

Scanning the Potential for Using QR Codes in the Classroom

Cory Robertson and Tim Green

We are certain that you have seen at least one QR code. The QR (Quick Response) code was created in Japan in the mid-90s as a tool for the automobile industry to track parts in the manufacturing process. The application and use of QR codes have since expanded, but it has not been until recently that teachers have started to use QR codes in the classroom. This installment of Tech Spotting explains what QR codes are, describes how they can be accessed and created, and discusses several examples of ways we have seen K12 teachers implement them into the classroom.

Scanning QR Codes

QR codes are two-dimensional codes that drastically increase the functionality of traditional barcodes. The popular format of barcodes—typically found on purchasable items that are scanned at a register—are limited in functionality, because the scanner can only read from left to right. This severely limits the variance in codes. QR codes are read from left to right, and top to bottom. As a result, QR codes can store between 4,000 and 7,000 characters of information, compared to traditional barcode's 20 characters. QR codes are read by a program or app called a code reader. There are numerous free versions of code readers that will work on a variety of mobile devices. Two versions that we have used and like on the iPhone are Red Laser (<http://itunes.apple.com/>

[us/app/id474902001?mt=8&ign-mpt=uo%3D2](http://itunes.apple.com/us/app/id474902001?mt=8&ign-mpt=uo%3D2)), and QRReader (<http://itunes.apple.com/us/app/qr-reader-for-iphone/id368494609?mt=8&ign-mpt=uo%3D2>). If you have access to a smart phone, we suggest downloading a free code-reader to try out scanning QR codes. We have included two QR codes for you to try. The first is a link to a short *Educause* article on 7 things you should know about QR code (this is a link to a PDF file). The second is to a short video by the University of Texas on how to create a QR code (this is a YouTube video).



An Educause article on 7 things to know about QR codes (a PDF)



A YouTube video creating by the University of Texas on how to create a QR code

Creating QR Codes

QR codes are incredibly easy to produce. There are many sites that can assist you with creating QR codes, and the Kaywa QR Code Generator (<http://qrcode.kaywa.com/>) is one of those. It is a simple, web-based tool that allows you to assign a QR code to a web site address, text, or phone number. When you visit the site, you simply choose which media format you want to link to, and the information you wish your users to see (i.e. if you want to send your users to a picture, you'll choose "URL" and put in the address for the picture, if you'd like them to see specific text, you'll choose "Text" and then type in what text you want to appear). Then, you click on "Generate," and your QR code will be created.

After your code has been created, you can choose to copy the link to the code, at which point you can e-mail or post it for others to use. If you want to post the actual picture of the code on a site such as a blog or wiki, you can copy the embed code provided. Another option is to print the code and post it for others to take a picture of with their smartphones. Once they do that with a QR Code Reader, the information you originally embedded into the code will display.

Other QR code generators we have used with success:

<http://www.qrstuff.com>

<http://www.adobe.com/cfusion/marketplace/index.cfm?event=marketplace.offering&offeringid=10176&marketplaceid=1>

<https://addons.mozilla.org/en-us/firefox/addon/mobile-barcode/>

QR Codes in the Classroom

- **Bridge the Gap Between Paper and Web** - Teachers who integrate multimedia projects into their classroom often have the issue of displaying the work on a paper-based, physical bulletin board. With QR codes, the teacher can post a paper-version of the student's work on the bulletin board, and affix a QR code next to it for others to see the "enhanced" version. Specifically speaking, a site like Glogster prints out great for boards, but has interactive elements like audio, animation, and even streaming video that are not possible to reflect on a board. If the student generated a QR code for their Glogster, anyone can see on the board their work, then take a snap of the QR Code to see the videos, audio, and animations that are found within the electronic version (same for blogs or Wikis that have great writing, but reference embedded content).
- **Virtual Business Cards** - Students could have a QR code that is linked to their Blog or Wiki, printed out on a card, and taped to their desk. That way, at any time, the teacher, administrator, parent, or other students can take a snap of the QR code, and see what the student has been writing about recently. Once students know that any and everyone will be checking their portfolio at any time, their enthusiasm and dedication will increase. This idea can also work for Back-to-School Night or Open House. QR codes can be displayed around the school in different

locations that link to a variety of media. Parents could take a snapshot of the QR codes to view video introductions of teachers or students discussing different elements of the classroom.

- **Personalized Lessons and Differentiated Instruction** - For students who need supplemental material, either accelerated content or English Language support, a teacher using PowerPoint to present a lesson could embed codes in slides for those students. For instance, many curricula come with English Learner handbook activities that are supplemental to the lesson. Often they have extra vocabulary, visual support, or scaffolded activities. Instead of them having to wait for small group time, or sitting through a lesson they are confused about, they could snap a pick of the QR code, get the materials they need for that slide, and keep up with the class. Additionally, GATE students could snap a QR code from the slide, which takes them to a WebQuest or accelerated activity to do in support of what they're learning.
- **Gotta Catch 'Em All!** - Students could generate their own codes, attached to pictures they find online in support of what their learning. I'm currently helping a class with American Colonies, so that's fresh in my mind. Students could find pictures of famous colonial figures, generate a code for that figure, print it out, and start trading away. With the Pokemon-like motivation, excitement could be generated by allowing students "catch 'em all."

Parting Advice

Despite being relatively simple to create and use, there are several things to keep in mind before you

are planning on integrating them into the classroom. The list we provide includes the items we share with the teachers we work with. The list is not exhaustive, but it will help get you started.

- Keep in mind that not all QR codes work with all QR code readers.
- Try out a variety of QR code generators and readers. Although many of them will seem similar, we have found that some consistently work better than others (the ones we recommended). Continue to explore what is available. Improved generators and readers are being developed.
- Consider Internet connectivity issues—where are you having your users access the QR codes? Will they be able to easily access the Internet to view the content of your QR code?
- Make sure what you are sharing through your QR code has value for your users. Granted, you cannot please all users, but make sure the information behind the QR code is worth the time and effort.
- Get your students involved in creating and using QR codes. They often have unique ideas of how QR codes can be used.
- Start out simple. Create several QR codes and test them out with colleagues, friends, and family. Once you are successful, move on to using with your students. If you have a Web site where you share course information with your students, we suggest that you start here. You can print out the QR code on paper for your students for them to access. The code could also be shared with parents.

Cory Robertson is a former 5th grade teacher, is a teacher on special assignment for technology professional development in the Anaheim City School District.

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