Cutting-Edge Technology in Library Services

OITP Selects Four Libraries for 2011 Recognition

Social media. Digital repositories. User-centered web design. Mobile apps. As the ways in which information is gathered, stored and sought continue to evolve, so do library services at the "cutting edge." The Office for Information Technology Policy (OITP) of the American Library Association (ALA) is pleased to recognize programs at four libraries for their best use of cutting-edge technologies in library services.

In fall 2010, the subcommittee for OITP's Program on America's Libraries for the 21st Century called for nominations of library programs that "are serving their communities with novel and innovative methods." After reviewing the submissions from libraries of all types around the country, OITP is pleased to showcase the following uses of cutting-edge technologies to support new and traditional library services in schools, universities and communities.

The four programs are *Media21*, Creekview High School in Canton, Ga.; the *Digital Resource Commons*, OhioLINK in Columbus, Ohio; the *Web Design Project*, North Carolina State University Libraries in Raleigh, N.C.; and *OCLS Shake It! Mobile App*, Orange County Library System in Orlando, Fla.

Representatives from these programs will be featured in an OITP-sponsored session at the ALA Annual Conference in New Orleans on Saturday, June 25, 2011, from 10:30 a.m. to noon in Morial Convention Center Room 391.

Media 21 – "The Unquiet Library"

Media 21 represents a successful effort to create and conduct a 21st century classroom by integrating the use of social media, cloud computing and collective knowledge building in a traditional high school setting. The brainchild of librarian Buffy Hamilton and teacher Susan Lester, the program brings the concepts of participatory librarianship to life and provides the students in the classroom with a unique, collaborative and cutting-edge educational experience. Hamilton and Lester co-teach in a multimedia environment where the librarian is "embedded" in the classroom processes.

In the fall of 2009 and spring of 2010, a single class of 10th grade English students explored the uses of social media and cloud computing for communication and educational purposes, learned to identify and utilize authoritative information sources, and cultivated presentation styles designed to engage a 21st century, technology-savvy audience. Students participated in

"literature circles" and contributed to blogs and wikis to share their subsequent reactions, reflections and research on the semesters' subject content—issues in Africa and issues facing American military veterans. While the class structure included traditional educational assignments like a research paper, students were encouraged to seek out and utilize the latest tools in collaborative learning like Netvibes information portals, learning dashboards, and Evernote social bookmarking.

As a result of this cutting-edge program, participating Creekview High School students learned the value of social networking in sharing and discovering information and how to access, interpret, organize and present that information in a multimedia space. "Perhaps the most important skill the students acquired was the ability and confidence to evaluate information in multiple mediums and to use tools to organize that information, as well as network with other learners and educators," notes Hamilton.

The emphasis on emerging technologies and digital media also aided the students in honing time-honored skill sets like reading cognition, writing, and expressing ideas effectively (on blogs, wikis and in digital subject guides). By the end of the semester, these students demonstrated the ability to create original research queries, formulate opinions and support their findings with a variety of information mediums. They showed excellence in presenting ideas in a number of formats and participating effectively in group learning environments.

Students also learned they have the option to take personal responsibility for their education in new and exciting ways. In the *Media 21* classroom, the experience can be all the student wants it to be—a process of learning that gels with the digital world into which they were born. "…[M]y learning environment is the world," noted one student in the course evaluation. "I have nearly everything I could possibly want or need at my fingertips." Another student praised the course subject matter, as well as its unique integration with cutting-edge technologies: "I actually learned about issues in the world, and I discovered a new way to learn that will definitely benefit me in the long run as technology continues to advance."

In the *Media 21* program, Hamilton and Lester utilize a process in which the librarian becomes an integral part of the teaching experience, the teacher benefits from the unique skill sets of information management, and the student discovers their education does not have to diverge so completely from the lives they lead outside the classroom. As a result, the school environment more accurately reflects the global online community, and students can contribute as active digital citizens. In a succinct and moving description of this achievement,

one student observed "[i]n the traditional classroom, I would not get the opportunity to share my work with the world."

Tech Specs

Media 21 used Creekview High School's existing teaching computer lab and an additional 16 wireless laptop/cart sets. To augment the school's digital resources, the school purchased two databases—Gale Global Issues in Context and History Resource Center—and some additional printed materials.

The class used a number of free digital resources—Google Documents and Google Sites, Gmail and news, Wetpaint wikis, LibGuides, WordPress blogs—and a number of social media tools, including Flickr, Twitter, YouTube and RSS feeds.

For more information:

- www.theunquietlibrary.libguides.com/media21

OhioLINK Digital Resource Commons (DRC)

The Ohio Library and Information Network's (OhioLINK) cloud-based federation of individual repositories is a first-of-its-kind service offering shared access to more than a quarter of a million unique academic materials produced by the universities and private colleges of Ohio. The *Digital Resource Commons (DRC)* currently hosts repositories for 17 institutions – including Bowling Green State University, Kent State University and Ohio Wesleyan University, as well as the Digital Archive of Literacy Narratives and the College & University Disability Access Collective. An additional 13 institutions are in the process of creating their own repositories to be hosted by the DRC.

The repositories are centrally hosted in the Amazon Web Services cloud environment, eliminating the need for on-site hardware and technical support in each academic institution. Visitors to the DRC can find, save, and share information in any of the individual repositories, as well as search broadly across all entries. Participating members can make research and other scholarly information available to the widest audience or narrow to individual communities identified within the common. Off-site administrators have access to and control over their repository at a fraction of the cost and effort it would take to host internally.

While the DRC provides a single access point to a mass of scholarly information, individual institutions can configure the software to reflect their brands, maintain the same look and feel of their school's other websites, and provide access to their own materials in concert with their particular communities' user needs and policies.

New OhioLINK consortium members can be online and building their own repository in a matter of minutes and at a cost of about $50 a month for operation. OhioLINK currently also is working with the K-12 community and other Ohio educational institutions to facilitate their participation in the DRC.

The DRC is part of the Ohio Digital Commons for Education, a collaborative initiative of the Ohio Learning Network, OhioLINK and the Ohio Supercomputer Center. The DRC is a creative and cutting-edge response to OhioLINK's need to find, store and share information across a number of institutions with a variety of individual needs and with limited resources available. Fiscal challenges, including budget cuts and staff reductions, forced the DRC team to identify a cost-effective and efficient solution – cloud computing. Project leader John Davison promoted the concept to Ohio education institutions with the slogan, "No Money? No Staff? No problem. Necessity is the mother of Cloud Computing."

This innovative and cutting-edge solution provided a number of positive outcomes for OhioLINK and its partners:

- The DRC continues to add institutions and materials to the repository federation creating a single platform for a vast and growing collection of the state's scholarly material.
- Grant-funded digitization projects proceed apace without being threatened by a lack of infrastructure and disk space.
- Proficiency and technical experiences are shared by participating institutions in the DSpace environment, creating a sense of community and shared purpose across a broad number of education organizations.

The DRC model demonstrates that libraries and consortia can easily and affordably create their own cloud-computing environments to meet their needs, whether to support open-source applications or expand and contract infrastructure needs at a moment's notice.

Tech Specs

The DRC currently uses DSpace open-source software to store articles, reports and conference papers, dissertations, images, data sets, audio, video and multimedia presentations, animations, simulations, learning objects and websites in virtually all digital file types and formats. Almost unlimited storage space is provided by Amazon Web Services cloud environment and charged on a "pay-as-you-go" basis. Built-in redundancies and fail-safes ensure the integrity of the stored objects and information.

For more information:

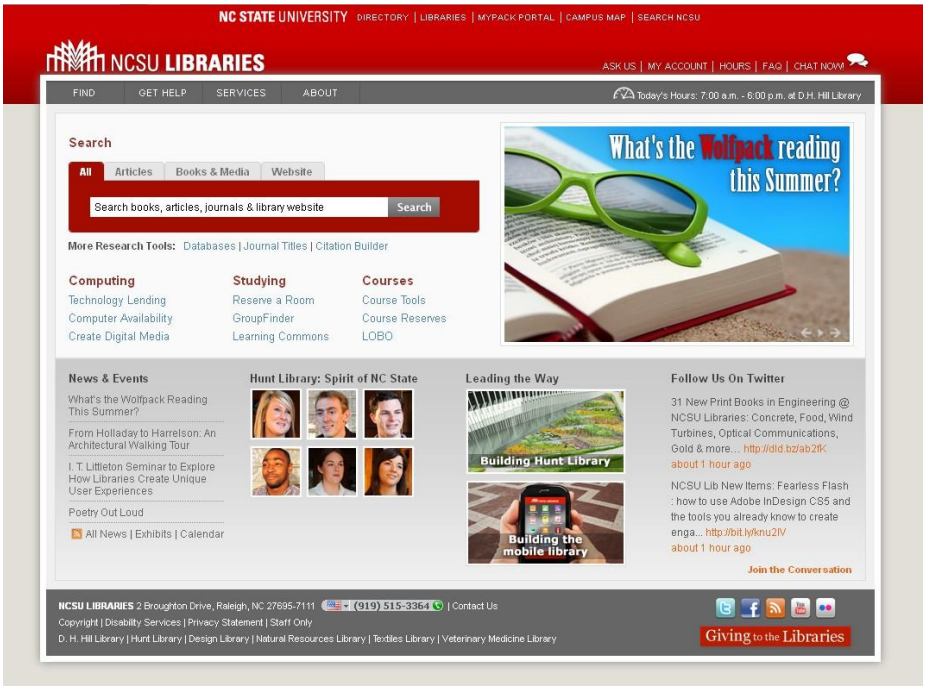
- drc.ohiolink.edu
- drc.ohiolink.edu/bitstream/handle/2374.OX/30656/faq.htm

North Carolina State University Library Web Design Project

In 2010 the North Carolina State University libraries initiated a complete redesign of its website in an effort to provide more and better service to the university's students and faculty. The project design team established two principles on which they would base the site's new look and capabilities:

- The new site would offer user-centered designs like the best and most cutting-edge commercial sites; and
- The new site would be based on the fact that university students and faculty live and learn in a world where the distinction between physical and virtual spaces is both fluid and fuzzy.

The project team, headed by librarians Angie Ballard and Susan Teague Rector, started with the simple but profound realization that rather than offering a series of services to the website's users, the site should first discover what the user wants to do. An effort must be made to discern the users' levels of expertise, as well as their preferences in discovering and accessing information. To this end, the team thoroughly analyzed the site's search data to determine what users where searching for and where and what resources they were missing.



The team conducted comprehensive interviews with users and, perhaps even more importantly, with non-users to determine their search behaviors and information needs. They developed a series of personas to represent different user personalities and also tested search and navigation prototypes in several rounds of "guerilla" usability tests. Throughout the entire design process, the team used a blog to build awareness and to solicit feedback, a strategy that strengthened buy-in from other library teams and leveraged great thinking from across the library community at large.

The resulting redesigned website features a number of innovative approaches to searching that exceeds the "good-enough" Google experience most students accept. The search area on the site dominates the front page and offers clearly marked tabs for each information format—articles, books and other media, websites. Search results are presented in these format categories and provide inexperienced users with "best-option" access to articles and other materials, as well as the ability to browse and revise searches, limit results by peer-reviewed or other qualifiers, and visit specialized databases for more information. For more experienced users, the site also offers searching by digital object identifiers.

While NCSU had long offered a number of cutting-edge library services – a mobile site for course reserves; automatically generated "how to research" documents for each university course; and a virtual, real-time help desk – the design team realigned these services with the new search site to make them more visible to the site's users.

"We ended up making the site much less cluttered – bubbling the key things people needed to the top and making them much more easy to approach," says Director of Communication Strategy David Hiscoe. Following the launch of the new website, the design team then

evaluated search sessions and used the blog to generate additional feedback about the new site.

The design team's innovative user-centered approach and thorough analysis and execution resulted in a new website that is drawing more traffic to the libraries' resources. The average number of searches per day is up 56 percent since the launch. Average clicks are up 79 percent and, once a search is completed, additional entry clicks are up 14 percent.

"Visits to our databases went up almost immediately by an average of 1,300 pages views a month," notes Hiscoe. "This suggests that the strategy of leading users to more professional searches is beginning to take hold."

Tech Specs

The development team moved content from an "HTML jungle" to Drupal 6 during the relaunch, using a customized 960 grid theme for design layout. Fifteen PHP/MySQL and JavaScript/JQuery applications were reskinned using standardized CSS to integrate them more effectively with the main site. In early 2012 the site will migrate to Drupal 7, and work will begin on rebuilding some existing applications.

For more information:

- www.lib.ncsu.edu
- http://news.lib.ncsu.edu/redesign/

Orange County Library System's SHAKE IT! Mobile App

OCLS Shake IT! is an innovative and clever app for discovering and accessing library materials while "on-the-go." Developed by the Orange County Library System's Digital Content Team, the app provides a new way for library patrons to browse materials and get recommendations. The app is available free for download to Apple's iPhone, iPod and iPad, and also for Android smartphones through the Android Market. By physically shaking the handheld device, users can virtually browse books, DVDs and audiobooks presented in a slot-machine like format. Results can also be filtered by audience, genre or format to narrow the choice and provide the user with materials customized to their interests.

The OCLS team ensured seamless integration with the library's mobile catalog and suite of tools. Once the user browses the information, he or she can access the mobile catalog at one touch to determine the item's availability, location and ratings as well as place the material on hold.

"What I like most about the app is that you can lock down any one of the three selectors," said Digital Access Architect Cassie Shivers. "So if I'm looking for a good mystery to listen to while I'm driving to and from work, I can lock down 'Adult' in the audience selector, 'Mystery' in the genre selector, and 'Audiobooks' in the format selector, give the app a spin and discover a good mystery book. And then see which library location has it so I can swing

by and pick it up, or I can place it on hold and have the title come to me. All from my phone. That's convenience."

OCLS Shake It! is reader's advisory for the 21st century; it presented new and unique challenges to the Digital Content Team. Team members needed expertise in a new programming language and particular software. "Perhaps the greatest challenge the development team faced," noted Branch Manager August Calabrese, "was determining a functional matching strategy."

The team had to identify specific selectors and corresponding material and think creatively about how to apply certain genre categories to multiple audiences—children's "romance," for example, might correspond with certain fairytales or nursery rhymes. The result is an app that addresses the needs of all potential library patrons.

"I enjoy a good challenge, and for me the challenge in developing this was in the fine-tuning of results," said Web Developer Damon Wood. "As a group we worked together to ensure that what comes back is not only appropriate, but something fresh, and hopefully interesting. In the end, we came up with something useful that I believe has been received well by the public and reflects well on our Library system, hopefully establishing us as a leader in providing these kinds of resources."

OCLS Shake It! is already a resounding success. Since its July 2010 launch, the app has been downloaded over 4,000 times, and the Orange County Library System has been featured in a number of articles and items presenting innovative library technologies. The library recorded over 40,000 "shakes" over ten months, and *Orlando Sentinel* tech blogger, Sarah Lundy, described it as "pretty cool."

Tech Specs

The development team used the Objective-C programming language with the Xcode suite of development tools provided by Apple. In addition, they used Interface Builder and Instruments to build the prototype. Once the team determined a matching strategy, patterns were set against a number of fields including call number, subject, note, genre and audience. These matches are then exported from the catalog and stored in a MySQL database. The catalog export is run each week to add new library materials into the collection. The final iOS version of the app was ported to Android devices in May 2011.

For more information:

- http://www.ocls.info/shakeit
- http://www.ocls.info/shakeitstory

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 http://www.ala.org/ala/aboutala/offices/oitp/programs/americaslibs/index.cfm.