

By Kristin Redington Bennett

Less Than a Class Set



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Just a few iPads in a classroom can support and enhance learning and facilitate individualized instruction.

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One of my preservice teachers took iPads into her second grade class for the first time this year expecting to revolutionize her math instruction. As part of her coursework in my elementary math methods course, she wrote lesson plans that used the iPad to support her teaching of money (pennies, nickels, dimes). She wanted to use the device to help her students interact with the content in motivating, authentic, and effective ways. She chose the iPad over the school's laptops because the device is more portable, can be customized, and is alluring for kinesthetic learners, making it a natural fit for elementary students.

At semester's end, her biggest accomplishment might have been this: She handed one iPad to a young boy who every morning caused a commotion in the reading center before the instructional day started. She showed him how to download books he might like. From then on, he read with focus and concentration for at least 20 minutes each morning—something she had yet to see him do in his previous six weeks in the classroom.

The iPad holds amazing potential for classroom use. Unfortunately, it also can cost more than \$500 when you factor in 3G access and a budget for apps. But don't dismiss the iPad because you think you can't afford a classroom set. Just a few—or even only one—is enough to get results. Having a class set promotes traditional, whole-class instruction, but fewer iPads facilitate individualized and tailored instruction.

Assessing the Potential

Start with the idea that iPads are like personal electronic whiteboards. They can deliver content in an interactive way, but on a one-to-one level. They offer easy access to the web, just like a laptop, but the apps work as instructional modules, so you're getting access to the internet, plus a multitude of activities. Moreover, iPads are less of a hassle for your IT department because the apps are updated automatically across devices. You don't have to download a new software version and then coordinate updates for all of the laptops that share your site license.

The interactive aspect of the iPad appeals to the kinesthetic learner because the apps motivate students to manipulate the content. The device also cuts down on the disruptions that group learning with the whiteboard can create as students call out answers in chorus.

Educators who aren't well versed in mobile technology should not shy away from the iPad. It is so intuitive that

even kindergarten students need little or no instruction on how to manipulate the device. With innovative instructional design, iPads can work especially well with inquiry- or problem-based learning modules. By creating app folders with a variety of content and creativity resources, students can use the iPad to answer questions and build knowledge.

Big Results from a Few iPads

Building on previous experience using handheld mobile technologies in K–12 classrooms, 17 preservice teachers in the elementary education program at Wake Forest University in Winston-Salem, North Carolina, USA, introduced 10 iPads in their student-teaching classrooms at several area schools. Each student teacher could use five iPads at a time. The only coursework requirement was that, as part of their mathematics instructional unit, they were asked to use the Technological, Pedagogical, and Content Knowledge (TPACK) framework to create at least one lesson that included the use of an iPad to support their learning objectives. Many student teachers took advantage of the opportunity to have iPads in their classrooms and voluntarily created lessons in other subject areas too.

Both the student teachers and I worried that the limited number of iPads would hinder the effectiveness of the lessons. We found, however, that fewer iPads required innovative thinking in terms of instructional design, and that resulted in excellent ways to differentiate instruction. We discovered several ways to put a few iPads to use in a classroom:

Centers. Put the iPad on par with other interactive media, such as a whiteboard, a desktop computer, and an iPod touch. Set up a similar task with an identical goal across all the platforms, such as a Google Earth scavenger hunt exercise, and note how students progress differently at each center. Include scaffolded instructions and a definite endpoint (such as the address for the school, if that's what they must find on Google Earth), so the students know what they're looking for and can find it without teacher intervention.

Partners and trios. Give the group a math task, assign each member a role (one student reminds teammates to stay on task, and another records the group's findings, for instance), and set the timer on the iPad's clock app to limit each student's time with the device. Use apps, such as Doodle-Buddy, as a small-group whiteboard, where students can answer specific questions with a visual representation and then save it to the iPad's photo album for later review.

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Here are some of our favorite educational apps:

Curriculum

Art/Music

Band
Le Louvre
Virtuoso Piano Free

Language Arts

SAT Vocab Challenge (free)
Spel it Rite (free)
Word Warp (free)

Math

ArithmeTick
Brainz
Cloud Math Free
Coin Flip
Coin Math (free)
iMaths
Kids Math
KidsMathFun
Mad Math Lite
Math Cards
Math Drills Lite
MathKingdom
Math Magic
Math Step123
Multiplication Genius
Number Line (free)
PopMath

Science

Molecules (free)
Star Walk

Social Studies

Constitution
Google Earth
Google Maps
Historical MapBlarj Lite (free)
Today in History Lite (free)

Special Education

Proloquo2Go
Wheels on the Bus

Productivity/Creativity

Adobe Ideas (free)
Adobe Photoshop ExpressDraw 4 Free
Colors! Lite

Comic Touch Lite
Corkulous
DoodleBuddy
Draw 4 Free
Filterstorm
Google Docs
iDoodle2 lite (free)
iThoughts
iWorks
Keynote
Kid Animation (free)
Magic Drawing Pad
Numbers
Pages
Photo Frames
Photogene
Puppet Pals (free)
Qvik Sketch
StoryKit (free)
Strip Designer

Reference

2Do Lite
3D Brain
aNotes
Art Lite (free)
BBC News
BrainPOP Featured Movie
Cool Facts (free)
Dictionary!
Dragon Dictation
EarthObserver (free)
ENG-LAT
Facts (free)
Google Earth
GoSkyWatch Planetarium History:Maps
National Gallery, London
National Geographic
NPR
On This Day
Planets
Presidents
Simplenote
Wikipanion
World Countries ALL-IN-ONE (free)

Educators who aren't well versed in mobile technology instruction on how to manipulate the device.

Teacher only. Eliminate the need for a projector in your classroom by using the iPad as a digital display for instruction. The teacher can hold the iPad while circulating around the room, or students can pass it to each other (invest in a sturdy case to reduce impact if dropped). One of my student teachers gathered photos from around the school and the internet and flipped through them as she described her lesson about geometric shapes found both in the school and in nature. Another used it as a digital book, because she couldn't find the book she wanted in the library. Others used the iPad for formative data collection (using Google's spreadsheet app) by creating attendance sheets and easily accessible parent contact lists.

Lessons Learned

Although each approach to using a limited number of iPads in a classroom has its own challenges and opportunities, the lessons we learned often applied to all situations.

Provide specific rules and self-navigated instructions. Create an instruction card that explains how to use the iPad (for instance, "If you close out of the app, press the main button to find it again") and the rules for using the device (for example, "Only one set of fingers on the iPad at a time").

Organize your apps. Have all the apps you want your students to use on the first page or within a folder on the main screen, especially if it's an unattended center. Fingers slip; apps close. You want your students to be able to restart their assignments on their own.

Turn off 3G. Use only your school's Wi-Fi to access the internet, and even then, make sure your iPad goes through the firewall to get online. Explain this to your administrator, who will have concerns about students accidentally gaining access to something they shouldn't see. And be prepared to turn off internet access altogether if you can't convince your administrator that it's secure. To disable 3G, from the home screen, choose Settings > Cellular and set Cellular Data to Off. Similarly, turn off Wi-Fi from the home screen by going to Settings > Wi-Fi and set Wi-Fi to Off. Most apps function offline, so you can still get a lot of instructional value even if your students can't go online.

Think outside the app. The Apple App Store has thousands of apps for download. But many are focused on lower-level thinking skills. Therefore, use apps that are not content specific to supplement apps that require problem solving and creative thinking. If you are teaching place values in

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math, use a drawing app as a whiteboard and ask students to indicate a number in three ways: writing the word, putting the correct number of shapes in the correct columns, and writing the number. The student would then save the answers to the camera roll, so the teacher could check it later. In teaching geometry, you could use an app for drawing shapes and download books about shapes.

Engaging Students One on One

After using iPads for a semester in elementary-level classrooms, my preservice teachers found they could design meaningful and engaging lesson plans around just a few iPads and could often solve the toughest of student problems with just one device.

So, though the headlines ring out with reports of entire K–12 classrooms—or even whole student bodies—getting iPads, you can make a difference with just one. Treat your limited number of iPads as a chance to engage each student.

Resources

App lists: www.kindergarten.com
Apple Distinguished Educators: <http://sites.google.com/site/touchdownstory>
Apptivities: <http://apptivities.org>
Education Apps Review: www.iEAR.org
iPad & iPod User Group Wiki: <http://wiki.canby.k12.or.us/groups/ipodusergroup>
iPads and Mobile Media in Education: <http://tiny.cc/ipadjulener>
Lesson plans: www.kbennett.net/WFU_Mobile_Learning_Lesson_Repository/Home.html (available April 2011)
Teaching with handhelds: www.kbennett.net/WFU/Handheld_Resources.html
Technological, Pedagogical, and Content Knowledge: www.tpck.org



Kristin Redington Bennett, PhD, is an assistant professor of education at Wake Forest University in Winston-Salem, North Carolina, USA. For the past five years, she has been preparing elementary preservice teachers to use mobile technology in the classroom.

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—Ashley Talley, Assistant Principal at Eaton Elementary School in Knoxville, TN (USA), and proud member of ISTE and Tennessee Educational Technology Association (TETA), an ISTE affiliate.

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