

A BETTER APPROACH TO MOBILE DEVICES

*How do we maximize resources,
promote equity, and support
instructional goals?*

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The Case for Hybrid Mobile Technology Initiatives

Sharon Norman's high school biology students are completing a unit on homeostasis. She wants to know if they are able to apply what they've learned to real-world situations, so she devises an assessment activity that will take place over two periods. She breaks the class into teams of three, then randomly assigns each trio one of six examples of homeostasis in action (e.g., sweating, thirst). The students' assignment is to use one of eight iPads (checked out from the media center) to make a one-minute video explaining why their topic is an example of homeostasis. Ms. Norman explains that for this assignment, the videos are limited to just 60 seconds and may not be edited, so if mistakes are made, students will have to reshoot the video. She distributes a checklist and reviews it with the students to ensure they understand the assignment's requirements.

Ms. Norman also gives the class a QR code (a type of two-dimensional barcode) to scan with a QR code reader app that they previously installed on the personal mobile devices they've brought from home. The code takes students to a LiveBinder (a digital content collection at LiveBinders.com), featuring links they can use as they research their topic and write scripts for their videos. Students spend the remainder of the period reviewing the online resources

provided by Ms. Norman and developing their scripts. Some students use a free journal app on their personal devices to take notes and write their scripts, while others opt for a traditional paper-and-pencil approach.

The next day, student groups practice and record their videos. They work in the classroom, the hallway, and the library media center. When students finish their videos, they upload them to a shared folder using Google Drive. During the last 20 minutes of class, Ms. Norman uses her laptop and projector to show the completed videos, and the class critiques them.

At a nearby elementary school, 5th grade teacher Paul Adams decides to mix things up a bit by incorporating use of mobile technology in a project-based lesson designed to teach students to write a character sketch. On the materials list, in addition to the six Android tablets and six Chromebooks permanently assigned to the classroom, are the students' own personal mobile devices.

On the first day of this multiday activity, Mr. Adams provides an overview of the project, explaining how authors use character sketches to improve their writing. He tells students that they will work in groups of four to create a fictional character and write a detailed description of this person. To help them get started, Mr. Adams shares links to 10 royalty-free photos of ordinary people from different walks of life. Each group selects one of the photos and uses an Android tablet to download their chosen image. They open the photo using a free app called Skitch, which allows them to add text and objects to the image. Today, they add the name and age

of their character, identify at least six specific features in the photo that provide clues about the person, and use the app's arrow and text tools to call out each feature.

Over the next few days, Mr. Adams's students will use the information they brainstormed in Skitch to create a character map on the classroom's Android tablets using the free version of an app called Mindmeister. They will then use the classroom Chromebooks to write the character sketch, guided by a template stored on Google Drive. They will also use their personal devices as needed throughout this process, primarily for note taking and research.

1:1 Versus BYOD

Since the first desktop computers were installed in school computer labs, educators have struggled with how to optimize student access to technology. When most teachers had limited individual experience using personal computers, bringing students to the computer lab once or twice a week seemed to be a good solution. Over time, however, it has become clear that if technology is to have a real impact on learning, students need regular and immediate access to it.

The evolution of more portable laptop computers offered more flexibility in terms of where and how technology could be used. As the prices of these products dropped, schools and districts purchased more devices for use in classrooms. As early as the 1990s, educational institutions began experimenting with 1:1 initiatives, programs in which a school or district provides an Internet-connected device (typically a laptop in the early days, often a tablet now) to

every enrolled student for the purpose of accessing digital instructional materials and the Internet. These 1:1 initiatives have lots of benefits. From an administrative perspective, the use of a common platform streamlines need for technological support and facilitates both equipment maintenance and software updates. In terms of equity, 1:1 means all students in the program have equal access to the technology. Then there is the point that monitoring students' use of the mobile devices is fairly simple, because all the devices are owned by the district or the school.

However, there are also drawbacks to the 1:1 approach, many of which are grounded in the need for sustainable funding to keep the initiative going. For example, initial investments in hardware, software or applications, subscriptions, and site infrastructure are high. There are also the ongoing costs of staffing, maintenance, repair, hardware replacement, subscriptions, and tools for monitoring, not to mention funding for regularly scheduled professional development opportunities for staff members.

Given the expense of successfully launching a 1:1 initiative and the growing number of students who own personal mobile devices (laptops, tablets, and smartphones), many schools are debuting Bring Your Own Device, or "BYOD," programs, where students and educators use personal technology devices at school. There are several reasons educators commonly cite for adopting BYOD. Because students express a preference for using their own devices whenever possible (Project Tomorrow, 2013a, p. 9), and a majority of parents report they are willing to purchase mobile devices

for their children to use at school (Project Tomorrow, 2010, p. 12), BYOD programs can be less expensive for schools, both initially and on an ongoing basis. These cost savings enable schools and districts to reallocate limited financial resources toward expenditures for infrastructure or professional development. In addition, maintenance and equipment replacement costs become the parents' responsibility.

But BYOD programs present a number of challenges of their own. Students must remember to charge and bring their devices to school, and with those personal devices in hand, the potential for distraction is high. Teachers often find themselves reworking learning activities and classroom management strategies to ensure, as much as possible, that students who have continuous access to their social media feeds, games, and favorite means of communicating with friends stay on task. The technology can be a challenge, because even with defined minimum specifications for devices, teachers cannot assume students will be using a common platform. There is also the possibility that students won't have a device they can bring to school, raising concerns about equity. Further administrative concerns related to BYOD include the need to update policies and procedures to address such concerns as privacy, filtering content for appropriateness, and financial responsibility for required paid apps. And while the initial costs of BYOD programs may be less than those of 1:1 programs, they still present the ongoing costs of infrastructure maintenance and professional development.