CHAPTER 3

Roadblocks to Technology

Unless your school or district has unlimited funding and gives you completely free reign on your purchases, you have hit roadblocks in your quest for classroom technology. Chances are that you do not have the student technology to become a fully stocked digital-age learning environment, but you are not alone. In this chapter, we provide ideas to use and manage the equipment and software/apps you already have, and we explore ways to add more. It is our hope that when we come to the later chapters on practical ways to integrate your technology with the CCR standards and your curriculum, you will be better prepared to maximize your resources.

What Are the Roadblocks to Accessibility?

If it is not possible to provide all of your students with tablets or laptops, providing them to half the class is the next best thing. This allows you to work with small groups or pairs of students. Another option is to share technology with the classroom next door to gain at least some time with a full class set of laptops or tablets.

Lack of Funding for 10–12 Tablets/Laptops per Classroom

One option is to have each grade level share a cart of fifteen laptops or tablets in addition to a mobile lab that any classroom can access. We suggest department-level sharing of technology with no more than three sections, as more sections are likely to be too limiting. If there are four or more sections in a department or subject area, add more mobile labs. This will allow the subject area class to have access to at least half of a class set. When you need a full class set, use the mobile cart to fill in the gaps. Another way to share additional mobile devices is to divide the fifteen laptops or tablets into sets of five for each of three classes and then have teachers share

devices when necessary. You could also place all fifteen laptops or tablets on a cart and provide a signup sheet for as-needed use.

Only 4–6 Laptops/Tablets per Classroom

You can have half the class double up on the tablets at one time or you can share with other classes near you to get more. To accomplish the latter, you have several options: look for other subject areas that can share their laptops or tablets for that period; arrange certain days when each class has all of the devices; or teachers can request them informally. The key is easy accessibility for your students.

Computer Lab Limitations

A computer lab with enough computers for all of your students is another great resource, especially if it includes a tech or media center teacher or assistant. This is great because everything is in a set location and there is another knowledgeable teacher available. The downside is that teachers have to schedule certain times, and everyone must work on the computers at the same time. If you have access to tables in the lab or a nearby learning space, you have the opportunity to do other things with students who finish their work early, forming smaller work groups as in a traditional classroom.

1:1 Initiatives

Many districts are moving to a 1:1 device initiative for tablets or laptops. If this is not the case in your district, then you will be more limited. More than likely, you will not have a full class set to yourself. If you are able to get a set to share, the easiest arrangement is to schedule times to use the devices. However, with such limited class time and many students per class, splitting up a class set so teachers get four to five devices per class may be a better option. It will take more planning on your part to outline how your students will divide their technology time.

At high school, and even middle school level, enlisting students' smartphones is another option. Many students have them and bring them to school. Your district should discuss how to use these resources to their advantage while not interfering with the learning process. Some states are already using student-owned devices in their schools and have begun writing policies for them. For an interesting look at cell phone issues in schools, see Derrick Meador's article, "The Pros and Cons of Allowing Cell Phones in School" **(tiny.cc/0ajq3y).**

Additional Equipment

How do you choose additional technology to better equip your classroom when your budget is already tight or inadequate? Aside from laptops and tablets, it is imperative to have a multimedia projector so that all students can see lesson materials, projects, resources, and so on. Other valuable equipment includes:

- **Document cameras:** You will use these every day to display written books, worksheets, student work, and the like. Once you have one, you won't know how you got along without it!
- **Interactive whiteboards:** These are great for engaging students, especially during whole-group instruction.

With so many new websites that can turn laptops, tablets, or smartphones into interactive technology, buying interactive response systems is no longer necessary.

Free interactive websites may offer upgrades for an affordable fee, including: Socrative **(socrative.com),** AnswerPad **(theanswerpad.com),** AnswerGarden **(answergarden.ch),** Quizlet **(quizlet.com),** and Annotate **(annotate.net).**

Keeping Up with Students' State Assessments

Different groups developed PARCC and Smarter Balanced to test for college and career readiness beginning in Grade 3. As of 2019, eighteen states use one of these two tests to assess their students in Grades 6–8, or use a mix of these and their own test. The rest use state-created or other tests to assess students. In high school eleven states use PARCC or Smarter Balanced, twenty-five use ACT or SAT testing, and the rest use state or other exams for student assessment (Gerwitz, 2019). Your students may be tested more than once a year depending on their grade level and what test is given in your state. Many of these assessments are computerized and have certain technology requirements, but they allow traditional paper-and-pencil versions when necessary. (Teachers should be aware that traditional versions may be phased out eventually.)

We will not address the specifics of network requirements; just know that your school or district will need to meet certain operating system and networking specifications whether they are using the Smarter Balanced, PARCC, or state-created assessment.

Additionally, your network must be able to address security requirements to keep student information safe. Following are the informational sites to help you find what you will need.

- **PARCC** technical requirements: **(tinyurl.com/y8vknzrk)**
- **Smarter Balanced** technical requirements: **(tinyurl.com/yddyof89)**
- **ACT** technical requirements: **(tinyurl.com/y8dae3ob)**

How Do We Overcome Software and Hardware Roadblocks?

You cannot benefit from technology if you don't have it. It is also difficult to share it if you don't have enough of it. You need it on time and easily accessible if you truly want to use it seamlessly. This may be the biggest roadblock. We discussed how you might use different configurations of new or existing hardware in your school. The more pervasive the technology, the easier it is for you to achieve the goals set forth by the standards.

Sources of Funding

If you don't have enough equipment and/or software, apply for grants. While there are more grants available for economically disadvantaged districts, some are accessible to all districts. State and federal grants are available, especially if you can link your needs to the standards. The Bill & Melinda Gates Foundation and big companies like Google, Target, and Staples give to schools. Ask your Parent Teacher Association (PTA) or Parent Teacher Organization (PTO) for money. Many districts have foundations that fund grants for teachers. You could even do a fundraiser for new technology. Following is a list that is by no means complete but offers a great place to start.

GOVERNMENT

- **21st Century Community Learning Centers (tinyurl.com/7nx37vb):** This funding is designed to get parents and the community to actively support your work in the classroom.

- **Individuals with Disabilities Education Act (IDEA), (tinyurl.com/y5ue5o6d):** These funds are for students with disabilities.
- **Grants.gov (tinyurl.com/k8fybkt):** Search this site for all available federal grants. These grants include:
  - **Every Student Succeeds Act (ESSA):** This funding replacing the No Child Left Behind Act is designed to create equitable funding, support for the standards, and grow innovation in the classroom.
  - **Investing in Innovation Fund (i3):** This program provides competitive grants to schools demonstrating improved student achievement and innovative practices.
- **Grants Funding Forecast (tinyurl.com/hkcrx74):** This resource offers an annual list of funding opportunities.
- **Computers for Learning (computersforlearning.gov):** This government program encourages agencies to transfer their used computers and related peripheral equipment directly to schools.
- **State Government (tinyurl.com/y9dfltpr):** Look for your state's educational website in this online index.

FOUNDATIONS

Many private foundations offer grants. Following are just a few.

- **Bill & Melinda Gates Foundation (tinyurl.com/odwcrra):** This is the largest private foundation in the world. Its primary aim in the United States is to expand educational opportunities and access to information technology.
- **The Foundation Center (foundationcenter.org):** This independent, nonprofit, information clearinghouse collects information on foundations, corporate giving, and related subjects.
- **Foundations.org (tinyurl.com/7sf3c):** This online resource provides an A–Z directory of foundations and grant makers.
- **The NEA Foundation (tinyurl.com/or2qc56):** This teacher association gives grants in several areas.

COMPANIES

Many of the companies that manufacture the products we use every day have educational initiatives that offer grants for public schools. Following are just a few.

- **Target (tinyurl.com/cdt25kz):** Target offers grants in many areas, including: education, the arts, and public safety.
- **Toshiba (toshiba.com/taf/612.jsp):** Toshiba offers math and science grants for 6–12.
- **Google (tinyurl.com/pm9gar4):** Google has several sites dedicated to corporate giving. Google for Nonprofits is a good place to start your search.
- **Microsoft Corporate Citizenship (tinyurl.com/p62et7u):** These grants are available for after-school programs.
- **Staples Foundation (tinyurl.com/yaysgbpo):** Staples educational giving teaches, trains and inspires people from around the world by providing educational and job skill opportunities.
- **CenturyLink Clarke M. Williams Foundation's Teachers and Technology Program (tinyurl.com/otej8rl):** These grants are designed to help fund projects that advance student success through the innovative use of technology. Teachers in public or private PK–12 schools in CenturyLink's residential service areas are eligible to apply for a Teachers and Technology grant.

OTHER RESOURCES

Microfunding through school- and classroom-specific grants can yield substantial results. Often donors are willing to fund projects whose impact they can directly observe.

- **Donors Choose (donorschoose.org):** A crowd-sourced educational funding site that works with donors funding specific projects of various types.
- **ClassWish (classwish.org):** Crowd-sourced educational funding that lets you raise money for any classroom project in the country.
- **Adopt-a-Classroom (adoptaclassroom.org):** Facilitates individual donations to help teachers get the supplies they need.
- **National Charter School Resource Center (tinyurl.com/ph2ytng):** This resource website has many links to funding opportunities.
- **eSchool News (eschoolnews.com):** This is a great grant resource for K–12 and higher education.

- **Internet@Schools (tinyurl.com/nnh5n9d):** This online magazine for education provides a vast list of free resources, grants, and funding.
- **Scholastic (tinyurl.com/nd3t97t):** This educational mainstay has many great grant resources, too.

Free Software and Apps

Software and app purchases are a challenging roadblock, especially if your district or school doesn't provide enough funding. Fortunately, there are many free resources. Search app stores for free apps. Free sites, such as Google Docs, are also great places to start. In addition, there are entire sites with free services geared toward the standards.

If you are in a small district or a private school, or if you live in a state where funding is limited, follow the money. Go to websites in states and at schools that do have the funds. Look at websites in wealthier school districts near you. Do they have lessons, activities, and technology ideas that match your standards and are free to anyone on the internet?

Many states have CCSS resources posted for free! Take advantage of them. For example, New York has many helpful suggestions at EngageNY.org **(tinyurl.com/npc7q58).** Utah has also published a very resourceful standards site that can be found at the Utah Education Network (UEN), **(tinyurl.com/l2e532).**

Free software and apps are also available from private companies. These sites usually have ads, or they may want you to purchase add-ons; you and your district will have to judge their value for yourselves. More examples of free applications and websites are given in the Practical Ideas chapters (8–12) of this book.

What Other Roadblocks Must We Solve?

Systemic educational roadblocks can take many forms, which are often unintended or unavoidable. Here are three common challenges teachers face.

Misguided Policies

Some districts or schools require that all departments have the same apps or software. They don't allow teachers to choose what they prefer, and this can be frustrating. If your district wants all software to be the same, you might try explaining

why each department and each teacher would benefit from using different software, apps, and equipment appropriate to their students' needs.

Some districts implement policies that do not allow teachers to use technology as a tool. Instead, they force teachers to use technology when other mediums or tools make more sense. For example, we discovered a district that required teachers to teach with a tablet 85% of their instructional time. This district even required students to bring tablets to gym class and physical education teachers to use tablets in every class period. School leaders who enforce this kind of policy know very little about infusing technology into the classroom. It would be better to achieve higher technology use through staff development and individual coaching (e.g., through the use of this book) than by generating untenable policies that don't actually affect meaningful student learning.

To counter these policies, speak to your principal, go to a technology meeting, or attend a board meeting! Explain that technology is a tool and that meeting the CCSS does not require you to use technology every second of the day. There is a time and place for technology just as there is a time and place for math manipulatives, a calculator, a book, and even a pencil. Balance is the key. If anything is overused, it (and your effort) is set up for failure.

Parents

Parents will ask the question, "Why do we need new or more technology?" Have a discussion at open house nights and board meetings about what you will be doing or would like to do with technology. Explain that your state's standards require everyone to integrate technology, and this is important for today's students. Please refer to the chapter on parent education (Chapter 2), which has specific suggestions about many of the issues that become parental roadblocks.

Staff Development

Teacher training is so important. You need to have professional development in the area of technology for yourself as well as for your students. If you have a technology or instructional coach, great! Spend a lot of time with this coach—set up weekly meetings. A coach can help you as well as model or co-teach with you. There are many professional development opportunities online as well as off-site in the area of technology. Refer to Chapter 4 to learn how to get staff development outside your district and how best to get around these roadblocks!

How Do You Get the Help You Need?

One of the key components of using technology is getting help. It is easier for middle and high school students to work independently with technology and follow directions. However, it may still be very difficult to manage a class of students who are all trying to use technology at the same time. This is also the case when teachers try to work with a small group while the rest of the class is doing something else on tablets. Inevitably, something goes wrong with someone's computer, so many high school districts use student technology assistants.

It is extremely helpful to have another set of hands. If you have assistants who come to help on a regular basis to help, this is a great resource. You can call on these assistants when you need them, which allows greater freedom to work with the whole class—if you have enough equipment.

If you do not have access to assistants, middle school teachers might try using parent volunteers. The worst part of using volunteers is inconsistent attendance. However, if you can find a parent or two who are willing to come in on a regular basis, they can be a great help. You will need to find time to train your volunteers of course, but once you do, most will be savvy enough to pick up what they need to do in class.

Make sure that you have class passwords where it is easy for you to find them. Forgotten passwords are an annoying occurrence, so having them easily accessible will help you manage the situation comfortably.

Another option is to work with your fellow teachers. Consider arranging your schedules so that you each take extra students while the other uses technology with a smaller group. Overseeing fewer students makes technology use much easier to manage.

Create peer groups that have a mix of tech-savvy students and those who struggle with technology. This is especially effective at the high school level. Making the most of available technology is all in the management of it. We know several high schools that have their technology departments employ students and train them to help throughout the high school all year long.

Although there can be many roadblocks that prohibit you from using classroom technology the way that you would like, there are ways to overcome these challenges. By using the suggestions given in this chapter, we hope you will overcome any roadblocks that lie in your way and that you have most everything you need at your fingertips.