AUGUST 2013

The "mobile internet" topped the list of disruptive technologies that will transform life, business and the global economy in a May 2013 report from the McKinsey Global Institute. It also is a common thread among several of the projects recognized as Cutting-edge Technology in Library Services. Other themes include crowdsourcing, open source development, and cost-effective online instruction. The Office for Information Technology Policy (OITP) of the American Library Association (ALA) and the Library Information Technology Association (LITA) are pleased to share short case studies from five libraries that are leveraging technology to extend the reach and scope of library services in their communities.

In fall 2012, a selection committee of ALA members appointed by OITP and LITA called for nominations of library programs that are serving their communities with novel and innovative methods based in technology. After reviewing submissions from libraries of all types, LITA and OITP are pleased to showcase the following uses of cutting-edge technologies to support new and traditional library services in schools, universities and communities. "Cutting edge" refers to successful implementations of technological advancements and their use in library environments, particularly those that were developed by the library (not off-the-shelf) and are believed to be broadly replicable.

The subcommittee selected programs at Boston College High School Library in Massachusetts; Genesee Valley Educational Partnership in New York; Goethe-Institut Library and Pratt Institute School of Information and Library Science in New York; Orange County Library System in Florida; and the University of Arizona Libraries as the winners of the association's fourth annual contest to honor cutting-edge technologies in library services.

"This year's winners offer a vision of how libraries may change in the years ahead, not only in terms of the technologies they'll use, but also the greater value that can result," said Marc Gartler, Branch Manager, Madison (Wisc.) Public Library, who chaired the selection subcommittee. "These projects demonstrate how traditional library functions are evolving—facilitating teaching, learning, and research; connecting the public with needed government and human services information; cooperating to ensure greater access and cost savings; and providing rich cultural experiences. They're excellent examples of libraries adapting to the changing needs of 21st century users."

Boston College High School Library – Mobile Digital Literacy Initiative

Tech Specs

The mobile website has been set up using **LibGuides** (http://springshare.com/libguides), which the BCHS team found to be very flexible and easy to use, with a simple redirect code for copy and paste to their website. Set up as a responsive website, the site is 100% cross platform. It recognizes and sizes accordingly for phones, tablets, and PCs. What drives their online collection development? Only "mobile-friendly" vendors will be considered.

The librarians at Boston College High School (BCHS) are happiest if the library is full of students using their smartphones or other mobile devices. The "All Devices Welcome" policy has laid the groundwork for the library's goal to "meet our students where they are" – in the mobile realm.

The mission of the mobile initiative of the BCHS Corcoran Library is to improve information literacy, increase student use of library online resources, and boost student productivity. The major elements of the initiative were the introduction of a full mobile website for the library's web pages, including mobile apps for all databases, and the adoption of a new cell phone policy that allows use of cell phones for research purposes in the library.

The mission also is supported by an iPad 1:1 initiative for all students in grades 7-10. There are scholarships for students unable to purchase their own iPad, and the library has 50 iPads that students can check out from the library. "But we find that even if students have an iPad next to them, they will use their phone – they like the smaller size," said Library Director Tia Esposito. This has influenced messaging during the student orientation period. "During instruction, we guide students to save the library website on their mobile device. I highly recommend they use whatever they take home with them, and that is most often their phone."

The mobile initiative germinated from a 2009 meeting of the library student council, when a member noted that students do everything on their phones, and that he also would like to do his school work there. "This confirmed what we were already getting from the growing body of knowledge, that the future of mobile is the future of computing and research," Esposito said. "All of these library resource tools with mobile interfaces or apps allow for 'on the spot' information

access by students, collaboration between students, and a competitive edge for the library against search engines like Google."

The mobile initiative has proven successful in numbers and new learning experiences. At the end of the first full-mobile year, 8.2 percent more articles were retrieved from a database, but, equally important, this required 15 percent fewer searches. "We went beyond our goal to make our site as easy as Google – I think it is actually easier," said Assistant Library Director Anna Martinez. Another example of success was found in an English class in which six of 30 students forgot to bring their copy of Hamlet for a reading. In the past, these students would have been left out, but in this instance, the teacher invited the students to take out their phones and download a copy of Hamlet from the library's e-book collection. "These six stood before the class, smartphones in hand, and performed brilliantly!" the teacher relayed at a department meeting – thus inspiring other teachers to get "on board" with the idea of mobility work. Finally, another school librarian struggling to engage her community sought help from BCHS librarians. She replicated the BCHS mobile initiative, and now the library website is in great demand.

Boston College High School is the largest private school in Massachusetts, with 1,750 students, grades 7-12. In recognition of the school's 150th anniversary in September 2013, BCHS librarians are preparing an augmented reality walking tour of the building using images from the archives and QR codes.

For more information: http://www.bchigh.edu/podium/default.aspx?t=136634&rc=0

Genesee Valley Educational Partnership – WEBOOKS

The mission of the Genesee Valley Educational Partnership (GVEP) is to lead collaboratively in creating quality solutions to emerging educational challenges. The WEBOOKS initiative squarely fits this mission and represents an innovative approach to building a robust digital collection of research and instructional e-books for thousands of rural school students.

As member school districts continue to struggle with budget cuts, GVEP looked to Kickstarter and Indiegogo as entrepreneurial models to develop WEBOOKS, which crowd sources collection development across a consortium of school libraries. Participating districts are asked to redirect 10 to 20 percent of their library materials aid, $0.625 to $1.25 per student, into a fund for a regional digital library. Then, using the WEBOOKS site, libraries spend down their funds by pledging on books that they want to see added to the regional collection. The WEBOOKS collection provides unlimited simultaneous use on a range of computers, tablets and other devices (not including e-ink readers).

WEBOOKS allows librarians to maintain control over the disbursement of their funding and to have an active role in the selection process, in which dollars equal votes. The site shows what would be the estimated cost if purchased by an individual library, and then shows how many pledges would be required to meet the group purchase cost, which can run from five to 15 times the individual cost. As books reach the funding goals, library money is locked in for spending.

WEBOOKS was created to address the significant obstacles school libraries face in digital content pricing. "The site-based licenses demanded by publishers lead to inequitable access within a district or region, and at least for our rural schools, result in overly high prices for a single library," said

Christopher Harris, coordinator, school library system/media library. "Once content goes digital, everything changes. We cannot enable resource sharing unless we license it up front. Through the negotiations of an experienced third-party aggregator, we have been able to secure access to content at a significant cost savings for regional access." The initiative achieved a regional savings of 33 percent when compared with the cost if each school bought the e-titles individually.

The size of the schools in the consortium proved to be a stumbling block for many publishers. Many base cost on number of buildings, without regard to the overall student population. Based on National Center for Educational Statistics, the 24,000 students in GVEP would fit in 34 average-sized schools. But the students are spread out among 54 buildings, and publishers wanted to charge accordingly. For example, one publisher wanted to charge 46 times the list price for an elementary-level book. "Many people wanted fiction and non-fiction from Big Six publishers, and we just couldn't do it. The terms wouldn't allow it," Harris said.

Tech Specs

WEBOOKS was developed in-house and is powered by Drupal. The site primarily uses stock Drupal components, but has a custom pledging module built using the Drupal Voting API. An additional import profile for the Feeds module was developed to allow direct importing of book lists received from the vendors.

Member feedback has directed changes, including the ability to submit multiple votes per book to increase chances for purchase. Members also are eager to improve ease of access to information on available books, which is layered deep on the publisher sites. The development team is exploring adding Google previews and other options through the publishers.

There are currently five publishers represented on WEBOOKS, providing access to curriculum-aligned non-fiction texts. "Additional publishers are always welcome," Harris said, "but the current stable of publishers meets our content goal for teacher-directed materials."

Twelve of 22 GVEP school districts participated in the first year of the initiative. Planning for WEBOOKS was about a year ahead of the launch. With many school district budgets set 18 months in advance, many districts did not have money available for allocation for the project. Harris expects to have 20 districts participating next year.

The Genesee Valley Educational Partnership is a regional school system under the umbrella of the New York Boards of Cooperative Educational Services (BOCES). GVEP offers a wide range of shared programs and services to its 22 member school districts.

For more information: http://we.gvlibraries.org

Goethe-Institut Library and Pratt Institute School of Information and Library Science – German Traces NYC
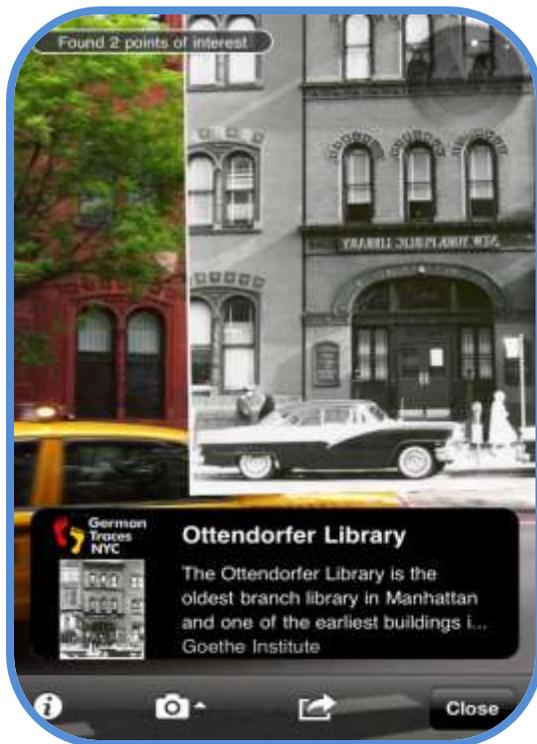
Since 1626, when Peter Minuit, a native of the German town of Wesel am Rhein, purchased Manhattan Island for 60 guilder worth of trade goods, German immigrants have been integral to the development of New York City. Centuries later, mobile technology has brought generations of German history and culture vibrantly alive.

The Goethe-Institut – the cultural institution of the Federal Republic of Germany – in partnership with the Pratt Institute School of Information and Library Science (SILS), created *German Traces NYC*, a mobile, augmented reality experience designed to let learners explore German cultural heritage in New York City. Multimedia narratives that combine voice with archival photos are delivered to users' mobile phones at the places where these events occurred, and can be experienced through a walking tour. Jason Sheftell of the *New York Daily News* said, "they've created a totally new way to understand the evolution of a New York City neighborhood."

The project was a perfect collaboration for addressing institutional interests and challenges. For the Goethe-Institut, Library Director Brigitte Doellgast was in search of ways to attract new patrons, with educators and students of German history and language a core target group. The Pratt SILS team had its own mission. "As information specialists, we wanted a project to investigate the viability of place-based learning," said Assistant Professor Anthony Cocciolo. "There is a lot of enthusiasm around mobile learning, but it's important to find out what works."

Tech Specs

GeoStoryteller is available as an open source package, which can be accessed at http://sourceforge.net/projects/geostoryteller/. The website includes video tutorials for creating GeoStories and for application of the Augmented Reality.

The Pratt developers find the technology involved is quickly evolving, and, in turn, challenging. The Layar augmented reality environment, although an exciting interface for exploring historical content, is not without bugs or inaccuracies related to placement of content in three-dimensional space. Continued attention is needed to make corrections and upgrades to improve the user experience.

To deliver the multimedia content, two interfaces were developed for mobile devices. The first makes use of the web browser that most internet-enabled mobile devices already have. The mobile website allows users to create a custom walking tour of German history in New York using their current location, available via GPS. Alternatively, users can access the multimedia content through Layar, an augmented-reality browser for mobile phones developed by a team in the Netherlands. Using this technology, users are able to hold up their mobile phones and see archival photos layered on top of the images visible through the camera's phone.

Recognizing early the time-intensive nature of the project, 37 sites in two historically significant neighborhoods were selected for the project launch. "We recognized from the start that the growth of German Traces NYC would come from interested people and organizations, and that directed the design of the project," said Doellgast. To facilitate contributions, the team at Pratt, led by Colliolo and Associate Professor Debbie Rabina, developed GeoStoryteller. This open source software includes modules for creating and sharing those stories through a mobile website, and a module for connecting GeoStoryteller to Layar.

Outside contributors and users of the GeoStoryteller software include the Leo Baeck Institute's walking tour featuring German-Jewish history, and a student group entry on the Lutheran St. Paul's Church, the only purely German-speaking parish left in New York City.

Rabina was intrigued by how this project channeled the path reference services have taken in teaching and libraries. "Reference has two major drivers now – data and digital archives. With advancements in search engines and open source, we gather and present information in new ways, more quickly and with more expansive results."

The project has been successful in connecting the Goethe-Institut Library with new patrons. In its first year, the website received over 17,000 visitors. Findings from a qualitative study of 32 mobile users showed that learners perceive that the use of place – having physical, outdoor access to the places where significant events occurred – increases engagement and understanding of historical topics, and this engagement is the result of discovering new information about familiar surroundings.

For more information: http://www.germantracesnyc.org and http://www.geostoryteller.org

Orange County Library System – Right Service at the Right Time

Mobile technology has taken Orange County Library System's Right Service at the Right Time to the next level, providing greater accessibility and privacy for Florida residents in need of e-government and social services.

Originally developed in 2010 as a kiosk-based web platform, Right Service at the Right Time (RS/RT) is now available as a full-function mobile website for users to access essential government agency and non-profit organization services from smartphones and other mobile devices. Areas available for user selection include: Family Assistance, Healthcare, Housing, Immigration, Jobs, and Transportation. Service providers enter information into the database detailing eligibility requirements and services offered. Service seekers, through an iterative series of questions about themselves and their needs, are matched to the services that are most likely to assist.

Tech Specs

Right Service at the Right Time was built using Drupal 6, and is scheduled to move to Drupal 7 to take advantage of its improved stability. OCLC used an outside programmer to create the portal. The mobile or desktop application is served up by browser/platform detection.

The primary development challenge involved simplifying screens so that necessary information is presented without cluttering the small screen. At the same time, content needed to be more granular (with subcategories), so as not to overwhelm users with pages of information. Originally, RS/RT had a single listing for "Health Care" with 87 providers. Now it has five subgroups: Dental, Medical, Mental, Prescription, and Other. Usability test groups informed these changes.

The development of the mobile website was motivated by social workers noting that many of their clients have mobile phones, and that very often this is their only personal internet connection. In addition, library staff observed some privacy concerns of users that accessed RS/RT on open kiosks and library computers.

The original RS/RT services started with the participation of five counties, which has expanded to all of Florida's 67 counties as of March 2013. The last three counties are in the process of activating the service. There are over 2,500 service providers, and 67 libraries statewide are providing support for the service.

Each county receives an information packet, and step-by-step training by phone. OCLS has provided on-site training for participating libraries for both front- and back-end work. Libraries manage all provider listings for their county. "One of the most important roles of the library is the marketing of the service to the general public and potential providers," said Sheri Chambers, OCLS digital content manager. "We know that ongoing, dynamic marketing is the key to success for growth in awareness and use of all library services."

The project has been funded through the Library Services and Technology Act, from the Institute of Museum and Library Services. Funding supported a dedicated position for data entry, which was key to supporting the onboarding of counties lacking sufficient staff for implementation.

OCLS staff was pleased to hear from a user that shared how valuable the service has been as regards unemployment claims. In Florida, claims can no longer be filed in person or by phone – only

online. With his phone serving as his only internet connection, the user found it very easy to access and set up his claims through the RS/RT mobile site.

RS/RT demonstrates the cutting edge skill and potential for public libraries as developers of large-scale service systems rather than simply consumers. "As our own developers, we can craft systems tailor-matched to our front-line experiences," said Donna Bachowski, OCLS manager of reference. "Right Services at the Right Time is proof that we can translate the provision of traditional reference services in 21st century parlance."

Following OCLS staff presentations on RS/RT at national conferences, attendees would ask how they could get something like RS/RT started in their state. In response, one focus of the RS/RT team in 2013 is to have the developer create a technical package to support implementation by other states.

The Orange County Library System, with 15 locations, serves over one million Florida residents. Last year they had over five million visits to the library, 5.22 million visits to their website, and 382,000 digital downloads. Close to 50,000 patrons participated in technology training programs. Classes are offered in English, Spanish and Haitian-Creole.

More information at: www.rightservicefl.org.

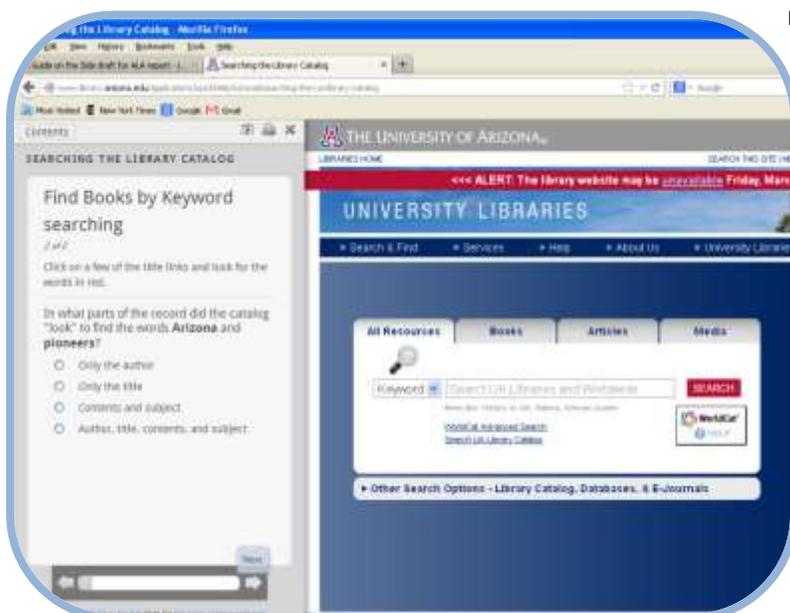## University of Arizona Libraries – Guide on the Side

A decade of collaboration and experimentation has provided a dynamic solution to the challenging equation of diminished budgets and increased demands for university library instruction. Included in this package – reaching students where they hang out the most – online!

In 2010, the University of Arizona Libraries (UAL) launched their newest version of Guide on the Side, which enables librarians to quickly and easily create online, interactive tutorials that are based on the principles of authentic and active learning. UAL has made the Guide on the Side open source software freely available for other libraries to download and customize.

Rather than using static screen shots, the tutorials take students through an interactive and responsive search. The software guides students via instructions on the left side of the computer screen to perform specific searches and locate specific articles while providing automated feedback. For some tutorials, students are given specific topics, while others allow students to choose their topic. Directions are combined with multiple choice questions constructed to provide students with opportunities to answer simple orientation-type questions and questions designed to engage critical thinking skills. A pop-up bubble provides feedback, and an optional auto-grading function provides an additional assessment tool for students.

Development by UAL staff began in 2000 in response to reference staff observation that they were continually answering the same questions for large groups of students from the same class. Providing sufficient hands-on instruction was nearly impossible, so they began development of the first UAL web-based tutorial. The format was well-received, but options were limited as a programmer was needed to develop each tutorial.

In 2009, Associate Librarian Leslie Sult and Senior Software Engineer Mike Hagedon worked together to create the current WYSIWYG interface, including two options for interaction. Tutorials for larger classes are solely multiple choice, and tutorials for smaller groups can be a combination of multiple choice and text boxes, which will be reviewed individually by librarians. The UAL currently has 25 tutorials, which over one year registered 72,866 uses on campus. The most popular tutorials are academic search, heavily used by English composition students for library orientations, JSTOR, and use of the library catalog. Student feedback includes: "It was fast, and easy, and understandable. I learned a lot in a short period of time" and "Very cool interactive tutorial with good information."

"One unexpected success has been the high volume of feedback from students and faculty," said Sult. One instructor wrote, "I assigned this tutorial for my students in ENGL 102, and I'm really glad that I did! I found it to be really helpful, easy to understand, and a good refresher for people like me who use JSTOR all the time."

Tech Specs

The **Guide on the Side** website provides detailed technical requirements and installation instructions, and step-by-step instructions for content creation. No HTML or other coding is required, only a Word-like (WYSIWYG) editor.

Regarding technical requirements, the overview notes "We'll tell you here what we know works, or at least what works today. You're welcome to try other system configurations." As noted in the installation documentation, a Unix-like operating system, Ubuntu Linux 11.10 and Red Hat Enterprise Linux 5.6 are both known to work.

Guide on the Side enables librarians to tailor it to meet their individual needs, and to collaborate with other institutions to augment and improve its functionality for what is becoming a growing community of dedicated users. In December 2012, UAL completed a study of the effectiveness of the Guide on the Side tutorial in comparison with other types of database instruction, mainly screencast tutorials, and the results will be shared once the analysis is complete.

While the ease of content development is well established, many smaller libraries don't always have the technical support for installation. For example, UAL is hosting the platform for a nearby community college library. The project team is exploring ways to find similar matches for other small libraries, and also is investigating ways for a consortium to be set up for school libraries.

For more information: http://code.library.arizona.edu/gots, and an example of the Guide in action, http://www.library.arizona.edu/applications/quickHelp/tutorial/searching-the-ua-library-catalog

To learn more about library services previously recognized as "cutting edge" and about the Program on America's Libraries for the 21st Century, please visit www.ala.org/al21c.

Thanks to the 2013 Cutting-Edge Technology in Library Services selection subcommittee: Marc Gartler (chair), Branch Manager, Madison Public Library; Mark Beatty, recently retired Training and Automation Librarian, Wisconsin Library Services; Pam Berger, Director of Information and the School Library System, Southern Westchester BOCES; Wei Jeng-Chu, Head Librarian, Worcester Public Library; and Colby Riggs, Project Coordinator, University of California, Irvine Libraries.

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