

## Using QR Codes in Education

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#### QR Codes

What are QR Codes? A QR code (abbreviated from Quick Response code) is a two-dimensional matrix barcode that is readable by a QR code reader on devices such as iPads, iPhones, iPods, cell phones with built-in cameras or computers with cameras. The code consists of black modules arranged in a square pattern on a white background. The information encoded may be text, a URL link, a website, contact details, a link to a YouTube, a Google map, video, sound or other data. QR codes are common in Japan, and are one of the most popular types of two-dimensional barcodes. The QR code was designed to allow its contents to be decoded at high speed.

Here is an example of a QR Code. When scanned using a QR Code Reader on an iPad, iPod, iPhone or other similar devices, it code will launch a movie on Solving Simple Equations from the Khan Academy ([www.khanacademy.org](http://www.khanacademy.org)) website.



#### QR Code Readers

QR Code Readers and the software to create them are free. There are reader apps for nearly all platforms including the computer, and work on iPhones, iPad and iPod Touches with built in cameras.

When you launch the software it accesses the built in camera in your device. When a QR Code is displayed in the camera window it “reads” the code and performs the associated action such as launching a website, opening a map, displaying text, etc.

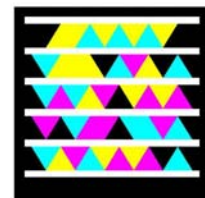
In the image to the right I am holding a QR Code up to the Webcam on my computer to be read.



Although there are many free QR Code Readers they are not all the same. Some work best with reading certain QR Codes and not well with others. A good QR Code Reader for the iPad/iPod platform is “**QR Code Reader and Scanner**”. It is listed on the iTunes App Store in the iPhone section but works very well on iPads and iPods as well. Of the free QR Code Readers I’ve downloaded it has been the best general reader I’ve found so far.

A talking QR Code Reader for the Android platform called IDEAL Item Identifier and accompanying article can be found at <http://www.apps4android.org/?p=58>

There are other “proprietary” QR codes. They only work using their associated proprietary “reader.” One example is the Microsoft TAG code. You must use the Microsoft software to create the TAG and the Microsoft TAG Reader to read the code. An example of as TAG is shown here.



Companies such as Microsoft, AT&T and Mobile Tag are promoting their own proprietary competing tags, or codes. You would need to create the codes using their software, and read the codes using their software, while what you saw at the beginning of this handout is open source, for anyone to create using open source programs, and use with open source readers.

### **Microsoft TAG**

To create a TAG Code go to <http://tag.microsoft.com/my-tags/getting-started.aspx> Here you can create and save a TAG Code. The Microsoft TAG Reader for the iPad/iPhone/iPod platform called “Microsoft TAG” can be found on the iTunes App Store. Readers for other platforms and phones can be found at <http://tag.microsoft.com/download.aspx>.

### **QR Code Readers for the Computer**

Using a webcam such as a Microsoft Life Cam, Logitech Webcam or the built in camera in your computer can read a QR Code using reader software. From <http://www.dansl.net/blog/?p=256> you can download **QReader** free for Mac, PC and Linux platforms. You will also need Adobe Air installed – a free download found at <http://get.adobe.com/air/>

Quick Mark QR Code Reader - <http://www.quickmark.com.tw/En/basic/downloadMain.asp>

### **QR Code Generators**

There are many free online QR Code generators. The one I have used the most is from QR Stuff:

<http://www.qrstuff.com/index.html>

Another easy to use generator can be found at:

<http://www.i-nigma.com/CreateBarcodes.html>

You use any of the programs online to create your QR Code, save the generated QR Code image to your computer and import the image into programs such as a word processing programs, for printing.

### **Online articles and resources on QR Codes:**

What's This? QR Codes

<http://www.nten.org/blog/2011/04/14/whats-qr-codes>

What Are QR Codes?

<http://www.visiblelogic.com/blog/index.php/2011/01/what-are-qr-codes/>

The True Power of QR Codes

<http://begrious.com/show/how-it-works>

What is a QR Code?

<http://guides.boisestate.edu/QRcodes>

Using QR Codes in Education

[http://www.iste.org/connect/iste-connects/blog-detail/11-01-12/Using\\_QR\\_Codes\\_in\\_Education.aspx](http://www.iste.org/connect/iste-connects/blog-detail/11-01-12/Using_QR_Codes_in_Education.aspx)

QR Codes in Education – PPT Slideshow

<http://www.slideshare.net/mlange/qrcode-in-education>

QR Codes – Learning Technology

<http://www.dontwasteyourtime.co.uk/presentations/qr-codes-learning-technology-qrcode/>

QR Codes in the Classroom

<http://www.dontwasteyourtime.co.uk/technology/qr-codes-in-the-classroom-qrcode/>

### What can you do with them?

- Create an adapted book with QR codes next to the lines of text allowing a student to hear it read aloud
- Create an adapted book allowing a student to access the line of text and see a Spanish, French or other language text translation of it
- Create a quick link to a URL containing a map
- Point to a QR Code and have it linked to a Sign Language video signing the text
- Have the QR Code linked to a video or sound file of an organizations event
- Create a scavenger hunt – each QR Code displays a clue as to where to find the next

Here I have used QR Codes to adapt a book. The code at the bottom right opens and plays a sound file that is stored on a website reading the text, while the code at the upper right plays a movie, also stored on a website, signing the text.

You can also print them onto mailing labels, to then peel and stick into books, etc!



### Creating and Using QR Codes

You know where to get a free reader, and also the free programs online to create them, but how do you actually have the QR Code do something like play a recorded sound file or video? The sound file, in the example above of me reading the line of text, was created using the free audio recording program Audacity (<http://audacity.sourceforge.net/>) and saved as an MP3 sound file. I then uploaded (saved) that file on my website.

When you play a sound file or movie on most websites the exact URL of the file is then displayed. Here is an example. On the Khan Academy website, [www.khanacademy.com](http://www.khanacademy.com) you will find a list of math videos. When clicking on a video, such as the Basic Addition video, on the homepage to play it, the URL of the page changes. When choosing the Basic Addition video the URL of the page changes from [www.khanacademy.com](http://www.khanacademy.com) to <http://www.khanacademy.org/video/basic-addition?playlist=Arithmetic>.

This is the URL you would copy and then paste into the QR Code creator. In the example shown here I have pasted it into the creator at [www.qrstuff.com](http://www.qrstuff.com).



By choosing Website URL, and pasting the site into the content box the QR Code is generated. Downloading this image and scanning it with a reader will go to the Khan Academy website, and automatically open and play the video. The key here is that the URL needs to target the file not the webpage it is on. Importing a video or sound file into some Wiki website only embed it on the page. When you go to the page and click on the video or sound file, the page contains instructions on how to play it back. The URL does not change, or target the file when it is played. In this case the QR Code would only go to the Wiki page, not play the file.

Some QR Code Readers will only open the webpage requiring you to click on the play button, while others require you to take a snapshot of the code for it to work. Try different readers for your device to see which one works best.

There are many free website creators you can use to create and store your video or sound files. These include [www.weebly.com](http://www.weebly.com) and [www.sites.google.com](http://www.sites.google.com). If the QR Code is information on events going on at your school the files could be stored on your schools website.