Riding the Winds of Change:

New Directions for Libraries and Web Development Tools

Annette Lamb and Larry Johnson

From the mobile web to the social web, teacher librarians are bombarded with a whirlwind of technology options and opportunities. Our e-mail boxes are filled with webinar advertisements touting the latest and greatest web development tools for school libraries.

What do you and your students really need to know about the next generation of web development tools? Does everyone need to learn HTML5, CSS3, and computer programming skills?

Let's explore a few of the most common approaches to web development and consider what's practical for today's busy librarian.

CONTENT MANAGEMENT SYSTEMS

Most schools have shifted to content management systems (CMSs) for their website presence and information administration needs. A content management system is a computer program that allows users to create, edit, and publish content in a collaborative web environment.

While many schools use open-source options such as Drupal <http://drupal.org/>, others have purchased large-scale tools that also include school-specific features, such as student records. Some CMSs allow access with such library data as your online catalog and pathfinders. For instance, you can connect your LibGuides <http://libguides.com> data with your Drupal site through exporting and importing XML documents. Library-oriented companies like Springshare <http://www.springshare.com> are providing ways to improve the online experience for library users by building connections among data sets and tools.

In many cases, CMSs have useful tools for libraries that aren't apparent on the surface. For instance, if your school's acceptable use policy doesn't allow the use of social media sites such as GoodReads <http://www.goodreads.com/> or LibraryThing <http://www.librarything.com> for online book clubs, see if you can set up a threaded discussion area in your CMS. It may take a couple extra steps to get into the system, but you can still accomplish the same goals.

Many of these large-scale systems also allow the creation of databases. For instance, you could create a local history digital image collection or student-produced e-book collection that could be accessed anywhere, anytime. The School Library System of the Genesee Valley Educational Partnership used Drupal to build WeBooks <http://we.gvlibraries.org/>, a database to easily access their shared e-book collections. The Ann Arbor District Library <http://cooks.aadl.org/> used their CMS to create a digital recipe project.

Work with your IT people to explore the possibilities. Cushing Academy <http://fwlibrary.cushing.org/> is an example of a school library that used Drupal to create their library website.
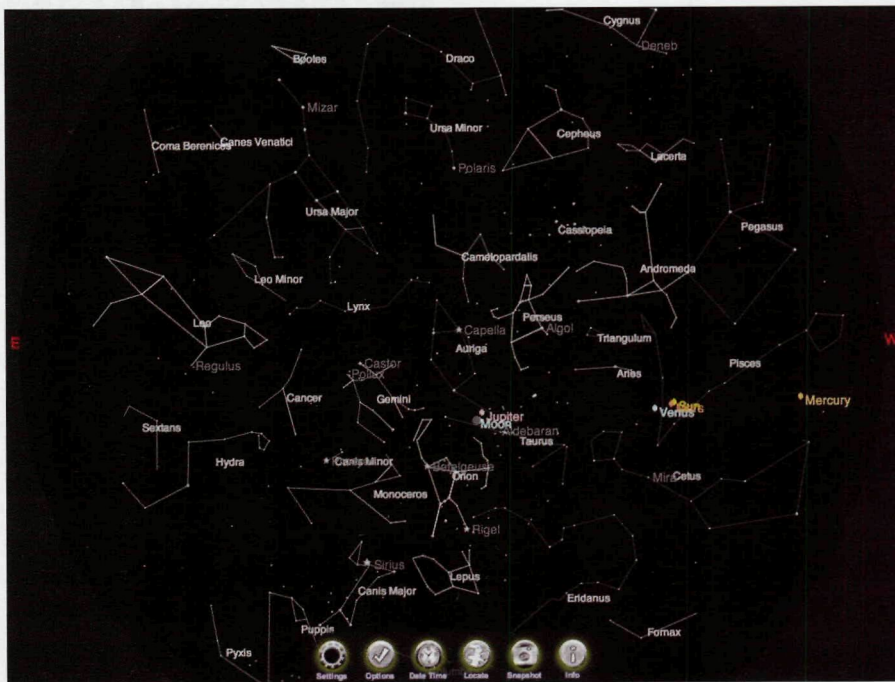
If you're in charge of your library website and you're ready for a change, consider a shift to an easy-to-use content management system. WordPress <http://wordpress.org/> is a popular choice. Although WordPress is often associated with blogging, it can also be used to create individual web pages along with blogs, multimedia, and other elements. The WYSIWYG editor is intuitive and quick to learn. An endless array of themes and plug-ins make enhancements and expansion easy.

The Castilleja School Library <http://library.castilleja.org/> uses WordPress for their school library website. The Dixie Grammar School Library <http://library-online.org.uk/> uses a combination of WordPress and LibGuides to provide a web presence and resources for students.

Of course, WordPress is only one of the many web development tools available to librarians. For instance, Weebly <http://www.weebly.com/> is also a popular choice of school libraries. The Collins Hill High School Media Center <http://www.chhsmedia-center.com> uses Weebly as a tool for both individual web pages and a book blog. Although less powerful than WordPress, Weebly is a great choice for beginners.

HTML5, CSS3, AND MORE

With all these great content-management tools available, you may wonder if learning HTML and creating your own web pages is still necessary. Keep in mind that content management systems still have roots in programming. Basic skills come in handy whether

Art of Stars in HTML5.

and XHTML syntax. If you're already an HTML user, it's easy to catch up with the latest changes. Let's explore a few of the new features you may want to incorporate into your school library website.

API. HTML5 uses Application Programming Interfaces (APIs) along with Javascript for added power.

The **geolocation API** can be used to identify the geographical position of a device. With the approval of the user, this location can be used as part of augmented reality games, virtual field trips, and other learning experiences. For instance, the geolocation API is used by the **Art of Stars** <http://www.nakshart.com> website to show you the stars that you'll see at night from your current location. This is only one of many new features that are specifically geared to mobile devices such as student smartphones.

The <canvas> element is used to draw graphics in real time on a web page. You can also dynamically change content such as boxes, circles, images, and text in a specified area. If you've used Adobe Flash in the past, some of the basic features are similar. HTML5 also includes new graphic options such as opacity and gradient to enhance visuals. In addition, it supports the use of inline SVG images.

The **drag-and-drop** element is one of the coolest features of HTML5. It allows users to grab an object on the screen and drag it to a different location. In the past, Adobe Flash was necessary to accomplish this type of interactivity. The coding is easy to adapt for any purpose.

The **Robot Nation** <http://www.myrobotnation.com/robots/new> website provides a great example of the drag-and-drop element. Users can build their own robots. For a fee, student robot designs can even be printed on a 3D printer. With HTML5 skills and a 3D printer, think of the great projects your students could create.

Mark-up. An array of new tags have been included in HTML5 including <aside>, <article>, <footer>, <header>, <nav>, and <section> tags. In many cases these replace commonly used blocks like <div> and <span>.

Forms allow end users to enter information to be stored or used by the website. New form inputs for specifying color, date, time, URL, search e-mail, telephone number, and other inputs allow web pages to collect more information about users that can be applied to personalize websites, conduct searches, or answer questions.

Media elements. Multimedia features such as <audio> and <video> elements have replaced the generic <object> tag.

The **Wilderness Downtown** <http://www.thewildernessdowntown.com/> website is an example of how audio and video elements are combined with maps and other HTML5 elements to create an interactive experience.

CSS3. Along with HTML5, cascading style sheets (CSS) continue to play an increasingly important role in web development. Skills in editing CSS are important when dealing with CMS templates. For
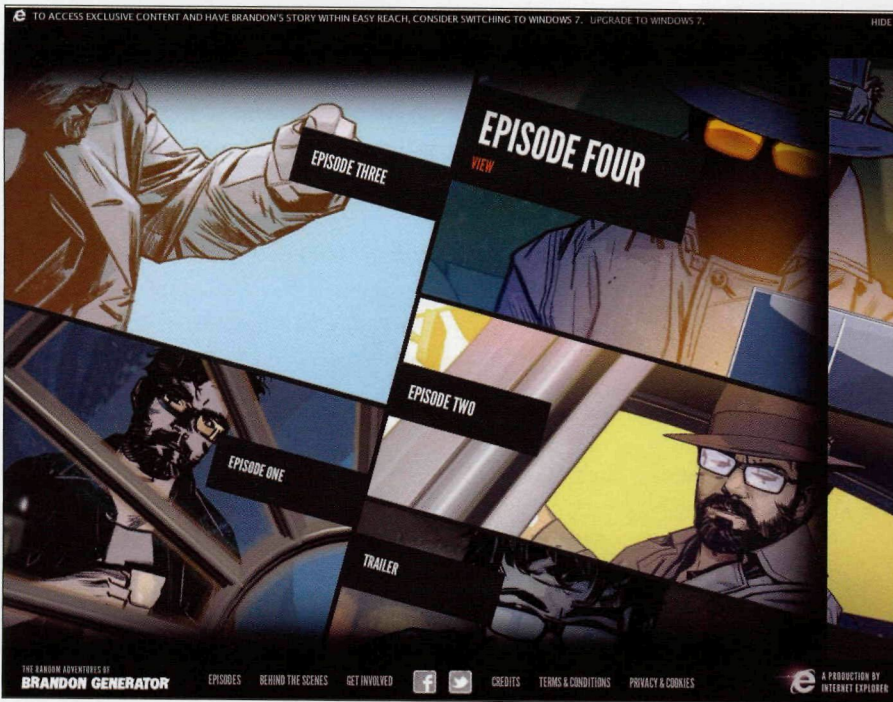

Robot Nation

The Random Adventures of Brandon Generator.

instance, you may wish to change the background or font colors to match your school's colors.

Like HTML5, there are many new features available in CSS3. Explore a few examples below:

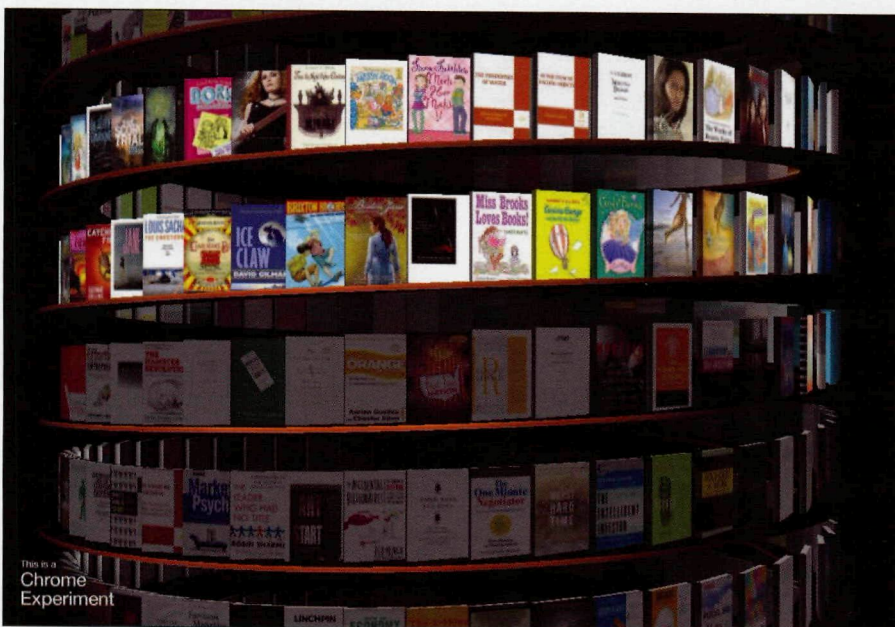Borders can include rounded corners, shadow boxes, and images.

Backgrounds can contain multiple images, images of a specific size, and layers of boxes, including borders, padding, and content.

Text effects have expanded to include text shadows, word-wrapping, and other formatting features.

Font options allow web designers to use any font that they wish rather than being restricted to installed fonts.

The transform effect lets you change the shape, size, and position of 2D or 3D

WebGL Bookcase

BOOKMARKIT
BETTY WINSLOW

JUNIOR FICTION

PERILOUS TIMES

Balliett, Blue. **Hold Fast**. Scholastic, 2013. 288p. $17.99. 978-0-545-29988-6. Grades 3-7. When Early Pearl's father disappears, the family's apartment is robbed and vandalized, apparently due to Mr. Pearl's secret part-time job. Terrorized and homeless, they move to a shelter to wait for his return.

Harris, Dorothy Joan. **The Waiting Time** (Our Canadian Girl, Ellen, Bk. 3). Penguin Canada, 2005. 88p. $8.99. 978-0-14-305005-6. Grades 3-6. In Vancouver in 1940, wartime food rationing is bad enough, but when ten-year-old Ellen's classmate contracts polio, everyone fears an epidemic. Ellen's sore throat is only tonsillitis, but she still has a long recovery, with lots of time to think.

Meyer, Susan Lynn. **Black Radishes**. Delacorte, 2010. 240p. $16.99. 978-0-385-73881-1. Grades 4-6. When eleven-year-old Gustave's Jewish family attempts to move from Paris to avoid the invading Germans, they end up in the country helping the resistance while struggling to survive German occupation.

Nielsen, Jennifer A. **The Runaway King** (The Ascendance Trilogy Bk. 2). Scholastic, 2013. 352p. $17.99. 978-0-545-28415-8. Grades 4-7. After Jaron finally takes the throne of Carthya, an assassination attempt sends him into flight and danger, as he struggles to keep the kingdom safe from treason and attack while he figures out whom he can trust.

Palacio, R. J. **Wonder**. Knopf, 2012. 320p. $15.99. 978-0-375-86902-0. August, born with a facial deformity, has been home schooled all his life, until his parents decide that fifth grade with others would be good for him. His year of struggling for acceptance, compassion, and understanding is told from multiple POVs.

w3schools.com.

objects, including move, scale, turn, spin, and stretch.

Transitions allow web designers to change from one text style to another without using Adobe **Flash** or Javascript.

Animation tools replace animated GIFs, **Flash** animation, and Javascripts for many activities. Like **Flash**, keyframes are used to create animation.

Multiple columns can be created to help facilitate page layout.

Many web developers are finding creative applications of the new options available in HTML5 and CSS3. For instance, these new tools allow authors and publishers to design new ways to tell stories. Explore the transmedia storytelling experience titled **The Random Adventures of**

Brandon Generator <http://www.brandongenerator.com> for an example. Think about the future of web comics at **Soul-Reaper** <http://www.soul-reaper.com/>.

These tools could also facilitate new ways to browse your school library. The **WebGL Bookcase** <http://workshop.chromeexperiments.com/bookcase/> experiment shows an innovative way to browse and examine Google Books. This approach could be adapted for your library collection.

Beyond the basics. HTML5 is much more flexible than past versions regarding validation. Although an HTML5 browser accepts incorrect syntax, it's still important to learn proper mark-up to avoid problems. The best way to learn HTML is through the use of the free **w3schools.com** <http://www.w3schools.com/> website. This series of tutorials takes participants step-by-step through learning to use HTML5 and CSS3.

Many advanced users are downloading **HTML5 Boilerplate** <http://html5boilerplate.com/>. This tool provides a mobile-friendly HTML template to get started creating web apps and mobile sites.
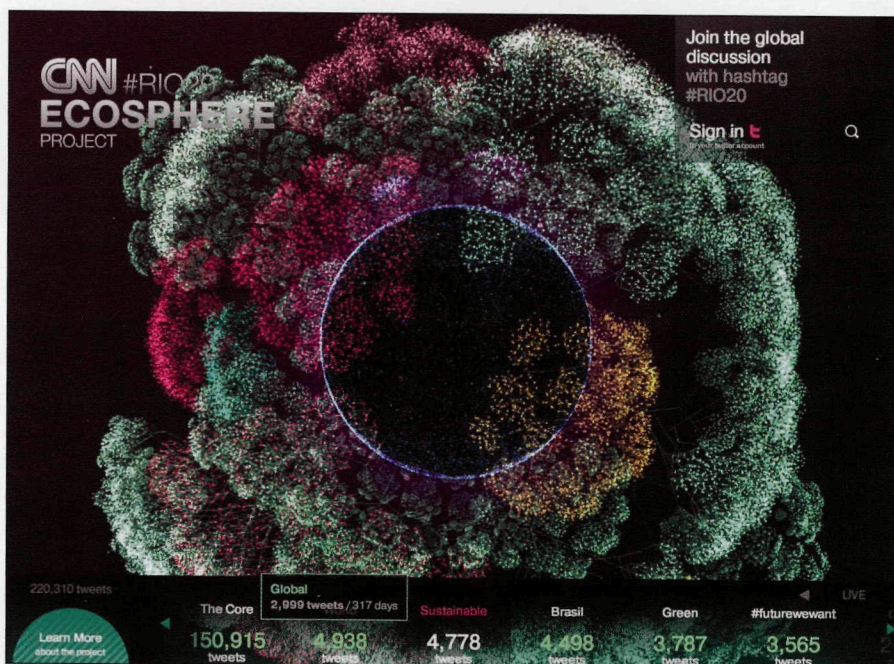
Google has taken a leadership role in promoting the shift to HTML5. Their **HTML5 Rocks** <http://www.html5rocks.com/en> website provides many examples of using HTML5 for mobile development, gaming, and other applications.

Consider partnering with your technology department on web-design projects. For instance, there are many ongoing projects you could join. Many **Chrome Experiments** <http://www.chromeexperiments.com/> use code that you can download and modify for your own projects. In addition, **The WebGL Globe** <http://www.chromeexperiments.com/globe> contains information about global population, but it could be adapted by students for other purposes.

While HTML5 is still technically under review until the end of 2013, now is the time to make the shift.

WebGL Globe.

> **HTML5, CSS3, and JavaScript work together to help designers create mobile web apps. Tools such as jQuery Mobile allow librarians to develop fully functional mobile-optimized web apps.**

Ecosphere Project.

MOBILE AND SOCIAL TECHNOLOGY

Increasingly, students demand access to your library anywhere, any time. It's important to think about whether your library website, catalog, and other web-based tools are available through mobile devices. From smartphones to tablets, students are choosing small devices rather than laptops or desktop computers to access your library. Can students easily download e-books, search your catalog, and reserve books using these devices?

HTML5, CSS3, and JavaScript work together to help designers create mobile web apps. Tools such as **jQuery Mobile** allow librarians to develop fully functional mobile-optimized web apps.

Boston College High School's **Corcoran Library** <http://bchigh.libguides.com/mobile/1326> created mobile sites and apps optimized for mobile searching as part of their school's new cell phone policy that allows students to use smartphones in the school library for research.

When HTML5 and CSS3 are combined with mobile and social technology, new ways of visualizing and interacting with information emerge.

CNN's **Ecosphere Project** <http://cnn-ecosphere.com/> visualizes the Twitter messages related to the annual Earth Summit. Real-time data shows what people are thinking about and sharing regarding a wide range of environmental topics.

CONCLUSION

Spend some time evaluating your school library web presence. If your static pages haven't been updated recently, it's time to rethink your website. Consider combining a content-management system with enhancements available through HTML5 and CSS3. Weave in social technology and mobile tools to meet the needs of today's students.

Adapted from the presentation "The Web Winds Are Shifting: Content Management Systems and HTML5 in Your Library" by Annette Lamb and Larry Johnson.