district needs, enabling anytime-anywhere-any-device learning.

2. How do you combat the potential threats introduced by such personal devices, while maintaining standards for academic integrity and honesty?

NUTTING: Cloud services are the way to go here. A secure wireless network can be provided to students while completely segmenting the district network from their devices. Network monitoring tools, along with intrusion prevention and detection devices, should be used. Proper reporting and alerts make the IT staff aware of any potential threat, and they can take the appropriate action. Internet access is considered a privilege and does not have to be given to any seriously malicious or chronic offender. The method to determine mastery of skills ultimately falls upon the classroom teacher. Today's classroom should no longer include worksheets with "grill and drill" types of



assessment. Rather, students should produce project-based outcomes that are difficult to cut and paste. If tests are routinely easy to cheat, the issue does not lie with the device.

VEON: One way to combat cheating is to use more open-ended questions promoting higher-order thinking skills. It's easy for students to cheat with multiple choice, but if questions are of higher order, students have to substantiate their answers more thoroughly, which will separate those who are "borrowing" answers from others. Also, with programs like Turnitin or the free Duplichecker, teachers, parents and even students can cross reference their work to make sure they are not quoting too often, either intentionally or subconsciously. Either way, students need to understand that taking credit for others' work is inappropriate and will be taken seriously. Further, they need to know how to find reliable sources on their own, and properly credit those sources. That being said, it is almost easier to track plagiarism and cheating now. Back when I was in school, we had to read books, journals, etc. to find information. If teachers suspected cheating, they had to find the same books or journals. It was very time consuming. If a student copied from another student's paper, especially if the paper was from outside of the school district, it was virtually impossible to detect. Now, teachers can find these documents online, search for specific passages in a matter of seconds, and more. Again, using programs like Turnitin and Duplichecker help greatly in this area.

TECHNOLOGY INSIGHT FROM VERIZON: Protecting restricted data and internal network resources from vulnerabilities or breaches is a top priority to support the high availability needs of the critical applications required in today's classrooms. Hacking or unauthorized access to data or computing resources are potential security risks that are blatant and intentional; however, data systems or networks can be compromised unintentionally as well.

It is important for school districts to establish acceptable use policies (AUP) for responsible use of technology and provide training, especially in environments where students and staff bring their own devices into school. The potential for inappropriate use applies to all classroom constituents: password sharing, storing sensitive information and open applications are just a few examples of common misuse. Caution against policies that are too rigid or restrictive.

The challenge for districts is how to prioritize and manage investments in their resources so they are well positioned to serve connected students and their school-wide security strategy is a key guiding plan.

3. What policies and technologies do schools need to have in place to protect both their network and students' online safety in today's increasingly collaborative learning environment?

NUTTING: An acceptable use policy along with a student code of conduct is essential. Each year, both students and parents should sign the latest version of the document that has been board approved. The AUP should spell out the type of behavior expected on devices at or away from school, as well as the potential punishment for violating the policy. All students should have their own individual login to the network so their actions can be traced if necessary. Our district flashes the AUP at login so they agree to it every time. No faculty member or student is ever given a user account without first signing the agreement. We also use tools to track students' access to the Web, including a product that monitors any potential problems and sends a screenshot from the offending computer with a timestamp to a database. It has been essential to our identifying hackers, bullies, and some staff and students who've exhibited unprofessional behavior on our network.



VEON: Most schools do keep very tight filters on teachers and students to protect students and the network. Because of virtualization and the use of mobile devices such as cell phones, however, the argument for blocking websites is increasingly falling to the wayside. Students can send emails, texts, or look up “blocked” sites like Facebook right on their phones. So instead of trying to restrict access, a better approach is to educate students on how to be safe online and what is appropriate usage. I believe that school networks, outfitted with virus protection and content filters (for age appropriateness), should be as open as possible for students to collaborate in various ways. Google, Dropbox and similar programs should never be blocked because students rely on them to collaborate and share. Schools and districts should have specific and detailed policies that address the misuse of technology, such as an acceptable use policy, that they at least review annually for updating. Penalties for misuse, especially intentionally, should be clear. Most importantly, learning should not be impeded by filters or site blocking.

TECHNOLOGY INSIGHT FROM VERIZON: In addition to the intellectual property, copyright, and other regulations that impact the academic engagement in school, there are other legal and regulatory compliance requirements that impact district-wide operations. Everything from the Family Educational Rights and Privacy Act (FERPA) to the Children’s Internet Protection Act (CIPA) to the Health Insurance Portability and Accountability Act (HIPAA) requires careful risk assessment and implementation of policies and technologies to protect the district and its constituents, and to maintain public trust and meet rigorous compliance requirements.

Some technologies for mitigating mobile security risks include device-level encryption, endpoint security solutions, identity and access management, virtual private network, anti-virus/anti-malware and mobile device management.

A combination of carefully constructed policies and procedures and daily monitoring at every layer of the network is required to protect institutional data, identities, and applications.

4. What applications are you using to create engaging, social experiences for your virtual K-12 students?

NUTTING: We have a very liberal policy and want staff members to use whatever is comfortable for them. In the interest of uniformity, we use SharePoint as our communications platform. All school Web pages deliver the same look and feel for end users, with the same types of information in the same place at all schools. From there, teachers may use whatever Web tools they like to enhance their instruction. We are currently deploying a district-wide Edmodo site. We allow staff access to most sites including YouTube and Facebook. On the student side of the network, we allow sites based on academic content and purpose. And over time, we lessen the restrictions. Several years ago, for example, we discovered many teachers were using Facebook as their main classroom communication tool. In cases like that, we meet with key teachers and administrators and then open the site to a particular age group. Thus, we now allow Facebook access by our high school students, but not K-8 students.

VEON: Like many others, Beachwood City Schools utilize Google Mail, Docs and Calendar to help students collaborate and share information. We have also used Blackboard for many years to supplement the classroom experience for our students. We’re constantly looking for opportunities to give our students the technology tools and virtual experiences they need and deserve to have successful futures. But we are also very cognizant of the irreplaceable experiences they gain from being physically in actual “bricks and mortar” classrooms. So we strive to facilitate activities where virtual students work together with students in the classroom, as well as outside of the classroom, utilizing collaborative technology.



TECHNOLOGY INSIGHT FROM VERIZON: Many K–12 school districts find themselves operating in a changing environment. Your classroom is no longer defined by your physical borders. Today, you have to connect students, teachers, staff, suppliers, remote facilities, and the community at large. There are social networks, free courses, certificate programs, and other e-resources readily available that contribute to the ecosystem that provides teaching, learning, and community engagement for your district. The ability for students and teachers to interact with each other virtually via learning management systems is an engaging way to collaborate.

School districts also know that technology engages students in learning, promotes digital citizenship and fosters 21st century skills. The power of apps couple with the portability of mobile devices for creative learning environments.

5. What's the one piece of advice you'd give to a fellow technology director who is still in the beginning stages of planning for anytime-anywhere learning in their district or school?

NUTTING: Administrator and faculty “buy in” is key. Have a strong strategic plan that includes a communication strategy for the community. Make sure policies are in place to address any issue that will arise. Once you have the support of key stakeholders, concerns will be addressed long before they become a true problem. Professional development for staff should be the main focus of a successful deployment. Success within the classroom has little to do with the device and everything to do with the teacher.

VEON: Students—pressured to perform in many facets of their lives—need to access their classroom information 24/7. So always remember to keep students top of mind and don't let one outlier affect the whole. Don't let possible problems impede learning. Rather, have processes and policies in place in case something happens that deserves action. Resist knee-jerk reactions because one parent complains or one student abuses the system. Address those concerns and move on. While there are always discussions about what is appropriate, but with filters such as Bess, content results can be evaluated (too loose or too tight) at any time and adjustments made. My approach is to start out less restrictive and then tighten as needed. It has served me well. Students should be able to bring in their own devices and utilize the school network. If we want students to be responsible learners, we have to trust them to use technology appropriately. Most importantly, we must model and teach them to use technology in context. For example, it is not OK to look up YouTube piano-playing kitten videos in math class, but watching them at lunchtime is fine. Updating their Facebook account while on the bus isn't going to hurt their learning, but doing it in the middle of a science lesson just might. Anytime-anywhere technology is providing students with access to learning experiences never possible before. Schools should serve as the freeway, with no roadblocks and plenty of guidance, to help students unlock their potential.

TECHNOLOGY INSIGHT FROM VERIZON:

Effective technology adoption means balancing the potential that technology offers for teaching and learning with ever-tightening budgets. With continued advancement in technology, K–12 school districts are only limited by imagination and organizational will. But, there is a need for district-wide strategic planning, governance, and prioritization to move to new technology platforms that optimize the education ecosystem. Anytime-anywhere learning enables students to take learning to the next level only when planned well. The planning process needs to take into account any inherent limitations of existing infrastructure at the initial stage to properly support anytime-anywhere learning.



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T.H.E. Journal is a comprehensive resource that consists of a magazine, website, newsletters, and online resources. Every tool informs and educates K-12 administrators, technologists, and educators on the latest strategies and best practices influencing the way technology integrates into the landscape of teaching and administration at schools and districts nationwide. Each *T.H.E. Journal* asset delivers news, trends, features, case studies and expert advice on vital topics like security, policy and advocacy, smart classrooms, mobile and wireless computing, funding, green technologies, distance learning, administrative and academic computing, plus much more. For more information, visit www.thejournal.com.

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