Empowering the World of Higher Education

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What to See at Educause 2016

At this year’s Educause Annual Conference, learn about strategies for cybersecurity, open educational resources, data analytics, ed tech trends and more.

**THIS MONTH**, thousands of higher ed IT professionals will come together at the 2016 Educause Annual Conference (October 25–28 in Anaheim, CA) to share ideas and learn about the latest tech trends and best practices. There’s no shortage of things to do at Educause: intensive seminars, jam-packed poster sessions, a bustling exhibit hall, networking meet-ups, career coaching, keynotes and more.

Perhaps what Educause is most known for, though, is the huge array of content on the conference agenda. With so many overlapping sessions on so many interesting topics, it would take some sort of cloning experiment or time travel to attend everything I’d like to see. So, after much wrestling and hand-wringing, here are the highlights that made my cut:

**Game of Pwns: Establishing Cyber Risk Governance**

It’s not often you get a large university system to open up about cybersecurity. Here, the University of California will explain how it tackled systemwide governance for cyber risk in response to a major cyberattack in 2015.

**Fostering OER Adoption at Your Institution: Key Challenges and Proven Solutions**

With three different institutions sharing their adoption strategies for open educational resources, you’re bound to find some takeaways for your own school.

**Measuring Student Engagement Using Data Analytics**

Ananda Gunawardena, faculty in computer science at Princeton, will offer practical tips for integrating video content in a course and tapping into the analytics available on video platforms such as YouTube and Vimeo.

**The Educause 2017 Top 10 IT Issues**

Get an exclusive preview of Educause’s annual roundup of the top 10 issues impacting information technology in higher ed — the official list won’t be published until January.

**Coding, Gaming, IoT, and Wearables: New Student Success Technologies, or Chocolate-Covered Broccoli?**

A multi-campus panel will discuss four of the latest buzzwords in education technology. Find out whether or not these tech trends can really improve student outcomes.

**Higher Education, IT, and Public Policy**

Learn about current and emerging federal policy issues that could have major implications for your institution, from cybersecurity and IT accessibility to online learning.

**Learning from Leading: New CIOs Discuss Their Roles and Experiences**

Four new chief information officers from a variety of IT organizations — a community college, public university, liberal arts college and blended library/IT group — will talk about how they’ve transitioned into the CIO role.

**Developing an IT Service Model for Supporting Higher Ed Research: A Conversation**

Bruce Maas, vice provost for IT and CIO at the University of Wisconsin-Madison, and Gerry McCartney, VP for IT and CIO at Purdue University, will discuss how their institutions define IT’s role in supporting academic research.

**Improving College Completion through Collaboration and Scale**

Find out how public universities are collaborating both within and outside their institutions to make the most of big data for student success.

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**Improving College Completion through Collaboration and Scale**

Find out how public universities are collaborating both within and outside their institutions to make the most of big data for student success.
HANdS-ON AR. A professor at Eastern Michigan University is using an augmented reality (AR) sandbox to help students understand earth science concepts through interacting with simulated topography. As users move sand, a virtual map adjusts to reflect the new topology. Users can also hold their hands above the sandbox to create “clouds” that trigger simulated rain to fall and flow down geographic features to form rivers and lakes.

Katherine Ryker, an assistant professor of Earth science education, built the tool using a physical sandbox, a Kinect camera, a digital projector, a computer and open source software originally developed at the University of California Davis. Read the full story online.

StAnd Up foR ClASS. New research out of the Texas A&M School of Public Health suggests that standing desks in classrooms can help students with weight control. A two-year study of students in 24 classrooms at three schools found a “statistically significant” decrease in body mass index among the students in the group that used the special desks vs. those who used standard desks over that same period. “Stand-Biased Versus Seated Classrooms and Childhood Obesity: A Randomized Experiment in Texas” was published in the Aug. 23, 2016 edition of the American Journal of Public Health. Read the full story online.

AFFordable TExTBKs. Students at Bluefield College in Virginia now pay a flat, discounted fee to receive all of their required textbooks before their classes start. The institution has implemented Rafter360, a course materials management solution from Rafter that supplies print or digital textbooks for an access fee that is rolled into students’ total tuition cost. Students can receive their course materials via direct shipment or pick them up on campus. Read the full story online.

ROBOT PIoLET. A new project at Pennsylvania State University enables students to attend and participate in class without ever stepping inside the classroom. The research institution is piloting the BeamPro Smart Presence System from Suitable Technologies, which allows students to be present through a robot that can be remotely operated via computer application. Users can steer the BeamPro robots inside or outside of the classroom — they can even command the robot to take an elevator to another floor or travel around campus. Read the full story online.

Eastern Michigan’s AR sandbox combines an actual sandbox with a 3D camera, a digital projector and a computer to display a topographic map that adjusts as sand is moved around inside the box.
**Chalkup**, a free collaboration system that offers chat, messaging, discussion boards and other social tools, has been redesigned with a simplified interface and enhancements for students and teachers. Read the full story online.

**Collabco’s myday digital academic organizer app** provides one-stop access to university content and resources, including the LMS, student management system, e-mail, calendars, news, library services and more. Read the full story online.

**McGraw-Hill Education’s upgraded ALEKS Placement, Preparation and Learning platform** includes user interface improvements and enhanced dashboard data reporting for administrators. Read the full story online.

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**STEM ED. Virginia Tech** is providing hands-on STEM training with a new learning environment that is part lab, part makerspace and part classroom. The institution partnered with Qualcomm to launch the Thinkabit Lab, a facility geared toward creativity, collaboration and 21st-century skills, at Virginia Tech’s Northern Virginia Center in Falls Church. Led by the Department of Engineering Education in the College of Engineering and School of Education in the College of Liberal Arts and Human Sciences, the Thinkabit Lab will provide STEM education to underserved students, students underrepresented in STEM careers and teachers from the metro Washington, D.C. area. Read the full story online.

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SOCIAL STRUGGLES. Safe social media use is the No. 1 cybersecurity challenge for employees, according to a report from Wombat Security Technologies on security awareness in enterprise organizations. The company evaluated two years of assessment data from Wombat’s Security Education Platform and surveyed hundreds of security professionals to find out how well end users are able to identify and manage security threats. Overall, 31 percent of end users missed assessment questions related to using social media safely in the workplace. When the results were broken down by industry, education was among the top three sectors that struggle the most in the social media realm, missing 36 percent of assessment questions on safe social media use. Read the full story online.

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There’s no “one size fits all” solution to optimize data center efficiency. Here’s how hyperconvergence can help. Sponsored by Lenovo

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Find out why institutions are turning to virtualization to deliver an anytime, anywhere learning environment. Sponsored by Citrix

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Chief Information Security Officers: Moving Away From IT

The CISO role in higher education is evolving, putting more emphasis on enterprise risk management and policy development.

As data breaches and cybercrime gain a higher profile in higher education, the role of the chief information security officer is changing — and broadening beyond IT. The increasing sense of urgency is bringing people from different backgrounds to the CISO post, and is raising questions about budgets and reporting structures as well.

“Higher education is starting to recognize that cyber risk is the same as other types of business risk,” said Brian Kelly, CISO at Quinnipiac University (CT). “It is the same type of consideration as someone falling down a staircase. We are closer to those cabinet-level conversations around risk. It has gone beyond being an IT problem.”

Kelly’s own experience at Quinnipiac provides an interesting example. Before coming to higher ed, he had worked in security both in the U.S. Air Force and at Aetna, a large insurance company. Almost 10 years ago he was named information security officer at Quinnipiac, and in his first year on the job he was placed in charge of the networking group. “At the time I thought it was this wonderful promotion, right?” But in reality, he said, it created a split personality. The security person wants everything to be secure, while the networking person just wants it to work. “The network guys are focused on uptime and operations. The security person is often seen as slowing it down or making it more difficult to access,” he said. “It was unusual for someone to be in charge of both.”

He eventually shed the networking group responsibility and is now focused on creating a roadmap for projects under an identity and access management umbrella and looking at tools to help determine when a credential has been compromised. He is also spending time getting familiar with cyber liability insurance and how it is making its way into higher ed.

A Business Role

Joanne Martin, CISO advisory practice lead for Baltimore-based Hartman Executive Advisors, said the changes taking place in higher education follow trends that happened first in Fortune 500 companies and then started happening in other sectors. “After the first high-profile data breaches happened in 2010 or 2011, the role of CISO changed pretty drastically from being someone who came out of networking and implemented firewalls and network perimeter devices to somebody who looks at things from a business perspective and analyzes the risks to the organization,” she said. “It became a business role.”

Universities, Martin added, have very specific security challenges that require a leader who is able to articulate
Wayne Brown, whose Center for Higher Education Chief Information Officer Studies (CHECS) does annual surveys of both CIOs and CISOs, said he believes the next generation of CIOs could include executives moving from the CISO position. “They are not in a stovepipe,” he said. “They have a broader view of the institution than others in IT stovepipes. They could be part of a fantastic pipeline to fill CIO positions in the future.”

Attracting people with CISO experience in the private sector to university campuses has proven to be challenging. First, the salaries may not match up. Second, universities tend to have more distributed levels of governance that make implementing policy changes more difficult. Martin said CISO searches are more likely to be successful when they find someone with a predisposition to be part of university life. “In other words, you might want a university person who likes to do security rather than a security person considering a university position.”

The Gender Divide

One issue the CHECS research has called attention to is the lack of gender diversity in the CISO position. In the latest CHECS CISO survey, only 11 percent of respondents in higher education were women, compared to 21 percent in the commercial sector. Brown said a lot of CISOs have traditionally come up through the network department on campus, which is usually male-dominated. He said he has worked at five different campuses and only seen a few women working in a network group.

One woman who has molded the CISO position at her university over the last decade is Theresa Semmens at North Dakota State University in Fargo. She learned to get used to being one of the few women in higher education cybersecurity. “I remember..."
in 2005, I took a week-long SANS Institute course at Virginia Tech. There were 165 attendees and only seven were female,” she said. Over the years, she added, her position has morphed from dealing primarily with compromised machines or copyright infringement to focusing more on cyber threats, policies, procedures, training and legal software license review. The university also has added records management and retention to her responsibilities.

Semmens said one of her biggest challenges is that cybersecurity has no specific budget on campus. “We should have a department at least four times larger to do things appropriately,” she said. “My budget consists of our salaries and the money to pay for vulnerability scans. That’s it. I would like to do so much more, but funding is tight and there are other priorities on campus.”

Enterprise-wide Security
William Perry, CISO for the California State University system for the past four years, has sought to bring an enterprise view of security to a system of 23 campuses. “Many times because of specific risks, a campus will act in a manner that is particular to their campus and not particularly effective for the system,” he said. “I explain that we are all in this together. We need to look at risk to the enterprise and not just to the campus, although we try to do both.”

Each Cal State campus has its own information security officer. They meet monthly by phone and two to four times a year in person. “We talk about systemwide policies, standards and opportunities to leverage buying power on contracts,” Perry said.

Perry said that not only has the nature of the threat evolved, so has the nature of the users. “We have students from everywhere around the world. They go home and need to access systems that are here. We need to work to make sure our constituents have the access they need, our staff and faculty can still do their job wherever they are in the world, but still protect the data. So we are looking at defense systems that essentially implement that.”

New Reporting Structures
Most CISOs report to their CIO, but many of them believe they will eventually report directly to higher-level executives or boards. “I think that over time you will see the CISO move out of IT,” said Perry, who currently reports to his systemwide CIO. “[Our CIO] is very engaged in security, but more and more the role of the CISO is moving away from just IT security relative to tools and more into processes and policies regarding risk to the organization,” he added. “I am not sure exactly who the CISO will report to, but I just know we are in a transition across both public and private sectors. I have many colleagues in the private sector telling me the same thing, because we have to look at the risk to an organization and not just IT, where most of us come from.”

Quinnipiac’s Kelly said there may not be a clear answer about reporting lines, but there are times when there is a conflict between CISO and CIO strategy and budget requirements. “We have run into issues where my top three budget requests and priorities might not be the CIO’s top three,” he said. “From a budgetary standpoint it matters, but I don’t think one size fits all.”

North Dakota State’s Semmens said that IT is not necessarily the best place to put someone with the CISO role. “A CISO should be at the same level as the CIO. They should be partners and report to the same person.”

Many smaller campuses can’t afford to hire a CISO, and one person is charged with being both the IT director and head of IT security. Kelly said people in that dual-hatted position can get help by getting engaged in consortia and other communities of professionals. CISOs in Connecticut, for example, created a group called the Connecticut Higher Education Roundtable on Information Security so that people from the 24 higher education institutions in the state can get together to talk about what is working well for them. “Higher education fosters that type of collaboration,” Kelly said. “They shouldn’t be out there struggling alone. There is group therapy available.”

David Raths is a freelance writer based in Philadelphia.
Taking Student Orientation Online

This state university turned to software it already uses — its learning management system — to transform new-student orientation.

WHILE THE traditional orientation process at the University of Colorado Boulder was meant to bond new students to the institution from their first moments on campus, its structure often had just the opposite effect. Two early-summer “welcome days” packed with face-to-face presentations and panels blasting participants with a firehose of information were bound to leave students feeling numb. By the time they returned to campus in August, they’d have forgotten much of what they’d learned. And most of the participants for that early orientation were Colorado residents; non-residents would typically only show up in the week before school began. That meant orientation was timed to overwhelm them just as they were about to dive into their new college careers.

So the university came up with a different approach. The “New Student Welcome Online Experience,” introduced in 2015, doles out content just in time, using a blend of videos, text, quizzes, checklists and rewards to engage and entice students to learn more continually. The platform for delivering the online experience is UC-Boulder’s existing learning management system, Brightspace from D2L. Those in-person welcome days still exist, but now they’re optional.

As a result of the move to this online orientation “course,” student IT processes have been streamlined, the amount of information shared has been pared down to the essentials, and students get a training on the LMS they’ll be using when their classes begin. Ultimately, the university hopes, the “online experience” will improve retention rates.

Direcive From the Top

The online orientation initiative would never have succeeded without a major push from administration, said Jennifer McDuffie, director of New Student & Family Programs for the university, who served on the coordination team for the project. “We had the highest leaders on campus say, ‘This is what we’re doing. You need to move forward,’” she recalled.

The turnaround was rapid, added Courtney Fell, learning experience designer in the Office of Information Technology (OIT). The provost’s office began talking publicly about the project in December 2014. McDuffie joined her group as interim director in February 2015. And by May 2015, the initial orientation course was launched.

While CU-Boulder faced the predictable human resistance to change, it put in place measures to help ensure success. “One of the things I heard was, ‘For 10 years we’ve been doing it this way, and you’re changing it,’” said...
McDuffie. But a combination of “strong leadership, a really transparent process, transparent deadlines” and a willingness to let everybody test the system and give feedback throughout the process helped bring along the 300 to 400 internal stakeholders who played a role in the development of the online orientation.

“The change was more about getting to know the families and the relationship-building. It wasn’t necessarily about the business getting done or the information being distributed,” said McDuffie. Now that the first year is over and the university was able to enroll its largest class ever, those reticent stakeholders have shifted their attention to fine-tuning their orientation messages to make the content more interactive and engaging.

As an example, campus advisers were accustomed to meeting with new students in person and asking them just the kinds of foundational questions one would expect: What do you want to do over the next four years? What are your goals? What are your interests? “They really thrived on those relationships,” said McDuffie. “So last year when we went online, we asked those same questions, but it was a quiz prior to a student’s advising appointment. That information is still being collected, but not by the same route.”

Now, when advisers meet with students, they go into the conversations “with a little bit more knowledge than they had before,” she said.

Flipping Orientation
As another example of the makeover, delivering information about student expectations and student rights and responsibilities would previously consume three to four 60- to 90-minute sessions. That content was converted into 15 or so online components. Those include a handful of videos that discuss the honor code and student behavior code, which can be viewed in about 15 minutes, and another module that’s about 40 minutes long to cover Title IX discrimination, harassment and sexual assault. That mandated content has a quiz that all students are required to take, to make sure they understand the key points.

Once the students have arrived on campus, they’re also expected to take in-person “bystander” training that lasts another hour. “It’s perfect,” McDuffie noted, “because that’s when they’re actually going to experience some of the scenarios that we’re providing them with.”

This “flipped” learning process, which now permeates the online orientation, encourages the students to come to campus prepared: They have digested much of the
ONLINE LEARNING

information online ahead of time, allowing the in-person activities to be more interactive.

Now students spend about two hours on average in the online experience, another 30 to 45 minutes in the community equity module and 15 to 20 minutes in the pre-arrival information for orientation. But aside from reducing the amount of time committed to new-student orientation, the online approach offers another benefit: Students can come back to it when they need a refresher.

In June, students may not care about where to park their bicycles or how to register their laptops on the network, said McDuffie. But when course enrollment periods come up, it’s a different matter. “So we actually see a lot of students going back and visiting the different modules or themes within the learning experience, because at that time, that’s what they want to know.”

“They’re seeing this as their one-stop shop for orientation and first-year information as they’re getting here,” added Fell. “They don’t have to know that for money-related issues they go to the bursar’s office or financial aid. They don’t have to remember the names of those offices. These are their training wheels to get them accustomed to our naming conventions and university resources.”

Scaffolding the Information

To customize the online experience for each student, the system taps into information maintained in the student information system, such as school and major, to make sure individual students receive advising guidance that’s applicable to them. “We really want it to be specific to that student’s experience,” said Fell.

Each student’s online orientation begins with a pared-down version of the available information. “They have a highly scaffolded introduction to the [orientation] course,” Fell explained. “They don’t see all of the resources at once. We don’t want to overwhelm them.” Then they’re asked just five or six questions — a personalization checklist — to allow them to indicate whether they’re a first-year or transfer student, a veteran, living on campus or off, and the like.

“Those responses are tied to release conditions behind the scenes,” Fell said. For instance, once new students have worked through various mandatory steps, the university’s “hold” on their registration records is lifted, and those students are allowed to register for classes. “And then once the course fully opens or the resource opens to the student, they only see that information that is most applicable to them.”

That customization has worked well for 99 percent of the university’s domestic students, she added.

Rewarding Progress

While some of the orientation content is mandatory, plenty of it is optional, depending on the outcome of that customization experience. To entice students to go through the elective material as well, the university built a reward system using its Qualtrics online survey software.

“We worked with a number of campus offices to create incentives and coupons for these incoming students and really capitalized on how to familiarize them with some of these awesome on-campus resources and experiences that they may not know of when they first get here,” explained Fell. “For example, after students completed a certain module and successfully completed a quiz at the end of that module indicating their comprehension of that material, they would unlock a reward.”

Rewards consist of discount coupons at the university store and tickets for visits to the on-campus planetarium and the annual international film festival. Some of the orientation training leads to entries for bigger prizes, such as a four-year university sports pass and scholarships for study-abroad opportunities.

The university has since backed off on the use of quizzes for non-required material, choosing to go with task lists instead. “This change was made to better meet the needs of our incoming students who like to know exactly what to do to get off to a good start,” noted Fell. “We realized that checklists/task lists that they could tick off to track their progress and return to would meet their needs better than a quiz.”

The reward system has been effective. “It has motivated
Improving the Student Experience

Despite the wealth of information available in the online environment, students often have additional questions — and they expect a fast response. Orientation staffers need to be available for quick follow-up, noted McDuffie, because students will access content “at all times of the day and the evening.”

One useful addition to the system has been a “Get Help” button, which students can click when they get stuck. From there they can submit a help ticket, live-chat or text with somebody in McDuffie’s office, and post to a discussion board. Using Zoom, the campus web conferencing application, students can also do screensharing or have a video chat with a staff member.

In 2015, the university actually extended office hours in the evening, but backed off of that in 2016 because students weren’t using that resource. The other help mechanisms seem to keep them satisfied, said McDuffie.

Students also want to be able to access resources quickly. “These are very smart and technically-savvy students,” observed McDuffie. “They want things immediately. If they complete the checklist and hit submit, they want their modules to open up. If they complete a module that releases a hold, they want that hold lifted immediately.” Previously, the system could take between an hour and six hours to sync new information; however, OIT is trying to bring that wait time down as much as possible.

Other Benefits

While the online experience was introduced with retention in mind, it’s too soon to say how that will work out. However, there have been plenty of other benefits. Taking orientation services online has helped to identify gaps and nuances that posed challenges to students. For example, the processes weren’t always clear for double majors or transfer students, so that area has received extra attention. Likewise, because students have between eight
and 12 systems to “navigate through,” as McDuffie put it, OIT has worked hard to present information in a streamlined fashion, using single sign-on as opposed to forcing students to go to separate websites to take action.

Likewise, the whole endeavor has encouraged departments to cut down on the amount of information they try to impart to students. “We did a lot of handholding to get the offices to streamline their information for incoming students,” Fell acknowledged. “I’ve watched [our students] go through the environment when we do usability testing. As everyone suspects, they do not read every word we put into the modules. Every time we can give a bulleted list or create a checklist they can follow up with afterwards — ‘OK, I need to do this, this and this’ — that’s the most important piece. That was good to see.”

Now the university is working on how to grant guest access to the orientation materials to allow families to get to the new-student information they want. Conversations have also begun on expanding the focus from welcoming undergraduate students to onboarding graduate students and even new faculty and staff members.

“As a result of the online experience, advising was able to work with students at their own pace. Students were able to engage with advisers in a more relationship-focused model with more individualized attention,” Fell reported. “The online experience allowed students to learn pertinent information in their own way, and was something students could revisit through the summer and their first semester at CU. The online experience also allowed students to become familiar with the online resources and supports CU offers before they even started their first semester.”

Dian Schaffhauser is a senior contributing editor for Campus Technology.
The Challenge of Understanding MOOC Data

Four years after the launch of edX, the data generated by massive open online courses still mystifies many institutions. Could inter-university collaboration unlock the secrets to better course delivery?

For similar reasons, four smallish eastern liberal arts colleges working with edX — Colgate (NY), Davidson (NC), Hamilton (NY) and Wellesley (MA) — formed a collaborative in 2013 to share the cost and expertise of developing their online offerings, encourage cross-teaching among faculty, bulk up on the amount of data available for research and build systems for managing the MOOC data.

Those types of agreements have been the exception rather than the rule among the 106 or so edX partners. While edX delivers data on a weekly and nightly basis to partner institutions, partners are responsible for managing their own data. “That’s been a very special relationship,” he said.

At many institutions, the data ends up going to the center for teaching and learning. “But there’s not always...
somebody on staff who can handle that kind of data,” Seaton noted. Therein forms the gap between data analytics and instruction: “The pie in the sky is that you complete the feedback loop. We have all this data. How do we feed it back into instruction?”

A Gathering of Learners
To address the data confusion among edX partners, Seaton and others recently organized a gathering of institutional analysts and data engineers from nine schools in the edX consortium to help them learn more about how to work with the data their courses generate. The theme of the event was to share what Harvard and MIT — the two co-hosts — do with their edX data, how they handle data governance and what tools they use. But Seaton was also more pragmatic. “It was not a research conference,” he said. “I wanted [attendees] to get from raw data to working dashboards.”

Seaton provided a testbed to facilitate the work for the day, and by the end of the event, he said, “all attendees essentially stood up their own version of the pipeline.” By the following week, he started hearing from people who had successfully begun filling that pipeline up with their own institutional data and pushing it to the cloud.

In other words, Seaton was one of
the first people to work with edX data. And he still sees people “struggling with things” he struggled with in those early days. Now, however, schools are realizing that they can “collaboratively solve the same problems and build up that institutional knowledge across institutions,” he said.

The MOOC Data Tools Harvard and MIT Use
At the edX partner gathering, attendees learned about three tools: Google BigQuery, edx2bigquery and edx-analytics-dashboard.

The first is Google’s analytics data warehouse cloud service. Why recommend this over any other cloud option? Price and performance. “It's not expensive at all,” insisted Seaton. “It’s really dollars per month.” As he explained, “If you compare it to other cloud providers, usually you pay for resources by the machine. But with BigQuery, they actually charge you by the terabyte of data that you store in their system, and they charge you per query. There’s no machine. It’s just your data living somewhere.” As an example, he said, the bill for the liberal arts collaborative was often “well under a dollar. When things were really active, it was maybe $3 a month.” And then there’s the query processing speed: “If you were on a single machine somewhere on campus, a query might take you a day to run,” he said. On BigQuery, however, queries “run in like maximum of 30 seconds. It’s really unbelievable.”

Edx2bigquery is an open source tool for converting and loading data from the edX platform into BigQuery. That contains “all the various scripts that clean and parse the edX data in its raw format,” said Seaton. From there, it “massages” the data into a form that’s “more aggregable” for uploading into the cloud. Once that’s done, the transformed data is pushed to Google’s infrastructure.

Edx-analytics-dashboard, also open source, delivers views into the edX data once it’s loaded into BigQuery. For example, the dashboard shares daily activity, number of enrollees, geolocation and interaction with course content. This serves as an alternative to the edX standby edxInsights, said Seaton, with the advantage that it can han-

4 LESSONS FROM EDX MOOC DATA

IT’S ABOUT MULTI-MODAL LEARNING: “At the beginning of most online courses, learners spend most of their time watching videos,” said Ike Chuang, a professor and senior associate dean of digital learning at MIT. “Then about two or three weeks later, we find that if they’re serious learners, they spend most of their time doing problem sets — and the amount of video watching time drops dramatically as they spend more time doing assessments.”

STUDENTS HAVE A SHORT ATTENTION SPAN FOR VIDEOS: When it comes to the amount of time spent watching videos, said Chuang, “Typically, the first two or three minutes are watched by everyone. Then after that it drops off very quickly. So the typical video links in our MOOC courses are short. You’ve probably heard that story, but now it’s backed by some data.”

PATHWAYS AREN’T PREDICTABLE: The transition of students from one class to another in a MOOC doesn’t follow an expected pattern, said Chuang. Whereas the typical university flow would show students following the pathway for their majors (going from Law 101 to Law 102, for example), online learners are mostly interested in a particular topic. “They go to and come from computer science classes from everywhere — even from the other computer science courses,” noted Chuang. For Harvard (MA), that’s CS50 and for MIT it’s 6.00.1x. “Students take one, and then they take the other one. It’s really fascinating.”

SMALL NUDGES CAN ENCOURAGE PARTICIPATION: One project-in-progress described by Dustin Tingley, political science professor and faculty director for Vice Provost for Advances in Learning research at Harvard, is a collaboration between MIT and Harvard examining “super lightweight ways to provide small nudges to students in these courses, at the beginning of a course, in order to improve the completion rates.”
Analytics

dle custom reporting that grabs and compares data from up to 10 MOOC courses simultaneously.

**Working Toward the MOOC Payoff**

Seaton hopes to repeat the workshop in the spring, but with a twist. Now that some of the edX partners have gotten their hands on the lassos they need to wrangle their data, it’s time to show them how to help their researchers get access to the right data sets — and help their faculty members use the dashboards to fine-tune their courses, such as by looking at problems that are too difficult or too easy, monitoring and tweaking how many people are posting to the forums and so on.

After all, closing that loop between data and practice is the payoff for many edX partners, including its founders. “Part of the investment that Harvard really wants to see from releasing this content isn’t just that it helps learners across the world, but that this material that can help our residential learners,” said Tingley. “It’s extremely high-production-value content. Making that available in a variety of ways as follow-on material is just one of the things we’re thinking a lot about now. Learning doesn’t stop when the class ends. And that is something that these types of systems are well equipped to be able to offer.”

Working together will become even more essential for edX partners. “We’re going to be quickly, in the next couple of years, moving to a world where we all speak the same language — such that we are able to do some more of that collaborative type of work, even with different types of data sets, questions and procedures for extracting and making usable that data,” predicted Tingley. “It is already set up and the foundations are in place for it.”

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*Dian Schaffhauser is a senior contributing editor for Campus Technology.*
How to Select the Right E-Portfolio Platform

Electronic portfolio experts from colleges and universities across the country offer their key considerations for choosing a campuswide e-portfolio system.

**IN RECENT YEARS,** electronic portfolios have gained momentum as tools to help students manage their digital identity, make connections between their learning experiences in and out of the classroom, and present their achievements to potential employers or graduate schools. And increasingly, colleges and universities are using e-portfolios as an alternative assessment tool at the class and program level.

“Students are documenting a lot of their work, and they know what they’re proud of, and faculty members are being encouraged to look more at having outcomes that can be measured outside of the classroom,” said John Ittelson, professor emeritus at California State University, Monterey Bay and co-author of *Documenting Learning with ePortfolios: A Guide for College Instructors.*

As e-portfolios become a more formal part of assessment, many institutions are looking to standardize on one platform campuswide. We asked the experts at colleges and universities across the country to identify their key considerations for e-portfolio technology selection.

**Identifying the Purpose of the E-Portfolio Initiative**

Before beginning the process of choosing an e-portfolio platform, it’s important to determine the primary purpose of the institution’s e-portfolio program and begin to establish a portfolio culture. “Get very clear with yourselves about the primary purpose of your e-portfolio initiative: Is it student learning? Career preparation? Institutional assessment?” said Lesley Bartlett, assistant director of University Writing, ePortfolio Project at Auburn University (AL). “While e-portfolio initiatives often serve multiple purposes, it’s important to know which purpose is the priority. Your top priority should guide your platform selection process.”

Many inexpensive or free e-portfolio tools are readily available and can provide a low-risk opportunity for educational institutions to explore and refine the purpose of their e-portfolio program while beginning to establish an e-portfolio culture on campus. “Use whatever technology you have to for a couple of years to figure out what you really want to do with an e-portfolio,” said Susan Kahn, director of the ePortfolio Initiative at Indiana University-Purdue University Indianapolis, which uses Taskstream as its e-portfolio platform. “Figure out what you need and how you’re really going to use it before you start looking at platforms.”
Some learning management systems have built-in e-portfolio tools that educational institutions can use as a starting point. Other inexpensive or free tools that can function as e-portfolios include Wix, Weebly, WordPress and Google Sites.

After a year or two of using low-commitment software, the decision-makers at the institution should have gained enough experience to conduct an informed and focused selection process. “The more work that you do understanding the goals and objectives of portfolio and implementation on your campus, the easier it will be for you to make a selection from the various vendors who are making proposals to you,” said Ittelson. “The clearer your understanding of how you’re going to use it and what you’re going to use as your rollout plan, probably the closer you’re going to be to picking the right tool the first time.”

### Assembling a Selection Team

Once the decision-makers at the college or university have identified the primary purpose of their e-portfolio initiative and begun to establish an e-portfolio culture on campus, it’s time to begin the process of selecting and implementing an e-portfolio platform, and the first step in that process is to assemble a team of people to evaluate the available options.

The type of people who should sit on the selection committee depends on the needs of the institution, but those people don’t necessarily need to represent the common interests of all of their colleagues. “I find sometimes that representative piece can actually lead to some gumming up of the works because you’re trying to say, what do all of the faculty want, what do all of the deans want, what do all of the students want,” said Paul Wasko, e-portfolio coordinator for the University of Alaska Anchorage, which implemented Digication as its e-portfolio platform. Rather than asking those committee members to act as representatives, he “found faculty that were really engaged and allowed these people to be themselves.”

Dennis Nef, vice provost for academic affairs at California State University, Fresno, included a person on his selection committee who “wasn’t terribly technology savvy, nor excited about e-portfolios.” His reason for including somebody who wasn’t enthusiastic about the initiative was because “she would bring the view that we were going to have to overcome. If we were going to make this roll out across campus, we’d have to address their concerns, so she could actively assert those concerns early in the process so we knew what we were dealing with.”

According to Nef, the strategy was very effective because through the evaluation process, she turned around to become an advocate for the campus implementation of Pathbrite. “She became the face of our assessment effort on campus in the last year,” he said. “She can look a faculty member in the eye — who says I really don’t think this is a good idea, or I’m not sure it’s a good idea — and she can say, I felt the same way, and here’s why I’ve changed.”

Few colleges and universities seem to include students on the selection committee, typically because of the time commitment required. However, institutions sometimes solicit feedback from students toward the end of the selection process, once the committee has narrowed the list of platforms down to a few contenders.

### Key Features and Functionality

To identify the features available in various e-portfolio platforms, Wasko and his team at the University of Alaska Anchorage asked vendors to answer two questions: As a student, what can I do with your tool? And as a faculty member, what can I do with your tool? “What that did was provide a list of possible specifications or functionality that we then used to prioritize what was really important to us,” he said.

While the selection team may come up with a long list of functional requirements, one of the most important considerations is the usability of the software. “We previously had a platform that was notoriously user-unfriendly and was a barrier to getting faculty, staff and programs to adopt the e-portfolios,” said IUPUI’s Kahn. “That was probably more important to us than any single set of capa-
bilities." Another common requirement is integration with the institution’s learning management system and student information system.

Usability was a key consideration at Fresno State too, but other critical feature requirements included the ability for students to reflect on their e-portfolios, for faculty to assess the students’ work easily, and for the institution to assess student work at the program level.

In the case of e-portfolios used for licensure, such as in nursing or teacher education programs, student portfolios typically include videos of the students in a work setting, and that requirement is an important consideration when selecting a platform. “There may be very specific functions in a particular portfolio tool that are really very helpful to make sure that there’s not an inadvertent posting,” noted Ittelson.

Ultimately, the list of functional requirements is determined by the primary purpose of the e-portfolio initiative as identified at the very beginning of the process.

Making a Final Selection

It’s important for the selection committee to be involved in the request for proposal (RFP) rather than handing it off to the institution’s purchasing department. “The purchasing department’s role is to get the lowest cost product that meets the requirements of the group,” said Ittelson, “and sometimes that doesn’t account for a lot of the cultural or social aspects” of the e-portfolio platform.

Since campus culture is an important component of a successful e-portfolio initiative, it has to be factored into the decision-making process.

Some selection committees have come up with ingenious RFP approaches to encourage vendors to personalize their proposals. At the University of Alaska Anchorage, the book *Documenting Learning with ePortfolios: A Guide for College Instructors* helped guide the philosophy behind the e-portfolio initiative. Rather than writing a long list of functional requirements, Wasko embedded the book directly into his RFP to clarify to vendors the goals behind the university’s selection process. He then gave vendors more time than usual to develop a thoughtful response to the RFP.

At IUPUI, Kahn and her team also used a creative approach to ensure vendors were considering the unique needs of the institution. They generated two scenarios that typified way that e-portfolios were being used on campus. “One was an assessment and accreditation focused scenario. The other was a very developmental learning focused scenario,” said Kahn. “It forced the vendors to give us something other than a canned presentation.”

Some institutions conducted a pilot test as a final phase of the selection process. “We narrowed it down to three and invited them to create a sandbox on our campus where we could play with it,” said Fresno State’s Nef.

At Auburn University — which supports Wix, Weebly, WordPress and Google Sites as e-portfolio platforms for faculty and students — rather than piloting specific technologies, Bartlett and her team focused on strategies to help students and faculty start creating an e-portfolio. “We worked with faculty and students to help them consider the audience and purpose of their e-portfolios,” said Bartlett. “We also helped them generate ideas for artifacts and consider different ways of arranging them and framing them with reflective writing.”

Leila Meyer is a technology writer based in British Columbia.
ASK A FACULTY member or IT manager what his or her favorite forms of technology are on campus and you’ll get an earful. Ask a lot of people who hold those roles, and you’ll get an exhaustive list of best-loved and most-used tools on campus. So it is with our second-annual Campus Technology Readers’ Choice Awards. We went out to our readership and requested their votes in numerous tech categories, from 3D printers, content management and CRM systems to student success, videoconferencing and wireless access points.
In many cases, those companies that won awards last year didn’t necessarily hold their rankings this year. Relative newcomers gained fans quickly, knocking longtime favorites off the podium. Or incumbents proved their continued worthiness by maintaining their leads.

The overall results offer a portrait of a changing segment. Because we told respondents to vote only in those categories where they had real favorites, we could tell which technologies attract the most attention these days because they had larger numbers of votes. Higher education is shifting away from commodity IT that keeps the show running behind the scenes, and placing new emphasis on main-stage performances: engaging learners in innovative ways to improve student outcomes and measuring that success.

**Most Valuable in the Institution**

When we asked people to name the most valuable technology for their college or university, a surprising selection bubbled to the top of the list: platinum winner Guidebook. This mobile app builder allows users without technical expertise to create programs that can be published to the Apple App Store or Google Play. As one respondent explained, “We added Guidebook for our orientation programs, and it allowed for us to cut down on printing and provide students and parents information via their phones.” Said another, “We are able to provide a great deal of information that can be updated as programs change at a lower cost.”

Claiming the gold in position number two is Instructure Canvas. This learning management platform is “modern, open,” succinctly noted one survey participant. Another reported, “We switched LMSes. The ease of use for faculty and the positive feedback from students made it a valuable decision for this year.” Said another, “It is a powerful system to help faculty manage educational resources and class logistics.”

A tie for silver went to Chalk & Wire and Chromebooks from Google and its partners. “Chalk & Wire has been transformative as a means of supporting our assessment of student learning efforts on campus,” declared one respondent. Added another whose institution has used Chalk & Wire for several years, “It is the most valuable for collecting and analyzing data to drive program improvement and student performance.” Chromebooks are “easy to use, powerful, inexpensive,” explained one reader. Said a second reader, “They provide a level of access that we cannot provide with regular laptops or desktops, given the funds that we have to work with.”

**TOP 10 FAVORITE TECHNOLOGIES CURRENTLY USED**

We asked readers to share their three favorite technologies that they currently use in their capacity as education professionals. We added those up, figured out which ones garnered the largest number of votes and ranked them by count. It’s no surprise that every technology or company referenced in this top-10 list shows up as a winner in at least one category — with one exception: Moodle. This open source learning management system has many fans in education, and we’d be remiss if we didn’t give it a plug.

1) Microsoft Office/Office 365
2) Google Apps for Education
3) Apple iPads and iPhones
4) Guidebook
5) Blackboard Learn
6) Chalk & Wire
7) Smart Technologies interactive whiteboard
8) Instructure Canvas
9) Moodle
10) Google Chromebooks

**Learning Management and E-Learning**

For the second year running, the top spot was grabbed by Blackboard Learn — a true feat, considering there were easily two dozen contenders in this category. Last year’s silver winner, Instructure Canvas, moved into second place.
this year. And Google Classroom, a new contender publicly released just two years ago, took third place.

☆ Platinum: Blackboard Learn
☆ Gold: Instructure Canvas
☆ Silver: Google Classroom

E-Portfolios
While Chalk & Wire appeared on the list last year in third place, this year the pairing of learning assessment with e-portfolio was too good to resist, compelling our readers to push it to the top. Blackboard Learn, which integrates digital portfolio features as part of its core LMS, came in second. And Instructure Canvas was the new arrival, taking third.

☆ Platinum: Chalk & Wire
☆ Gold: Blackboard Learn
☆ Silver: Instructure Canvas

Other Instructional Tools
Plenty of education products fit into their own class. To accommodate those reader favorites, we offer the “Other” category. For the second year, Grammarly claimed platinum. This bundle delivers a set of helpful tools intended to help students become better writers. Gold winner Discovery Education Streaming, better known in the K-12 world, has been embraced by higher ed for the worry-free access it provides to top-quality educational video. Learning.com makes another appearance on the winner’s board, taking silver once again with its digital content and tools for helping students gain digital literacy.

☆ Platinum: Grammarly
☆ Gold: Discovery Education Streaming
☆ Silver: Learning.com

Student Information Systems
Although many companies offer products for managing student information, just a few names really lead in this category. Ellucian stands above all others — as it did last year — with its three products: Banner Student, Colleague Student and PowerCampus Student. Likewise, second-place competitor Oracle PeopleSoft has also gained a major following, as has third-place winner Blackbaud.

☆ Platinum: Ellucian
☆ Gold: Oracle PeopleSoft
☆ Silver: Blackbaud Student Information System

Constituent Relationship Management (CRM)
While 2015’s list served up the same set of winners in the category of CRM, starting with Ellucian at the top, 2016 saw a switch in positioning between Oracle PeopleSoft, which claimed the gold, and Salesforce, which acquired the silver.

☆ Platinum: Ellucian
☆ Gold: Oracle PeopleSoft
☆ Silver: Salesforce

Enterprise Resource Planning
As you’ll notice, the same two companies — Ellucian and Oracle — dominate across the board in those categories that help the college or university run its administrative operations. As was the case with the SIS and the CRM, Ellucian came in first for ERP, followed by Oracle PeopleSoft in second. Campus Management, which also offers a full suite of programs for handling finance, HR, fundraising and other aspects of campus ERP, secured the silver, as it did last year too.

☆ Platinum: Ellucian
☆ Gold: Oracle PeopleSoft
☆ Silver: Campus Management

Student Success/Retention
While this important category drew several new names, the roster of champions remains the same with a very tight finish: Ellucian in first place, Hobsons Starfish Retention in second place and Campus Labs in third. Each company offers solutions that promise to help the institution stay on top of
student progress and keep in touch with all of its community members — students, alumni, parents and other supporters.

☆ Platinum: Ellucian
☆ Gold: Hobsons Starfish
☆ Silver: Campus Labs

Content and Website Management
This new category can really only claim two winners, although there were plenty of contenders. Open source WordPress, which didn’t show up in our rankings at all last year, achieved platinum this year with its easy-to-use blogging software created by a community of volunteers and enhanced with literally thousands of plugins and themes. Drupal, another well-known name in open source content management, earned gold.

☆ Platinum: WordPress
☆ Gold: Drupal

Student Response Systems
and Classroom Engagement
Student engagement is the name of the game in classrooms these days, and there are numerous ways to achieve that. Student response systems such as clickers have a respectable history in helping the instructor figure out just how much his or her students are paying attention. i>Clicker led the tally, taking first place with its suite of dedicated devices and apps. This year it was joined on the winner’s podium by Kahoot, a very different sort of product, which inspires participation through gaming features. Gold was obtained by Poll Everywhere, which has a home not just in education but also in corporate environments. And Turning Technologies, with its assessment authoring tools and integration with presentation software, took silver.

☆ Platinum (tie): i>Clicker and Kahoot
☆ Gold: Poll Everywhere
☆ Silver: Turning Technologies

Lecture Capture
Wow, has the lecture capture category evolved. Google’s free Hangouts, the popular group messaging platform, hardly made a dent last year among educators, and this year it was the winner in the lecture capture category with its simple recording capabilities. Second place was taken by another surprise winner, Blackboard, which has long promoted its tight integration with Echo360 for lecture recording and also offers recording functionality in Blackboard Collaborate. (In both cases, it may be that the integration is so transparent, faculty don’t know just where Blackboard Learn ends and the other applications begin.) Third place was a near tie between Panopto and Echo360, both pioneers in this category.

☆ Platinum: Google Hangouts
☆ Gold: Blackboard Learn
☆ Silver (tie): Panopto and Echo360

Document Cameras
The current state of document cameras is an excellent example of building a better mousetrap. What was initially a tool produced to share notes or specimens with an entire class has now acquired features that allow for display of content from the instructor’s device, recording of presentations for later viewing and providing microscopic images for up-close examination. Last year’s platinum winner, Elmo USA, held its first-place standing this year. Newcomer Samsung earned second place. And WolfVision, which offers a ceiling-mounted “3D Visualizer” system alongside a few other more traditional document cameras, took third place in a close race with several other contenders.

☆ Platinum: Elmo USA
☆ Gold: Samsung
☆ Silver: WolfVision

Projectors
People had plenty of strong opinions about projectors. Yet one company was the clear victor: Epson. With the company’s education-friendly pricing and its wide array of projector types
— interactive, 3D, short-throw, large room and ultra-portable — it has found fans on multiple campuses. Taking the gold this year were two familiar names — Panasonic and Sony — which also offer dozens of models for any kind of room type. InFocus retained its silver ranking for the second year in a row.

Platinum: Epson
Gold (tie): Panasonic and Sony
Silver: InFocus

Interactive Whiteboards, Displays, Flat Panels and Kiosks
Projection tech is merging and expanding. Dominating the votes for the second year was Smart Technologies, which long ago grew beyond its interactive whiteboard roots to produce interactive displays, learning software and dry-erase whiteboards whose contents can be saved and shared. A new name on the list this year, Promethean, took gold with its popular collection of interactive whiteboards, walls and tables. Close behind in third place was Epson, which doesn’t offer a whiteboard per se; but then again, with its interactive projector technology in place, who needs one?

Platinum: Smart Technologies
Gold: Promethean
Silver: Epson

Videoconferencing and Web Conferencing
Here’s a category that has certainly grown in popularity and choices. The top two winners didn’t show up on the list at all last year. In first place was Citrix GoToMeeting, which has gained a home in multiple institutions for bringing together people from around the world. In second place was Zoom Video Communications’ Zoom, a fairly recent addition to the segment that grew out of talent that used to be part of Cisco’s WebEx division. Microsoft’s Skype and Skype for Business won third place.

Platinum: Citrix GoToMeeting
Gold: Zoom
Silver: Skype

Virtual Classroom/Meeting Software
Although this category and the previous one cross functional boundaries — bringing people together to collaborate online — different winners appear on each list, possibly demarcated by the size of the audience. People may not realize that Adobe Connect, platinum winner, has the capacity to accommodate hundreds of participants, even though Campus Technology has profiled just that kind of installation. Google Hangouts, the gold winner, is part of Google Apps for Education; that version, which is free, can accommodate up to 10 participants. (The “work” edition can handle up to 25 people.) The “basic” or free version of Silver winner Zoom, which also took a medal in the previous category, can handle up to 50 participants; paid editions have no limitations.

Platinum: Adobe Connect
Gold: Google Hangouts
Silver: Zoom

Classroom Audio Distribution/ Sound Enhancement
This is a little covered but important category that should be celebrated for helping faculty preserve their throats. As classroom interactivity and collaboration become the norm, it may be that the only way for the instructor to be noticed above the fray is by the amplification of his or her voice. Smart Technologies, which has won first place for two years running, offers a couple of classroom amplification systems that integrate with its interactive whiteboards. Second-place winner Califone, also a winner last year, specializes in the “sounds of education.” Third place found a tie between AtlasIED, which covers not just audio but other forms of classroom communications, and TeachLogic, which specializes in microphone systems.

Platinum: Smart Audio
Gold: Califone
Silver (tie): AtlasIED and TeachLogic
Captioning Tools

Educators who flip their classes or use recorded lectures for other purposes want to produce videos that are accessible to everybody in as many ways as possible (not to mention, that feature is required for institutions that accept federal funding). This year’s platinum victor was YouTube, which automatically (and freely) generates subtitles and closed captions for uploaded videos or allows the video producer to add them manually. TechSmith’s Camtasia, which took gold, facilitates captioning with speech-to-text and manual text entry. Silver winner Adobe Premiere Pro, part of Creative Cloud, accommodates captioning from third-party applications or enables manual creation.

Platinum: YouTube
Gold: TechSmith Camtasia
Silver: Adobe Premiere Pro

Classroom Presentation Software

In this category, platinum recipient Microsoft PowerPoint earned more than four times the number of votes of the next most popular presentation software winner. Long a part of Office, this two-year winner is also a part of Office 365 for Education and available as a mobile app. Prezi, champion of gold, offers a free education plan (“Edu Enjoy”) that delivers online presentations that can be viewed on any device and enables the author to store up to 4 GB worth of slides. Paid plans stack up the features, such as the ability to do offline work and official Prezi training. Silver recipient Slides, Google’s free presentation app, provides templates, collaboration tools and file integration with PowerPoint.

Platinum: Microsoft PowerPoint
Gold: Prezi
Silver: Google Slides

Office/Productivity Suites

This year’s ranking duplicated last year’s exactly. Microsoft Office and Office 365 took platinum, followed by Google Apps with gold and Adobe Creative Cloud with silver. Microsoft and Google’s suites focus on e-mail, word processing, spreadsheets and presentation, with communication and collaboration functions adding an extra layer of usefulness. Adobe’s suite offers productivity of a different flavor with its tools and digital assets for visually and aurally creative work.

Platinum: Microsoft Office/Office 365
Gold: Google Apps for Education
Silver: Adobe Creative Cloud

Multimedia Authoring Suites and Creative Software

Adobe’s online tools and digital assets reigned head and shoulders above all other software makers in this category, giving it platinum placement. However, Apple’s movie, music and photo tool collection has its many fans, giving it a solid win for gold.

Platinum: Adobe Creative Cloud

MAGNIFICENT 7

Some products showed up in voting over and over — but without winning in specific categories. These we have classified as the “magnificent seven,” by virtue of the affection they’ve generated among Campus Technology readers.

- Accutrac, to streamline paperwork and managing routine activities in an automated way.
- Civitas Learning, for creating a data-based approach for improving student success.
- Edunav, for providing, as one reader said, “easy access to the full lifecycle of selecting and planning a degree and on-time graduation.”
- Lynda.com, to help staff and students learn how to use the technology that permeates their institutions.
- Taskstream, for tracking, management, governing and storing assessment at all levels of the school, both academic and non-academic.
- Turnitin, to help students become better, more honest writers and thinkers.
- VoiceThread, for helping faculty add increased engagement and interaction in the form of media to their courses.
Gold: Apple Creativity Apps

E-Learning Authoring
Two of last year's victors for this category were also this year's winners. TechSmith Camtasia took the top spot with its arsenal of tools for screen recording, video effects and editing and sharing capabilities. Adobe came in number two against a wide field of potential nominees, with its many tools for helping instructors create digital content.

Platinum: TechSmith Camtasia
Gold: Adobe Creative Cloud

Media Tablets
For the second year in a row, Apple’s masterful iPad, with its potential to run 1.5 million apps, zoomed to the top of the list to take platinum. Last year’s gold winner, Samsung Galaxy, crushed its competitors as well with a broad mix of Tabs and Views.

Platinum: Apple iPad
Gold: Samsung Galaxy Tablets

Chromebooks
Chromebooks may not get the kind of attention in higher ed that they do in other segments, such as K–12 — but with quick boot-up, fast access to free productivity tools and lightweight form factors, they fill a real need for users. Google, which offers the Pixel, secured platinum this year, as it did last year. Dell won gold. And Acer took silver.

Platinum: Google Pixel
Gold: Dell Chromebooks
Silver: Acer Chromebooks

Windows Tablets
It would make sense that platinum would be earned by the company that understands Windows better than anybody else. And thus Microsoft with its Surface line of tablets topped the list. Dell, which offers two lines of Windows tablets, the Venue and Latitude, won gold. And Samsung took silver with its Galaxy TabPro devices.

Platinum: Microsoft Surface/Surface Pro
Gold: Dell Venue and Latitude
Silver: Samsung

Convertible/2-in-1 Notebooks
Convertibles offer the best of both worlds — notebook capabilities with tablet convenience. Dell won platinum with its 2-in-1 Inspiron and Latitude lines. Lenovo’s ThinkPad and Yoga devices claimed gold. And HP grabbed silver with its Envy and Spectre offerings.

Platinum: Dell Inspiron and Latitude
Gold: Lenovo ThinkPad and Yoga
Silver: HP Envy and Spectre

Notebooks
The same roster of winners that swept this category last year did the same this year, albeit with new models across the board. First came Apple with almost four in 10 votes for its MacBook and MacBook Pro machines. Dell won gold with numerous lines of laptops, including the Latitude, Inspiron, XPS and Mobile Workstations. Likewise, silver winner HP made a strong showing with its many configurations of Elite, OMEN and Spectre laptops.

Platinum: Apple
Gold: Dell
Silver: HP

Virtual Desktops and Thin Clients
To enable users to access the applications and data they need no matter what kind of computing device they’re working on or where they’re located, institutions have turned to virtual desktops and thin clients for the answers. VMware, a new addition to this year’s winner’s circle, took platinum with its Horizon solution. Dell Wyse, whose hardware and software components came in third last year, moved into second place this year.
Silver winner HP Thin Client, which combines hardware and software, offers multiple routes to virtualization for the user.

Platinum: VMware Horizon
Gold: Dell Wyse
Silver: HP Thin Client

Wireless Access Points and Hotspots
Cisco is the giant in this category, having won platinum last year and drawing more than three times the number of votes of the next highest winner this year. Gold was claimed by Aruba Networks, part of Hewlett Packard Enterprise. Netgear took silver with its dozens of wireless AP choices.

Platinum: Cisco
Gold: Aruba Networks
Silver: Netgear

3D Printers
The results of this category may be slightly confusing. HP, which took enough votes to win platinum, hasn’t begun shipping its first 3D printer yet. The company expects to deliver its high-end, industrial-grade HP Jet Fusion 3D 4200 Printer in late 2016. Perhaps the votes are an overall commentary on how popular HP’s printers are in the 2D world; or maybe the company’s 3D scanning software, Sprout, is making big inroads into higher ed. Longtime 3D printer maker MakerBot, a division of Stratasys, won gold.

Platinum: HP
Gold: Stratasys MakerBot

Network Management, Monitoring and Analysis
This new category offered more than three dozen choices of products, but two familiar names took the medals: Cisco for platinum and VMware for gold. Both work well in the data center relying on the technologies offered by the respective companies, whether those systems are on premise or in the cloud.

Platinum: Cisco
Gold: VMware

Mobile Device Management
Google Mobile Management was the surprise winner in this category, a startling win for a company that only entered the MDM space a year and a half ago. Google Apps for Work administrators can manage Android and Apple iOS mobile devices as well as Microsoft Windows phones, smartphones and tablets that use Exchange ActiveSync. AT&T wins gold for its solution with multiple suites to cover mobile devices, mobile content and application management, with AirWatch-hosted MDM at its core. JAMF took silver for its Apple-specific Casper Suite for managing iPads, Macs and iPhones.

Platinum: Google Mobile Management
Gold: AT&T AirWatch
Silver: JAMF

Firewall Software
A personal firewall has been built into Windows since XP, so it makes sense that Windows Firewall (part of Microsoft Security Essentials) collected platinum for this product category. After all, few things trump free. But when people pay, they choose Symantec’s Norton 360 (gold winner) and Kaspersky (silver winner) for their expanded forms of protection. Certain editions of Norton, for instance, include multi-device licenses covering the user’s PC, Mac, smartphone and tablet under a single subscription — and throw in cloud storage for online backup. Kaspersky has a big footprint on campus; it not only offers a comprehensive set of security solutions, but the company runs competitions every year to help college students from around the world develop their cybersecurity smarts.

Platinum: Windows Firewall
Gold: Norton 360
Silver: Kaspersky Lab
Antivirus Tools
Although we’ve always thought there was a lot of cross-over between personal firewall software and antivirus, our readers don’t agree. Only one company shows up on this ranking that also made it onto the previous podium. Platinum winner Norton AntiVirus from Symantec provides basic functionality to stop viruses and spyware for safe online activities. Gold winner McAfee, which was recently peeled off of Intel Security to become its own corporate entity, blocks viruses, ransomware and malware and handles other chores, such as “shredding” sensitive digital files. Sophos collected silver for its endpoint protection solutions.

Platinum: Norton AntiVirus
Gold: McAfee AntiVirus
Silver: Sophos Endpoint

Firewall Hardware/Appliances
Each of these vendors earned votes for its next-generation firewall. Cisco achieved platinum with a quarter of the votes for its FirePOWER line of appliances. Barracuda secured gold for its NextGen series. And Sophos acquired a silver medal for XG, just edging out other competitors.

Platinum: Cisco
Gold: Barracuda Networks
Silver: Sophos

Emergency Notification Services
Schools easily have two dozen choices for emergency notification services, and the best are multi-modal, allowing for transmission of messages over multiple mechanisms (such as voice, e-mail, text, digital signage, desktops and social media); provide templates to enable the campus to create messages for specific types of alerts; and integrate other safety features. For example, Campus Alerts, platinum winner, also includes anonymous student reporting and a “SmartButton” digital panic button for quick calls for help. RAVE, which earned gold, offers similar functionality and includes support for the Integrated Public Alert and Warning System Open Platform for Emergency Networks (IPAW-OPEN), which expands coverage to include messages sent out by public warning systems. e2Campus and SchoolMessenger tied for silver.

Platinum: Campus Alerts
Gold: RAVE Mobile Safety
Silver (tie): e2Campus and SchoolMessenger

Dian Schaffhauser is a senior contributing editor for Campus Technology.
Combining the Best of Crowdsourcing, Academic History in a Mobile App

Marshall University history students have the opportunity to contribute to the digital commons through Clio, a free tool that highlights thousands of historical and cultural sites throughout the United States, curated by the crowd.

In 2012, history professor David Trowbridge was at an academic conference in Indianapolis, and on his lunch break he used Yelp to find a nearby restaurant. After lunch, as he wandered around downtown Indianapolis looking at some historical monuments, he wished he had a Yelp-like tool to provide background information on what he was seeing. “I thought someone should create a tool like that,” recalled Trowbridge, associate professor of history and director of African and African American Studies at Marshall University in West Virginia.

He actually contacted Yelp and a few other mobile software companies with the idea. Although they were intrigued, he said, those companies were not interested in creating tools that send users to external sites for more information.

So with royalties from a book he had written, Trowbridge took it upon himself to fund the creation of a free history-based mobile app called Clio (named after the Greek muse of history). Working with Huntington, WV-based tech company Strictly Business, he created a prototype and had his students create entries. “When they came back from spring break, they had used the early version of Clio to go see some of the things their classmates had created,” he recalled. “That is when it hit me that this wasn’t something just for travelers and people really engaged in history. My students used this in their free time. That had never happened before.”

Clio can help people discover the past surrounding them through geo-linked images, video and text. The app picks
students conduct original research. I wanted to do something besides have a file cabinet full of their research in my office,” he explained. “This is a way to share original research that I knew people in the community would care about.” For instance, students created entries about sit-ins during the civil rights movement that no one had ever researched. “I love the idea of being able to stand at a place where that sit-in happened and read about it and see pictures and hear voices of people talking about that event.”

Because the project doesn’t have a marketing budget to work with, Clio usage has spread gradually through word of mouth. Trowbridge started with friends and colleagues as well as historical societies he thought would be interested.

Last year, New York University professor Peter Wosh started using Clio in a graduate course he teaches called Introduction to Public History. “I am interested in figuring out ways to get graduate students to communicate historical content to more general audiences. This seemed like an ideal way to do that because it forced them to think about how you take a complex historical site; consolidate the information to make it interesting and attractive to a general audience; [and] do a little bit of research to find good images to go with the entry,” he said. “It also allowed a back-and-forth between the instructor and students, because they can do drafts and revisions. I implemented it last fall and it went really well. Students got excited about it because for them it was an opportunity to do something real. We got to see their entries available for people.”

In spring of 2015, the Clio project received a grant from the Knight Foundation that allowed Trowbridge to hire students to create and edit entries. He said he has been amazed at how fast the app content has grown. At the time the Knight grant was obtained, he had about 3,000 entries. That number grew to 5,000 by the end of the summer of 2015. Today, there are close to 10,000 entries.

Trowbridge also recently received a Whiting Public Engagement Fellowship to improve the platform by adding interactive walking and driving tours. The fellowship will allow him to expand the app’s content and build up the network of scholars, historical societies and museums that contribute. Although financial sustainability is essential to any digital project, Trowbridge said that one of the great things about Clio is that it didn’t start with a grant. “Projects that start with a grant usually stop when the grant funding runs out,” he said. “This started with passion, so not getting a grant — which is a reality everyone has to be prepared for — will never stop us from doing this.”

David Raths is a freelance writer based in Philadelphia.
An LMS to Support ‘Gameful’ Learning

Seeking to bring the qualities of well-designed games to pedagogical assessment, the University of Michigan created a learning management system that uses gaming elements such as competition, badges and unlocks to provide students with a personalized pathway through their courses.

“School is a kind of game — just a poorly designed one,” said Barry Fishman, a professor of learning technologies in the UM School of Information and School of Education. “Typical grading systems create learners who are trained only to follow rules and pay attention to their grades, the ‘final score’ in their courses.” In contrast, well-designed games spark players’ curiosity, hold their attention, teach complex skills and get players to persist through ever-increasing challenges. Fishman’s goal: to transform the grading system in a way that helps students focus on learning, not grades.

Many universities are experimenting with adding elements of games to courses. But at the University of Michigan, faculty members and researchers draw a subtle but crucial distinction between “gamification,” which may add a layer of fun to a typical activity, and “gameful,” which seeks to fundamentally change the nature of teaching and learning so that the progression through a series of activities is more engaging.

With GradeCraft, students earn badges for completing activities and receive recognition for their achievements. They also advance to the next level when they unlock new content.

The University of Michigan GradeCraft team (left to right): Caitlin Holman, Barry Fishman, Adam Levick, Marie Hooper, Rachel Niemer, Ben Plummer, Jonathan Gabel and Jamie Wright.
points in the course, but not just anybody can do it,” Fishman explained. “You have to qualify for it by demonstrating that you are ready for it by completing other activities first.”

Before GradeCraft, Fishman and a few other instructors were experimenting with gameful elements in their own courses, and found that it was difficult to keep track of where each student was in the process. “We had lots of spreadsheets going, lots of tracking mechanisms to figure out where people were and what they were doing. But in the end, if you don’t have good information about where you are, that is not a good way to support autonomy or competence,” he said. That is when graduate student Caitlin Holman came up with the idea of developing a software program specifically designed to support the instructors who were implementing gameful learning. “She is the main force behind the design and research of GradeCraft,” Fishman said.

Written in Ruby on Rails and hosted on Amazon Web Services, GradeCraft was created by a small team of students and faculty with additional software support from Ann Arbor-based developer Alfa Jango. Their work received support from UM’s Office of Digital Education and Innovation and the Office of the Provost. GradeCraft can work as a stand-alone platform or in conjunction with a traditional LMS via the LTI (Learning Tools Interoperability) protocol. The system launched on UM’s Ann Arbor campus in 2012 and went into broad use by winter 2015. In the most recent semester at UM, 29 instructors used GradeCraft for 58 courses across 17 disciplines.

Here is how it works: Instructors create a course shell within GradeCraft (similar to the process with any LMS). Students use a tool called the “Grade Predictor” to plan a personalized pathway through the course, making predictions about both what they will do and how they will perform. When assignments are graded, predictions turn into progress; students are then nudged to revisit their semester plan, reassessing what work is available and how well they need to do to succeed overall. Students are able to independently choose an assessment pathway that matches their interests within the framework of learning objectives for the course.

One of the principles behind the gameful work is self-determination theory, which argues that when people 1) feel that they can make choices that matter, 2) feel connected to others and 3) believe their current level of competence is important and they are able to build competencies, they feel more motivated and engaged. Those are characteristics that well-designed games and well-
designed learning environments happen to share, Fishman said. “So our real mission is to support instructors in redesigning their learning environments to support those three things.”

Fishman admits that embracing gameful learning and GradeCraft is challenging for instructors, because it means making deep changes to the assessment system of a course. For instance, instead of a course grading “out of 100 percent” or on a curve, all learners start with zero points and earn their way toward their course goals, he explained. A community of practice at UM works with instructors to help them clarify their learning goals and identify the range of ways students in their class can demonstrate progress toward and/or mastery of those goals.

“There are a number of technologies that automate what you do or make it easier. They help you do things better,” he noted. “This is a technology that enables you to do better things. But in order to do it, you have to be mindful about your teaching and do some redesign. We are using a learning community model where instructors get together monthly and discuss what we are doing.”

Leading that learning community is Rachel Niemer, director of digital pedagogy and learning communities at UM. She said that for some instructors, aligning their assessments with specific learning objectives is a new experience. When they try to create multiple pathways through a course, they need to make sure students are exposed to and assessed on similar or analogous content. “So we work with them to generate ideas on equivalent assignments to match up with a traditional exam, and think about how else a student can demonstrate they have mastered content,” she said. Niemer added that instructors get excited about using unlocks because it allows them to think about student competency and mastery more than they do in traditional assessment.

One stumbling block for gameful teaching and GradeCraft is some established thinking about the purpose of grades and grading, Fishman said. For some university instructors, grades are a necessary sorting mechanism; if all students can earn an “A,” they believe the class must be too easy. Fishman said he prefers to think that courses should be extremely challenging, but that it should be possible for everyone to earn a high grade. When one grades “on the curve,” he pointed out, positive outcomes are rationed, and true performance is hidden behind a force-fit distribution.

UM is starting to do research into which gameful elements are most effective at fostering student learning, engagement and intrinsic motivation. According to Fishman, early findings suggest that many students in gameful courses engage with content more deeply and intensely than they otherwise would. Some students who have taken courses with GradeCraft report that they now approach all of their courses with a new perspective. In a focus group, one student said that taking a gameful course helped him recognize that there are two objectives when he is taking a course: getting a good grade and learning course content. He noted that the realization that grades and learning aren’t inextricably linked allows him to aim to maximize both objectives, and when they are in conflict, be strategic about how he approaches his coursework in order to meet his own personal goals.

The project has drawn interest from other campuses as well as K-12 schools. The GradeCraft team has developed a website to showcase the technology and is working on a MOOC and possibly a conference on gameful pedagogy. They expect to launch a commercially available hosted platform in the next year.

“I anticipate that there will be a broader community thinking about this,” Niemer said. “We have noticed that most of the instructors who first came into the community were award-winning instructors. As people begin to realize there is really good pedagogy embedded in this, we’ll see another spike in interest.”

David Raths is a freelance writer based in Philadelphia.
Crowdsourcing for Massive Engagement

London School of Economics and Political Science embarked on a crowdsourced, gamified approach to education and citizenship, harnessing the massive open online space to engage a community of learners in writing a model UK constitution.

Institute of Public Affairs, they developed Constitution UK, an effort to crowdsource a model written constitution for the United Kingdom. Participation and engagement in the project actually increased as it progressed, which may provide some lessons for other large, open education offerings.

Constitution UK empowered participants to propose their own ideas for the constitution, and then engage in a debate and selection of those ideas. The whole setup— from ideation to platform development to go-live — happened in just eight weeks. And in the 14 weeks the project was active, a community of more than 1,500 participants emerged, generating thousands of online interactions, over a million words of contributions and a final constitution of 8,000 words.

One of the first decisions the project team had to make was what type of software to use. A traditional learning management system was not going to suffice. LSE executives did a market scan and looked at software implementations of “liquid democracy,” a new form of collective decision-making that gives voters full decisional control.

“The London School of Economics and Political Science was not quick to join the MOOC movement. Its faculty and administrators were concerned about the high attrition rates commonly found in massive open online courses. “We observed a persistence about the pedagogies being deployed that didn’t do a lot to arrest those problems,” said Darren Moon, a senior learning technologist at LSE.

But in 2014, Moon and his colleagues found an opportunity to build a large online community that would avoid that very high attrition rate. Together with the school’s Institute of Public Affairs, they developed Constitution UK, an effort to crowdsource a model written constitution for the United Kingdom. Participation and engagement in the project actually increased as it progressed, which may provide some lessons for other large, open education offerings.

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“In the end we were more drawn to ideation platforms that are used in the corporate space to help organizations move forward by getting ideas from everyone in an orga-
The goal for Constitution UK was to create an informal learning experience that would be highly flexible, with no fixed points of entry — a form of “discontinuous engagement” wherein participants were free to choose when and how to interact with the project. It was the fact that people were being recognized for the volume and quality of each interaction with the community.”

Bryant said another goal was to attract people who might not be predisposed to take a MOOC course. “What we were trying to do as much as possible was deliver a project that was opportunity-rich but demand-light,” he said. “We didn’t want people to feel burdened by assignments and readings to do. We just wanted them to have an environment that was comfortable and where their opinions, thoughts, and contributions were highly valued, and by making that the priority, we actually created a good space for learning to occur.”

The project team was encouraged that Constitution UK participation numbers progressively increased over the time the platform was open, including a huge increase in the last two weeks. (More than 30 percent of participants joined the project in that period.) In surveys, approximately 80 percent of participants stated that they had “gained new knowledge” and 70 percent stated that they “gained new skills” through participating. In addition, 88 percent of participants were influenced by community discussions and 50 percent of participants stated that working with others directly contributed to their learning experience.

David Raths is a freelance writer based in Philadelphia.
The marketplace for augmented reality, virtual reality and mixed reality technologies may be heating up. Daniel Christian, a senior instructional designer at Calvin College (MI), observes that significant R&D investments, product development and more powerful enabling technologies are setting the stage for new AR/VR/MR initiatives in higher education.

CT: We’ve seen many good initiatives in higher education that have pioneered examples of AR, VR and MR for instruction. But will these modes of interaction become more established and commonly used at our institutions in general?

Daniel Christian: All too often, when people working within the field of higher education think of modes of interaction like augmented reality or virtual reality, their minds harken back to something like the launch of Second Life in 2003. That online virtual world may have made for some great experiments in education back then, but Second Life turned out to have relatively few really active “islands” in higher education, and those initiatives had limited impact on our educational programs and institutions in a broader sense. Unfortunately, it’s an easy leap for people to sum up those early VR initiatives as somewhat of a “flash in the pan” and discount any future potential for augmented reality, virtual reality or mixed reality in education.

But … let’s hold on a bit here. We shouldn’t be too quick to cast these relatively new forms of human-computer interaction [HCI] aside. There have been several important developments that have changed the game since the first go-arounds in virtual worlds and the VR attempts of yesteryear.

CT: Are supporting technologies changing in ways that might make AR/VR/MR more commonplace?

Christian: Yes. The fact is that the technologies that enable AR, VR and MR have become far faster, more powerful and more robust. Along with that, our mobile devices and the underlying networks to support them have come a long way — not just in the number of devices connected, but in the bandwidth over which information is delivered to and from them, as well as the computing power that these devices now bring to the table.

CT: Is the technology marketplace going to focus more on changes in supporting technologies and in new product development relative to AR/VR/MR — effectively making these modes of interaction more affordable for everyone?

Christian: The prices of the software and hardware that enable AR/VR/MR experiences are becoming and will become more reasonable. Increasingly, even general consumers are becoming able to experience new forms of HCI. For example, Google Cardboard only costs around $15 dollars.

CT: Is there a signpost you might point to that would indicate that there’s going to be more product development in AR/VR/MR?
Christian: There’s a significant one. Several major players— with very deep pockets— within the corporate world are investing in new forms of HCI, including Microsoft, Google, Apple, Facebook, Magic Leap and others. In fact, according to an article on engadget.com from 6/16/16, “Magic Leap has amassed an astounding $1.39 billion in funding without shipping an actual product.” So to me, it’s just not likely that the billions of dollars being invested in a variety of R&D-related efforts are simply going to evaporate without producing any impactful, concrete products or services. There are too many extremely smart, creative people working on these projects, and they have impressive financial backing behind their research and product development efforts. So, I think we can expect an array of new choices in AR/VR/MR.

CT: Do you foresee educators responding to a new wave of AR/VR/MR products and technologies?

Christian: Yes, and I think there is going to be some pressure for them to act, coming from the way students use technologies. It’s getting harder for instructors to obtain and maintain students’ attention, as numerous things may be vying for students’ time these days (e.g., Facebook, Instagram, Twitter or other sites or services). To be able to offer compelling, engaging learning experiences is a highly attractive, powerful idea that instructors will want to pursue.

CT: Are you saying that students will be driving AR/VR/MR technology adoption on campus?

Christian: Perhaps saying that students will be driving these new forms of HCI is a bit too strong— though I think they can and will have some impact here (through vehicles such as course evaluations and requests for suggestions). But perhaps most importantly, instructors and instructional designers will want to use the tools available to them to engage students, and to teach well. The leveraging of new instructional opportunities has been the case all along with technology change, from the early days of multimedia to the more recent ascension of social communications — and the next wave may well be AR/VR/MR tools for education.

CT: So do you think faculty have AR/ VR/MR on their radar?

Christian: While it’s probably too early to say for most faculty or even for many instructional designers and technologists, behind the stage things are being set for change, and that change could happen fast, once it starts. A lot of what’s coming down the pike isn’t quite here yet and some of the vendors, such as Magic Leap, are pretty secretive about what they are working on. But just wait ’til it’s here … everyone will be aware.

That said, there are some visionary faculty out there who have exciting, compelling dreams of using emerging forms of human-computer interaction to unlock a whole new world of learning experiences for their students. And of course, successful teaching and learning practices will be passed along in the disciplines, once there are solid models to share.

CT: What is the conversation like now between visionary faculty and lead instructional designers like you? Can you rightfully encourage them in their visions?

Christian: Actually, I think we aren’t that far from being able to deliver on the powerful visions of teaching faculty. Just the other day I was talking to Jason VanHorn, an associate professor in our geology, geography and environmental studies department. After finishing our discussion about a particular learning space and how we might implement active learning in it, we got to talking about mixed reality. He related his wonderful dreams of being able to view, manipulate, maneuver through and interact with holographic displays of our planet Earth.

When I mentioned a video piece done by Case Western [OH] and the Cleveland Clinic that featured Microsoft’s...
Hololens technology, he knew exactly what I was referring to. But this time, instead of being able to drill down through the human body to review, explore and learn about the various systems composing our human anatomy, he wanted to be able to drill down through the various layers of the planet Earth. He also wanted to be able to use gestures to maneuver and manipulate the globe — turning the globe to just the right spot before using a gesture to drill down to a particular place.

VanHorn wrote to me: “I am very familiar with the Hololens and have looked into it. I see it as a middle point of where I want to get to. The Hololens gives the flexibility of no-cave, thus autonomy of movement in real space…. I want to get beyond that to make holograms in real space and time based on the spatial layering of GIS. In order to do this we should have the fastest network possible to move data and I think the solution is Internet2. I am on the grant … going into the NSF to bring Internet2 to the campus. The medical field uses this to its advantage and I think with the large data I deal with all the time in the geospatial field of GIS and Remote Sensing, I can also take advantage of I2.”

I believe that we are on the cusp of enormous change in how we interact with computers. I’m talking on a level of HCI platform-related changes — huge in scope and impact.

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SALES CONTACT INFORMATION

DIRECTOR OF SALES
David Tucker
(612) 333-2238
dtucker@1105media.com

SENIOR SALES ACCOUNT EXECUTIVE
Jean Dellarobba
(949) 265-1568
jdellarobba@1105media.com

CORPORATE HEADQUARTERS
1105 Media
9201 Oakdale Avenue, Suite 101
Chatsworth, CA 91311
Weekdays 8:30 a.m.–5:30 p.m. PST
Phone: (818) 914-5200
Fax: (818) 936-0496
1105media.com

SALES CONTACT INFORMATION

DIRECTOR OF SALES
David Tucker
(612) 333-2238
dtucker@1105media.com

SENIOR SALES ACCOUNT EXECUTIVE
Jean Dellarobba
(949) 265-1568
jdellarobba@1105media.com

CORPORATE HEADQUARTERS
1105 Media
9201 Oakdale Avenue, Suite 101
Chatsworth, CA 91311
Weekdays 8:30 a.m.–5:30 p.m. PST
Phone: (818) 914-5200
Fax: (818) 936-0496
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Nov. 24–26
Online Learning Consortium
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Dec. 4–9
The Data Warehousing Institute
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