Cost-Effective Educational Technology Integration

In the following report, we explore issues around the integration and implementation of cost-effective technologies into the K-12 curriculum. We pay particular attention to Bring Your Own Device initiatives, particularly in terms of how districts have implemented BYOD and the policies which have been crafted to govern student use of their own devices.
Introduction

Schools are undergoing a major transformation with the increased presence of technology in the classroom. As districts strive toward achieving 1:1 student-computer ratios and creating digital citizens and 21st century learners, they face challenges when it comes to funding the implementation of initiatives to reach such goals. It is important, then, to consider educational technologies that are cost-effective, as well as strategies which can get devices into more students’ hands with smaller financial obligations on the part of the district.

In the following report, we aim to address the balance which must be struck between cost efficiency and modern student learning. In the first section, we discuss strategies for integrating cost-effective technologies in the classroom, as well as identifying several such technologies. In the second section, we focus on implementing Bring Your Own Device (BYOD) initiatives, which are themselves cost-effective but pose other sorts of challenges for districts. Finally, in the third section, we briefly examine the differences between acceptable and responsible use policies in place at districts which have embraced BYOD.

First, we provide a summary of our key findings.

Key Findings

- Planning is essential to the process of integrating educational technologies. Districts should create a technology plan prior to making purchases, particularly of software, to ensure that the greatest population is served by the fewest resources. This reduces maintenance, support, and professional development costs.

- For schools in which BYOD and 1:1 are not financially feasible, computer labs can be combined with classroom computers and mobile laptop carts to ensure students have regular access to technology. Computer labs alone are no longer considered sufficient, as the number of students in a lab is necessarily limited by both space and time.

- Even one computer with an internet connection in each classroom can greatly enhance the availability of technology to students for integration in the curriculum, particularly when paired with a projector. Free educational resources abound on the internet, and a wired classroom might see students watching educational videos together, collaborating via Google Docs or similar free applications, or listening to podcasts in groups. These activities can be performed even without a 1:1 initiative.
Successful technology integration requires planning prior to the introduction of new devices. Parents and students should be made aware of district expectations for their online behavior. Teachers should be given adequate time to plan for and prepare lessons. Network infrastructure often must be updated and secured. These and other considerations are necessary for districts to address prior to successfully implementing new technologies, particularly a BYOD program.

Professional development is critical to ensuring the acceptance of new technologies. If teachers do not understand what new technologies can do for them in the classroom, they will go unused, wasting district resources spent on implementation. Professional development regarding technical use of a device may be available for free from a vendor when a product is purchased (as with Texas Instruments' TI-83 graphing calculators). However, much of the emphasis of professional development on technology is no longer on technical use, but on instructional strategies and incorporating technology into the curriculum.

Districts are beginning to include professional development on educational technology use into their regular PD schedule. This includes providing “credit” for professional development by attending targeted seminars, offering PD on educational technology on a weekly basis during regular planning time, or scheduling one day per year for focused training on the topic. Some districts provide instructional coaches to assist teachers with technology integration in the classroom.

Bring Your Own Device initiatives are growing in popularity as districts strive to achieve 1:1 goals. BYOD requires careful planning prior to implementation to ensure some measure of control is maintained over the resources which can be accessed by student devices. Additionally, time is required to ensure that upon implementation, devices will be used in classrooms with positive educational outcomes.

The basic distinction between acceptable use and responsible use policies is that acceptable use focuses on behaviors which are not allowed, while responsible use focuses on behaviors which students should strive towards. Both set forth consequences for misuse of resources. Some educators feel that responsible use policies are more useful for supporting the development of students who are critical thinkers, as they choose between resources and evaluate whether their behavior online is safe. Others feel acceptable use policies are safer, by prohibiting outright websites and resources that are dangerous or questionable. At districts with BYOD initiatives, we find both types of policy are in place, and often the two are combined: the district expects students to make intelligent choices while using the Internet, but the network still restricts access to certain types of material and does not allow students a choice in the matter.
Integrating Cost-Effective Educational Technologies

The landscape of educational technology is constantly changing as new devices, software, and teaching strategies are developed. However, with many school districts facing tight budget situations, it is important to balance the need for technology in the classroom with its overall cost. Technology integration can take many forms, from students performing internet searches to creating multimedia presentations in the classroom; from teachers using computers to perform routine tasks, such as taking attendance or recording grades, to creating new curricular modules focusing on the ability of particular software or devices.

One of the most integral aspects of effective technology integration is planning. Planning for the use of technology, including specifically how a new technology will be integrated into the curriculum, enables districts to optimize the use of their funds and resources.\(^1\) For example, if software choices are made on an as-needed or per-school basis, the result is a district relying upon myriad software applications to achieve educational goals. This stretches support staff thin, and makes cohesive professional development efforts difficult. Instead, districts can establish a district-wide toolkit of standardized software. With everyone operating from the same set of software, professional development and support is easier to facilitate. In conjunction with one standard set of applications, districts can carefully select additional software which supports specific curricula at different grade levels and still maintain the standardized toolkit approach.

In terms of hardware, access is the primary concern when seeking to integrate technology with the curriculum. The National Education Technology Plan (NETP) produced by the Department of Education lays out as a clear aspiration for public education that “all students and educators will have access to a comprehensive [technological] infrastructure for learning when and where they need it,” which entails at least two goals:\(^2\)

- Ensuring that students and teachers have broadband access to the Internet and adequate wireless connectivity both in and out of school.
- Ensuring that every student and teacher has at least one Internet access device and appropriate software and resources for research, communication, multimedia content creation, and collaboration for use in and out of school.

---


The NETP defines “adequate” connectivity as “the ability to use the Internet in school, on the surrounding campus, throughout the community, and at home,” as well as allowing for “simultaneous use of high-bandwidth resources, such as multimedia, communication and collaboration environments, and communities.” As to the availability of “Internet access devices” (e.g., smartphones and tablets, as well as laptops), the NETP suggests that “the form of these devices, software, and resources may or may not be standardized and will evolve over time.” The plan alludes to the growing prevalence of BYOD by noting that these “devices may be owned by the student or family, owned by the school, or some combination of the two,” and that “the use of devices owned by students will require advances in network filtering and improved support systems.”

In light of this, the computer lab approach to using technology is no longer sufficient—computer labs greatly restrict the number and variety of students which can use computers at a given time. Implementing a variety of approaches to providing technology can increase access greatly. One such approach is to ensure that there is at least one computer in each classroom, as this ensures that technology is a daily feature in the lives of students and teachers. Combining computer labs, classroom computers, and mobile carts of laptops can enhance students’ access to school-provided technology, although it remains difficult to achieve full technology integration without a 1:1 ratio of students to computers.

Handheld computers such as smartphones can expand teachers’ ability to integrate technology into the curriculum. They can maximize students’ time with technology, allow students to pursue learning opportunities outside the classroom, and facilitate collaboration.

Achieving a 1:1 ratio of students to computers can be quite costly. Unlike something like a television, which can be watched by many students at once, or a textbook, which has a long span of usefulness, computers have a short “refresh cycle” and are intended for one user at a time. Estimates put the cost of implementing 1:1 from $250 per student per year to over $1,000 per student per year, measured on a four-year refresh cycle. A few of the variables driving the cost of such a scheme include:

---

3 Ibid.
BYOD scenarios can create a substantial cost differential, but are not the only way to lower the cost of implementing technologies in the classroom. Something as simple as an internet connection in the classroom can open up the potential for the use of a range of new applications to facilitate student learning. Websites are available with instructional videos, games, interactive polls, and more, each engaging the learner in the subject matter. Perhaps the most potent resources available through these channels are what the NETP calls open educational resources (OER), which are “teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license.” These can “range from podcasts to digital libraries to textbooks, games, and courses,” and they are generally “freely available to anyone over the Web.” The NETP recommends leveraging OER “more fully throughout the education system.”

These kinds of applications can be used by the whole class, provided each classroom is equipped with a computer and a digital projector. Digital projectors and document cameras have great economies of scale, with one upfront cost which is divisible by many students over a life span of at least several years. Such a set up can

---

also serve to foster collaboration among students as they work together toward solutions to questions posed to the whole group via the projector.\textsuperscript{7}

BYOD also facilitates new technological components of the curriculum which extend beyond the ability to search the Internet and use word processing programs. One instance of the use of a smartphone in the classroom requires the use of a polling program, either proprietary or available free online, which allows a teacher to ask a question and record student answers that they input via their portable device. This caters to both tactile and visual learners, and engages students to a greater degree than if they were simply asked a question.\textsuperscript{8}

Other suggestions for straightforward, low-cost methods of incorporating technology in the curriculum include:\textsuperscript{9}

- Use a projector to display a blank document. Invite students to add notes to the document throughout a lesson, and collaboratively edit and discuss the notes afterwards.

- Make a class website which students and parents can access. The website can include assignments, the syllabus, class notes, online access to grades, worksheets, rubrics, supplemental resources, and links to school and teacher contact.

- Use a Course Management System such as Moodle or Blackboard to provide students with online content.

- Incorporate podcasts into the curriculum, to appeal to the auditory learners in the group. Podcasts can often be had online for free from sources such as the Education Podcast Network or National Public Radio.

- Students can even create their own podcasts using a computer lab and microphones. Free applications are available online to facilitate the process, such as Audacity and iTunes.

Implementation and integration must begin before computers and other devices can actually be used in the classroom. Successful integration with the classroom and its curriculum is dependent upon a number of factors, including


\textsuperscript{8} “What is the Most Effective Classroom Technology?” A Principal’s Reflections. 6 Jan 2011. http://esheninger.blogspot.com/2011/01/what-is-most-effective-classroom.html

strong leadership, professional development, and assessment of technology’s
effectiveness in the classroom. In a project sponsored by Hewlett-Packard, the
organization Tech & Learning has published a series of white papers on the
Fundamentals of K-12 Technology Programs. The first issue sets forth twelve tactics
for successful implementation of technology, which are reproduced below.10

Twelve Tactics for Successful Technology Implementation

1. Enforce an **Acceptable Use Policy** for students and teachers
   that includes acceptable software, web sites, and applications.
2. Host a **parent and student orientation** with a required contract
   of expectations and liability signed by the parent.
3. Develop, communicate, and enforce **disciplinary policies** that
   apply to technology breaches.
4. Ensure your teachers have **adequate time for lesson plan
   preparation** and team collaboration, beyond standard
   professional development.
5. Define and implement a **plan for device inventory** and re-
   imagining plans.
6. Provide **swap-out devices** for loaner use during repair downtime.
7. Design and implement a **technical support and trouble-
   shooting plan** for district, teacher, and student devices.
8. Define and specify **use of printers** for both students and teachers.
9. Secure your **student information** and other data.
10. Plan your **assessment strategy and tools** to evaluate success
    against your technology plan goals.
11. **Connect students and parents to the district’s server** from
    home to view class information and student progress.
12. **Share your successes and results** with the school board,
    parents, and the community.

Source: “Anytime, Anywhere Learning: Program Planning, Implementation, and
Sustainability.” Tech and Learning.

---

http://www.techlearning.com/article/45584
Professional Development

One administrator in a Virginia school district highlights another critical component to effectively implementing new technologies in schools: teacher professional development. Technology professional development should be in place prior to the implementation of new technology, and should be primarily focused on helping to support student learning needs. The Coordinator of Technology for one school district notes the following about technology professional development: “Professional development used to be all about the ‘how to’ of technology, but we’ve moved beyond that. The focus is now on instructional strategies and needs. How do you use technology to improve student achievement? What does it look like to teach a standards-based lesson infused with technology?”

Providing professional development is integral to gaining teacher acceptance of new technologies. However, professional development must also be relevant to each teacher’s classroom, students, and content area in order to be the most effective at encouraging technology use and integration.

Not only should professional development be relevant, but it must also be ongoing. The one-and-done approach is particularly ineffective for professional development around technology integration. Any teacher will require time, support, and reflection to successfully integrate technology into the curriculum, and it is the administration’s job to ensure that teachers are given these resources.

In some instances, professional development is available from the technology vendor, in order to ensure that the new devices will be used in classrooms. This is beneficial for the vendor, as high rates of integration increase the likelihood that a given technology will be viewed as necessary when it comes time to decide to replace old devices. For example, when TI-83 graphic calculators were adopted in math classes, districts were able to attend free summer workshops led by Texas Instruments experts. Additionally, districts incentivized professional development by awarding them recertification points for attending sessions. Comprehensive professional development ensures that teachers will be able to fully realize the potential of a new device. When this does not occur, teachers and students become frustrated, and ultimately it appears that district funds have been wasted on a technology that has not proven itself to be highly useful.

---

One high school in Missouri has been preparing for the rollout of a BYOD policy for several years.\textsuperscript{14} Beginning with professional development focused on the integration of technology in the classroom, the lead up to full BYOD implementation has required \textbf{two years of teacher preparation}. With such a lead up, the school feels BYOD will not constitute a major change for staff. Some classroom management and instructional changes are expected, such as having to set forth guidelines for electronic document submissions such that formats are the same across devices. Ongoing Professional Learning Committee meetings will enable teachers and staff to bring up and address concerns over the program. Several meetings of different stakeholders will follow, each allowing staff and teachers to reflect on the implications of BYOD and how it will affect their instruction. Finally, instructional coaches will be made available to assist teachers in planning and teaching lessons in which students use their own devices.

Additionally, the school provides sample curricular elements in which students can be encouraged to use their own devices.\textsuperscript{15} In these sample activities, students are provided with the goals of their assignment, which are presented in general terms (e.g., distinguish between primary and secondary sources). Students will be informed prior to the start of the assignment that they will need their personal device, as well as the type of software they will require, such as word processing. Students must be surveyed ahead of time to determine what school resources will be needed for those students who cannot bring their own device. These are considerations which are taught to teachers during professional development activities and put into practice as technology is integrated into the curriculum.

At Boyd Independent School District in Texas, the BYOD program is being rolled out prior to the implementation of comprehensive professional development. In its 2010-2013 Technology Plan, the district identified the need for ongoing professional development in integrating technology into the curriculum. In the years covered by the Plan, technology professional development is mandated to occur for at least one day of in-service each year.\textsuperscript{16}

\begin{footnotesize}
\begin{enumerate}
\end{enumerate}
\end{footnotesize}
Implementing BYOD

The growing popularity of Bring Your Own Device programs is fueled both by the idea that allowing student-owned devices to supplement school-purchased technology can help cut costs and by the realization that learning can benefit from technology when students use appropriate applications. By taking advantage of student interest in technology, schools can support and create personalized learning that is guided by teachers and peers.

Implementing BYOD requires careful execution so that the district maintains some measure of control over the content which is accessed and delivered on school grounds. First, though, districts must ensure that the outcomes of a BYOD policy are aligned with the district’s mission and vision. If this is not achieved and the role of technology is unclear, it may become difficult to justify the use of district resources on supporting a policy which itself does not support the district in its intended outcomes.

The Director of Technology for a school district in Texas recognized that no one had yet compiled a list of best practices in implementing BYOD across a school district. In response, he developed such a list of criteria, drawing upon his experience as an education technology expert and leader in educational policy discussions. This set of criteria, based on both personal experience and research, covers the primary areas toward which thought should be directed when implementing BYOD.

These criteria are intended to help district officials identify the strengths and shortcomings of their BYOD policies and curricular integration. He states that districts should measure themselves against such criteria, as BYOD implementation for its own sake will not serve teachers or students—BYOD must be implemented to make a positive impact on student learning. His criteria for BYOD implementation, a synthesis of available research on the topic, are reproduced in the following table.17

## Criteria for Implementing BYOD

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learner-Centered Education</strong></td>
<td></td>
</tr>
<tr>
<td>Design lessons that take advantage of the increased access to technology.</td>
<td>Blending technology into instruction is everyone’s responsibility. If technology is irrelevant to a lesson, then the lesson is irrelevant to learners.</td>
</tr>
<tr>
<td>Commitment to 1:1 learning environment where every student has technology access--and is prepared to use it academically.</td>
<td>Schools that can’t afford a 1:1 program need to shift their thinking. BYOD is a 1:1 learning environment. Have your learning activities been redesigned to support that focus on learning?</td>
</tr>
<tr>
<td>Create virtual classroom environments to facilitate connections, communication, collaboration and critical thinking needed for problem-solving.</td>
<td>There are many tools available to facilitate learning through the use of technology. Teachers have to be willing to create virtual classroom environments (e.g. wikis, Edmodo, Moodle) where students can access and share resources 24/7, anytime/anywhere.</td>
</tr>
<tr>
<td>Personalized learning approaches are embraced in anticipation of BYOD.</td>
<td>Students are allowed to take ownership of their own learning and are able to decide what they are trying to learn.</td>
</tr>
<tr>
<td>Provide training and monitoring on the elements of digital citizenship, cyberbullying, and sexting.</td>
<td>All staff and students are familiar with the appropriate use of social media and virtual classroom environments</td>
</tr>
<tr>
<td>Teachers employ Professional learning networks (PLNs) to learn, create, and share instructional approaches.</td>
<td>Teachers are actively encouraged to build PLNs through the use of social media, as well as blog/reflect about their learning and work in text and multimedia formats.</td>
</tr>
<tr>
<td>Improve Student Engagement by focusing on redesigned learning rather than “research and find the answer.”</td>
<td>Students develop digital literacy and information problem-solving approaches to collaboratively create content and share it with a wider audience than the classroom.</td>
</tr>
<tr>
<td><strong>Clarifying Expectations</strong></td>
<td></td>
</tr>
<tr>
<td>Responsible Use Policy is in place and has been collaboratively developed with stakeholders including students, parents, teachers, and administrators at the campus/district level.</td>
<td>Staff may use a personal device in place of (or along with) their district assigned devices if they choose. Students may use a personal device in class for instructional use with teacher permission.</td>
</tr>
<tr>
<td>Progressive disciplinary action based on level of offense against the policy put in place.</td>
<td>Avoid putting new discipline actions in place, especially those that deny access to technology. to handle new infractions. Instead, decide how traditional discipline actions can best be used to handle BYOD offenses.</td>
</tr>
<tr>
<td>Determine who pays for theft, loss or damage of student-owned and/or teacher-owned devices.</td>
<td>Establish policy and practices that devices are secured in a cabinet during breaks, lunch, and physical education for those students who would prefer that security.</td>
</tr>
<tr>
<td>Criteria</td>
<td>Target</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Determine whether schools will require parents to pay for student-owned devices as BYOD takes off, not unlike a band instrument.</td>
<td>Communicate with parents and let them know whether currently-owned technology is “good enough,” or whether there will be an increasing expectation that they buy new technology to accommodate school learning.</td>
</tr>
<tr>
<td>All individuals participating in BYOD will complete an online registration form that details what devices they are bringing.</td>
<td>Students participating in the BYOD program complete a formal online registration where students and parents agree to the rules and regulations and register which devices students are connecting to the network.</td>
</tr>
<tr>
<td>All mobile devices will be brought to school fully-charged.</td>
<td>Expectations for student devices will mean that these are brought to school fully-charged.</td>
</tr>
</tbody>
</table>

**Technology Readiness**

| Wireless access points are allocated in student learning spaces in proportion to student population. | One or more wireless access points (WAP) that can support 20-25 connections each and cover all learning spaces with WiFi access.                                                                                                                                            |
| Campus and district network has can support many wireless/WiFi devices. | Sufficient bandwidth to accommodate the total number of possible connections, which may range from 20-25 users to triple that number per classroom or learning space.                                                                                          |
| District Technology Department can “throttle” or adjust the WiFi being used by BYOD users to allow “normal” traffic through | The ability to limit levels of access depending on usage (e.g. too much YouTube EDU or video streaming).                                                                                                                                                                    |
| Implement a content filtering solution for BYOD via WiFi based on student login/password. | When first connecting to campus/district wireless, students enter their username and password. This may require purchase of additional equipment on the network backend to support student single sign-on (SSO).                                                   |
| Students, their parents and teachers can access free anti-virus/ anti-malware software they can load on their mobile devices. | Create a web site with easy downloadable anti-virus and anti-malware programs that students can install on devices. Students are also provided a sticker certifying that the device is “ready for use on the District WiFi network.”                      |
| Electrical power is sufficient to support 4x as many devices as the school currently has. | Mobile devices that are in constant use are power-hungry. Electrical infrastructure has been evaluated by third party sources to meet projected demand.                                                                                                               |
| Ample locations to power devices exist in learning spaces.              | All learning spaces have places where students and teachers can recharge their mobile devices. This may involve power strips/surge protectors, as well as easy ways to supervise access.                                                                  |

Source: Miguel Guhlín. “BYOD – Criteria for Implementation Success.”
District Profiles

The Hanover Public School District (HPSD) in Pennsylvania is in the process of implementing BYOD in its schools, in order to “increase the access all students have to the technology they need to succeed.”18 The district gives three reasons which are the driving forces behind BYOD implementation:

- Applications accessed by a web browser, like Google Docs, eliminate the need to have specific software loaded onto every student computer.
- Cloud based computing allows students to access their information from any computer with a web browser.
- The current economic times require unique strategies to ensure every student has equitable access to online resources.

HPSD believes, then, that **BYOD will save the district time and money**, will allow students to learn from any setting, and will help them develop skills necessary to be effective citizens of the technological culture outside the classroom.19 However, BYOD programs are not entirely without costs; to support its own initiative, HPSD has purchased a cloud-computing service from a third-party vendor (Ericom Software), which will provide browser-based access to hosted Windows applications and desktops from mobile devices and laptops.20

To further support the initiative, HPSD maintains a website specifically for information relating to BYOD. On the website, students and parents can find information regarding Digital Citizenship standards, the National Educational Technology Standards for Students, a list of acceptable devices, the acceptable use policy, and answers to other frequently asked questions. In the software section of the website, it states that students need no special software except one of a handful of recommended web browsers. Of particular note, the district is “not allocating resources at this time to troubleshoot issues” with students’ devices, leaving students and teachers largely on their own to figure out problems with individual devices.21

In terms of professional development, the district states that teachers will have the opportunity to explore ways in which students’ devices can be incorporated into instruction during weekly “Technology Tuesday” sessions. These take place during regular morning collaboration periods, and specific topics will be addressed each

---

19 Ibid.
week. Additionally, HPSD maintains an educational technology resource page, with information on Google applications, Moodle, Twitter, social media, blogs, and where to find free media to incorporate into lessons.

Anderson County Schools is another district which has recently implemented BYOD. The district serves approximately 4,000 students across nine schools in Kentucky. The district, with three IT staff and a limited budget, did not have the resources to support a 1:1 initiative. However, with 80 percent of students in the district interested in bringing and using their own devices to school, the district decided to implement BYOD. In order to support the initiative, the district’s existing network would have to be upgraded. New features that would be required included the ability to track and monitor student use on any network and device type, ensuring network security, and providing controlled access for individual users without increasing the burden on the IT staff. Ultimately Anderson County Schools chose Enterasys Mobile Identity and Access Manager to provide these functions.

With the Enterasys platform, all students are able to access the Internet and the same set of district resources regardless of what device they are using. Students are seeing the benefits of 1:1 without significant financial output from the district.

---

22 “Professional Development.” BYOD, Hanover Public Schools. http://byod.hanoverpublic.org/professional-development


Acceptable Use versus Responsible Use Policies

Two basic approaches can be taken to guide students’ use of technologies and their activities online. One focuses on acceptable use, while the other emphasizes responsible use. The primary difference between the two approaches is that acceptable use emphasizes poor behavior that must be punished or avoided, while responsible use emphasizes appropriate behaviors for maximizing learning.

Summary: Acceptable Use versus Responsible Use

<table>
<thead>
<tr>
<th>Acceptable Use</th>
<th>Responsible Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>❖ Stringent application of blocking and filtering software</td>
<td>❖ Moderate application of blocking and filtering software</td>
</tr>
<tr>
<td>❖ Online student access is limited to specifically approved resources</td>
<td>❖ Students allowed to explore to find appropriate resources</td>
</tr>
<tr>
<td>❖ Emphasis is on detailing prohibited behaviors and activities</td>
<td>❖ Encourages “good” choices in online behavior</td>
</tr>
<tr>
<td>❖ Focus on “bad” behavior and avoidance of unapproved resources enforces a restrictive view of the Web and the need to protect students</td>
<td>❖ Flexibility in student choices (adjusted for age) to develop responsible online skills</td>
</tr>
<tr>
<td></td>
<td>❖ Students are held accountable for online behavior without emphasizing punishment</td>
</tr>
</tbody>
</table>

While neither approach is necessarily more effective than the other at ensuring student safety and encouraging proper conduct with electronic devices, some student advocates are seeing a benefit to the use of responsible use policies over acceptable use policies. The Consortium for School Networking, for example, recommends that schools develop a responsible use policy that “treats the student as a person responsible for ethical and healthy use of online content.” This, they say, is because part of gaining an education regarding technology is developing an understanding of how to avoid inappropriate or malicious sites. Additionally, students who are able to choose their sources from an open Internet rather than one limited to a few prescribed websites gain the valuable ability to assess the validity of information found on the Internet and evaluate the trustworthiness of websites.


In a recent meeting of educators hosted by the International Society for Technology in Education, some administrators expressed concerns about BYOD programs, and their inherent inability to prohibit students from bringing inappropriate content on campus. However, it was then pointed out that an inappropriate image on a laptop, tablet, or cell phone screen is no different from an inappropriate image in a magazine in a backpack. Allowing technology in the school does not change the issue in that regard. Instead, allowing technology inside the school opens up the opportunity for students to learn the ethical and responsible use of mobile devices—how to become responsible digital citizens.

An operating responsible use policy requires much more than simply lifting a ban on students’ devices. Schools must dedicate significant resources to planning and building a wireless network, or upgrading an existing one that can handle the impact of every student accessing it at a given time. Security concerns must be addressed, as well, since part of learning is making mistakes, and learning to avoid malicious websites is no different. Additionally, there must be both student and teacher education on what constitutes responsible computing. Finally, as *Educational Technology Magazine* points out, schools should not lose sight of the ultimate goal behind BYOD initiatives: to incorporate these devices into the curriculum and maximize their value in the classroom.

Responsible use policies require administrators to trust that students understand and respect the need for boundaries on the access of information on school grounds. Putting the focus on student accountability makes for a more positive approach, rather than emphasizing how students can misbehave and the consequences of the misuse of technology. This does not mean that there should be no consequences in a responsible use policy, however. One administrator at Deer Park Independent School District (Texas) states that a responsible use policy should “spell out the intent of the program, how students are expected to use their devices, what constitutes an infraction, and the consequences of such behavior.”

In general, an effective policy, whether establishing either “acceptable” or “responsible” use, should include the following basic sections:

- **Introduction**: Explain the goals and reason for the policy. It may also state that existing rules and consequences covering student behavior apply to online activities.

---

29 Ibid. p. 4.
Definitions: Include key terms for parents and students.
Policy Statement: Describe the activities the policy covers.
Privilege versus Right of Use: States the district’s right to suspend or revoke use.
Acceptable/Unacceptable Uses: Clearly lists appropriate and/or inappropriate activities and behaviors.
District’s Right to Monitor Use: State that students have no expectation of privacy when using the school network.
Violations/Sanctions: State how and to whom violations may be reported. Can include consequences for infractions if they differ from breaches of general code of conduct.
District Disclaimers: Waive responsibility for the accuracy or quality of information obtained through the network, any financial obligations incurred by network users, or occurrences such as damage to devices, loss of data and service interruption.

The Paso Robles Joint Unified School District (California) maintains a Responsible Use Policy for the use of personal electronic devices. Each year, the policy must be signed by both the student and the student’s parent or guardian. Without the signed document, students will be unable to use district technology equipment. Through the policy, the district acknowledges that technology access gives students greater opportunities to learn, communicate, and develop 21st-century skills. In general, students are expected to “be safe, appropriate, careful, and kind; don’t try to get around technological protection measures; use good common sense; and ask teachers if they don’t know.”

The policy covers “all available technologies,” which includes personal electronic devices. It combines responsible use with acceptable use, by stating explicitly what students are not allowed to do with technology in addition to giving them the flexibility to make their own decisions. Inappropriate conduct in the use of technology includes:

- Damage, vandalism, or theft of equipment
- Theft, piracy, and altering software
- Installation, downloading, or utilization of unauthorized or unapproved software including file sharing, proxy, network or user monitoring or remote access software
- Theft of services

Use of system to communicate unlawful information or to transmit computer viruses, Trojans, or backdoor software
Accessing information which is pornographic, obscene, sexist, racist, or abusive
Plagiarism of ideas or information
Violation of copyright
Use of the system for commercial purposes or for political campaigning
Assuming another person’s identity on the network
Attempting to bypass computer security
Not using the assigned login/password during any computer use
Attempting to gain unauthorized access to the network
Making deliberate attempts to disrupt the system or network
Utilizing file sharing software to obtain copy-protected, copyrighted, or inappropriate files
Attempting to vandalize equipment or harass other users, including cyberbullying
Other conduct deemed objectionable by the school district

Students are expected to observe “Netiquette,” which requires communicating in a courteous and respectful manner. Students must take reasonable safeguards against security threats, and should never share their personal information on the Internet.

Policies are specifically set forth for personal electronic devices, which can be used for educational purposes when allowed by a teacher. Students are expected to adhere to the acceptable use guidelines above, but must also agree to responsible use as these devices cannot be governed in the way that school technologies can. For personal electronic devices on the school network,

Students are expected to use them for positive purposes (learning and legitimate communication)
PEDs must not be used to harass or victimize other students or staff
The device must run the latest virus protection software
The device must run the latest security patches for its operating system
The device must be free of spyware, adware, worms, viruses, Trojans, and peer-to-peer software
The device must not be used for illegal activity
The device must not be running Internet or web hosting services
Staff may inspect a device if it is suspected to be being used inappropriately
During school hours, the Internet may only be accessed through the school’s wireless network
The district recognizes that it cannot control students’ use of their own devices and so sets forth guidelines for their use in an educational setting. The consequences for misuse of personal devices is the same as that for district technologies.

At Odem-Edroy Independent School District (Texas), distinctions are made between certain types of personal electronic devices, some of which are prohibited. Students may not bring devices which are deemed disruptive. These include recording devices, radios, pagers, laser pointers, and other devices which are deemed distracting to the educational environment. Non-disruptive devices include laptops, netbooks, tablets, e-readers, and audio players. These may be used during classroom instruction as permitted, and during lunch and spare periods as directed by school personnel.32

Different rules govern the use of mobile phones. They may not be used for voice or text communication during school hours. The use of other capabilities of mobile phones, such as internet access, e-reading, and video/audio functions, is restricted during class time to the discretion of school personnel, though students are free to use these capabilities during lunch.

Spring Grove Area School District (Pennsylvania) first created a responsible use of technologies policy in 1996, with most recent revisions to it occurring in April 2012. Under the policy, “all users have the responsibility to respect and protect the rights of every other network user.” Additionally, staff are tasked with the responsibility to help students develop skills necessary to evaluate information, identify age-appropriate information, and utilize online resources to meet educational goals.33

The district has developed a list of guidelines which constitute a combination of Responsible and Acceptable Use. In general, “all users are expected to act in a professional, responsible, ethical, and legal manner.” Specific responsibilities are the following:

- Use of the Internet and network resources must be in support of District educational and operational programs.
- Illegal activity, commercial activities, lobbying, and unauthorized advertising are prohibited.
- Hate mail, discriminating remarks, profanity, inappropriate language and offensive communications are prohibited.
- Bullying, cyber bullying and harassment are prohibited. The student will abide by District bullying policies when utilizing District technology, network and Internet resources.

Access to or distribution of pornographic, obscene, lewd, illegal or other material deemed harmful to minors is prohibited.

Users will not intentionally seek information on, modify, or obtain copies of files, other data, or passwords belonging to other users, or misrepresent other users on the network.

Use of school technology or network connectivity for fraudulent or illegal copying, communication, taking or modification of material in violation of law is prohibited and will be referred to appropriate authorities.

Loading, distribution, or use of unauthorized software, programs or utilities on District technology or network services without prior approval from the District Technology Coordinator or his designee is strictly prohibited.

All users are expected to adhere to copyright laws and regulations. The illegal use of copyrighted software, materials, or files is prohibited.

The network will not be used to disrupt the work of others; hardware or software will not be destroyed, modified, or abused in any way.

All users will be responsible for damages to equipment, systems, and software resulting from deliberate or willful acts.

Any attempt to circumvent security measures on the District network or technology devices is prohibited. Unauthorized access, deletion, or modification of passwords, files, and data belonging to other users is prohibited. All users should report any security problems to the school administration.

Laser pointers and other laser-emitting devices are strictly prohibited.
Project Evaluation Form

Hanover Research is committed to providing a work product that meets or exceeds member expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.


Caveat

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties which extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every member. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Members requiring such services are advised to consult an appropriate professional.