COMMONWEALTH OF AUSTRALIA

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You may have heard the word "disruption" lately.

College leaders are trying new approaches to teaching and research with digital tools, and some of those approaches could be transformative. Here are profiles of a dozen of those leaders, highlighting their ideas and the issues at stake. In making our selections, we considered nominations from readers.

Technology Director Turns Cellphones Into Classrooms

THE INNOVATOR: Laura Czerniewicz, University of Cape Town

THE BIG IDEA: Not everyone has computer access, so mobile education should make more use of cellphones.

By Jennifer Howard

Laura Czerniewicz (Photo: Katherine Traut, University of Cape Town)

For students in South Africa, mobile phones aren't just for texting. They're often the surest route to the Internet, especially for the many who have little or no reliable computer access off campus. And, as in much of Africa, cellphones are ubiquitous. A 2007 study found that 98.5 percent of the country's university students had one.

Laura Czerniewicz thinks a lot about how students really use those phones in a higher-education setting. She's an associate professor of education at the University of Cape Town and the founding director of the Centre for Educational Technology. Ms. Czerniewicz used to work in commercial publishing. She made the jump to higher education in part to figure out fresh ways to get content to people who need it. She now heads the OpenUCT Initiative, which makes Cape Town research and teaching and learning resources openly available online.

Getting a university degree remains a huge challenge for many South African students, especially those who don't have money to drop on textbooks and laptops. So students have gotten creative about closing the tech gap with the help of their phones. Ms. Czerniewicz's research shows that students use phone cameras to take pictures of blackboard notes and textbook pages. They record and share lectures, often without the lecturer's knowing. "It's been a case of necessity and opportunity," she says.

Instead of looking at such behavior as a disruptive use of technology, she argues, institutions need to embrace it. At Cape Town, the university is working to make recorded lectures mobile friendly, for instance, and Ms. Czerniewicz and her colleagues have designed an SMS mobile-learning tool that lets students in a course ask questions and compare notes, anonymously if they want to. It works on any cellphone, not just smartphones. In the university sphere, "there is a disjuncture between how we design for the use of technology and what students are already doing with technology," Ms. Czerniewicz says. "Higher education is missing an opportunity."
One Researcher's Solution to the Data Deluge: Enlist 'Citizen Scientists'

THE INNOVATOR: François Grey, Tsinghua University

THE BIG IDEA: Invite members of the public to help analyze scientific data—and link their home computers into virtual supercomputers.

By Jennifer Howard

Technology is flooding the world with data on a scale we've never seen before. At CERN's Large Hadron Collider, in Switzerland, for example, new data are generated at a rate of one gigabyte per second.

For François Grey, a physicist with a specialty in nanotechnology, the problem isn't too much information but not enough machines and human brains processing it.

Mr. Grey coordinates CERN's Citizen Cyberscience Centre, an informal group set up to promote the idea of recruiting the general public to give scientists a hand with all kinds of research. One focus of the group's work is the developing world, where resources to support science are often scarce. "Our particular focus is where the Web and the Internet take you beyond what could previously be done," Mr. Grey says. He's a professor of distributed scientific computing at Tsinghua University, which he describes as the Chinese equivalent of the Massachusetts Institute of Technology.

Lately he's been traveling the world as an ambassador for citizen cyberscience. "Scientists never have enough computing power," he says.

The solution is as close as your home computer, thanks to distributed computing. If scientists share processing tasks among hundreds or thousands of volunteers' machines, they create a virtual supercomputer.

One popular project, Galaxy Zoo, uses volunteers to tag hundreds of thousands of galaxy photos taken by the Hubble telescope. Foldit and Folding@home, which is run out of a laboratory at Stanford University, invite citizens to model protein-folding in a quest to understand diseases like Parkinson's and cancer. Climateprediction.net asks participants to help model earth's climate up until 2100. CERN's LHC@home provides software that runs simulations of particle collisions on volunteers' computers.

If doing particle-physics experiments on your laptop sounds like science fiction, consider how much computing has evolved. "Your Mac Air is more powerful than a supercomputer 10 years ago," Mr. Grey points out. "The potential of volunteer computing easily outstrips what you can do with supercomputers and data centers and so on, simply because there are so many computers out there."

In China, for instance, more than 100 million people have joined the Internet in the last 18 months. That's a lot of computing power.

The title of his Web site, Billion Brain Blog, sums up Mr. Grey's emphasis on spreading science far and wide. Although he's trained as a researcher, he has a longstanding interest in building bridges between the lab and the larger world. He spent several years at CERN in the IT department, working on science communication. That led to his current focus on citizen cyberscience.
Citizen scientists have existed for centuries. Astronomy and archaeology have rich traditions of amateur discovery. Computers make it even easier to tap into such enthusiasm. "They can do it at home," Mr. Grey says of today's citizen cyberscientists. "They don't need a telescope. They don't need to go off to Africa somewhere and start digging."

As computers and project organizers get more sophisticated, citizen cyberscience has begun to produce significant results. Mr. Grey has success stories at his fingertips. For instance, some of the results from climateprediction.net and Foldit have turned up in published reports in the journal *Nature*.

Like many projects, Foldit attracts volunteers through gaming language. The site's slogan is "Solve puzzles for science!" But its players take their protein-folding seriously, to the point where they will suggest new research strategies to the scientists in charge.

That kind of involvement can challenge certain notions of scientific professionalism. "The scientists who do this are still in a minority within their domains," Mr. Grey says. "The first reaction is, 'This isn't going to work, because these people don't know enough.'" But as he's quick to point out, "we get quite a long tail of talent" on the Internet. "Some grandmothers studied protein structure or are professional astronomers who have retired" and have a lot of time and enthusiasm on their hands. And volunteers are more likely to be motivated by enthusiasm than by a drive to rack up publication credits. "Publication has no particular value for them," Mr. Grey says. "Why waste time publishing when you could be out observing? One of the exciting aspects of this is when scientists start to understand there are other value systems for scientific discovery."

He does not expect citizen cyberscience to replace supercomputers and data centers. Some tasks will always require processors that stay online and talk at high rates of speed to each other. Nor does he think that crowd power will edge out the genius-in-the-lab model of scientific progress. But he predicts that, as it enables more breakthroughs, citizen cyberscience will evolve from neat sideline to necessary resource. "Volunteer computing can fill a larger portion of the computing needs as time goes by," Mr. Grey says. "It's similar to the argument of open access. Why are institutions paying huge amounts of money for computing resources they could get for free?"
Self-Described 'EduPunk' Says Colleges Should Abandon Course-Management Systems

THE INNOVATOR: Jim Groom, University of Mary Washington

THE BIG IDEA: Colleges should use free Web tools for course discussions and projects to better prepare students for jobs after college.

Learning-management systems lure professors in with handy features, Jim Groom says, but in the end they limit the Web's possibilities for teaching. (Photo: U. of Mary Washington)

By Nick DeSantis

Jim Groom doesn't hate learning-management software. But he's certain it doesn't make teaching any better.

For Mr. Groom, an instructional-technology specialist, the features that attract professors in the first place—like grade books and quizzing tools—are traps that squash creativity and bury thorny issues like fair use.

When professors try a learning-management system that promises to improve teaching, it "really encloses space, and it encloses the possibility of the Web," he says. Mr. Groom charges so-called open-learning management tools with co-opting the spirit of EduPunk, a term he coined to express the do-it-yourself ethos he champions. These days he avoids the word because he fears people were preoccupied with the label rather than its goals. He uses a new creative outlet instead.

It's ds106, a digital-storytelling course he teaches with a group of colleagues. His team shunned the learning-management market and built its own virtual classroom by cobbling together free open-source tools. The class blossomed into a "family" of students from five universities. Hundreds more play along online. Mr. Groom said a vendor's learning-software tool could never sustain the community, because most limit access to those with an account at that university.

It's not always clear who's driving the bus, though. Students thought some early assignments were boring, so he now requires that they create a few of their own to keep everyone engaged. Mr. Groom—known online as "Reverend Jim" after the lovable lunatic character in the TV show Taxi—once shaved his head and ceded teaching duties to Dr. Oblivion, his fictional alter ego who spoke only through online video. Andy Rush, one of Mr. Groom's colleagues, said traditional software would render these experiments pointless because they're not built to handle an anything-goes approach. "There's no shaving your head in an LMS," he says.

Tim Owens, another member of the ds106 team, likens its method to building a soapbox car from scratch. "You can either buy a kit, or you can go pick up a piece of wood and use the tools," he says. "And I feel like instead of handing people kits, we need to be handing them a hammer, and a saw, and nails and saying, Make whatever you want."
Software Evangelist Wants to Put Learning-Management Software in the Cloud

THE INNOVATOR: Adrian Sannier, Pearson

THE BIG IDEA: Colleges should outsource their course software and get out of the coding business.

Adrian Sannier says his new product hits the sweet spot between true open-source systems and traditional learning-management platforms. (Photo: Ida von Hanno Bast)

By Nick DeSantis

Adrian Sannier knows what it's like to place big bets on outsourcing data to the cloud.

When he was a technology officer for Arizona State University's office of the president, he was one of the first university leaders to shift control of student e-mail to Google's free service. His wager paid off: He said at the time that he saved $400,000 and brought in new features faster than his staff ever could. Now hundreds of colleges have followed that lead.

Mr. Sannier recently left academe for the software industry, and he says his new product, OpenClass, can use the cloud to transform learning-management systems that run college-course Web sites and digital grade books.

He says universities should not have to endure the disruptive, slow upgrades that plague traditional systems. By distributing quick, constant enhancements through the cloud, he says, OpenClass will let universities improve their tools without the usual headaches.

The new product rode into the market on familiar coattails last fall—Pearson, the major textbook provider that runs it, offered it to any university using the Google Apps for Education platform. Already, 2,600 institutions have tried the system.

There is one catch: Pearson. The publisher, which these days produces a range of education software as well, will use this portal to promote its e-textbooks. It's a sign of a blurring line between educational content and Web-based services. Many in academe worry that the publisher could make it hard to plug in texts from other publishers. In feisty speeches at education-technology conferences, Mr. Sannier has insisted that OpenClass will incorporate all types of content. "We're not giving this product away to shill you into something else," he said at OpenClass's introduction.

Mr. Sannier admits that OpenClass isn't truly open source—clients cannot modify its code. But, he argues, most professors have neither the technical chops nor the interest to create their own systems.

OpenClass, he said, hits the "sweet spot" that will allow the best ideas to scale beyond the digital walls of traditional learning-management systems.

"The notion of a closed community that's managed—which has been at the heart of the LMS market until now—those are some of the boundaries that we're knocking down."
Treating Higher Ed’s ‘Cost Disease’ With Supersize Online Courses

THE INNOVATOR: Candace Thille, Carnegie Mellon University

THE BIG IDEA: Treat higher education’s “cost disease” with team-built online courses used across institutions.

By Marc Parry

Oh my God, she’s trying to replace me with a computer.

That's what some professors think when they hear Candace Thille pitch the online education experiment she directs, the Open Learning Initiative at Carnegie Mellon University.

They're wrong. But what her project does replace is the traditional system of building and delivering introductory college courses.

Professors should move away from designing foundational courses in statistics, biology, or other core subjects on the basis of “intuition,” she argues. Instead, she wants faculty to work with her team to put out the education equivalent of Super Bowl ads: expensively built online course materials, cheaply available to the masses.

"We're seeing failure rates in these large introductory courses that are not acceptable to anybody," Ms. Thille says. "There has to be a better way to get more students—irrespective of where they start—to be able to successfully complete."

Her approach brings together faculty subject experts, learning researchers, and software engineers to build open online courses grounded in the science of how people learn. The resulting systems provide immediate feedback to students and tailor content to their skills. As students work through online modules outside class, the software builds profiles on them, just as Netflix does for customers. Faculty consult that data to figure out how to spend in-person class time.

When Ms. Thille began this work, in 2002, the idea was to design free online courses that would give independent novices a shot at mastering what students learn in traditional classes. But two things changed. One, her studies found that the online system benefits on-campus students, allowing them to learn better and faster than their peers when the digital environment is combined with some face-to-face instruction.

And two, colleges sank into "fiscal famine," as one chancellor put it. Technological solutions like Ms. Thille’s promise one treatment for higher education’s "cost disease”—the notion, articulated by William G. Bowen and William J. Baumol, that the expense of labor-heavy endeavors like classroom teaching inevitably rises faster than inflation.

For years, educational-technology innovations led to more costs per student, says Mr. Bowen, president emeritus of Princeton University. But today we may have reached a point at which interactive online systems could “change that equation,” he argues, by enabling students to learn just as much with less "capital and labor."

"What you’ve got right now is a powerful intersection between technological change and economics," Mr. Bowen tells The Chronicle.
Ms. Thille is, he adds, "a real evangelist in the best sense of the word."

Nowadays rival universities want to hire her. Venture capitalists want to market her courses. The Obama administration wants her advice. And so many foundations want to support her work that she must turn away some would-be backers.

But the big question is this: Can Ms. Thille get a critical mass of people to buy in to her idea? Can she expand the Online Learning Initiative from a tiny darling of ed-tech evangelists to something that truly changes education?

A Background in Business

Ms. Thille brings an unusual biography to the task. The 53-year-old Californian spent 18 years in the private sector, culminating in a plum job as a partner in a management-consulting company in San Francisco. She earned a master's degree but not a doctorate, a gap she's now plugging by studying toward a Ph.D. at the University of Pennsylvania.

She has never taught a college course.

Ms. Thille wasn't even sure she'd make it through her own bachelor's program, so precarious were her finances at the time. Her family had plunged from upper middle class to struggling after her father quit his job at the Lockheed Missiles and Space Company because of his opposition to the Vietnam War. But with jobs and scholarships, she managed to earn a degree in sociology from Berkeley.

After college, Ms. Thille followed her fiancé to Pittsburgh. The engagement didn't last, but her connection to the city did. She worked as education coordinator for a rape-crisis center, training police and hospital employees.

She eventually wound up back in California at the consultancy, training executives and helping businesses run meetings effectively. There she took on her first online-learning project: building a hybrid course to teach executives how to mentor subordinates.

Ms. Thille doesn't play up this corporate-heavy résumé as she travels the country making the case for why professors should change how they teach. On a recent Tuesday morning, The Chronicle tagged along as that mission brought Ms. Thille to the University of Illinois at Chicago, where she was meeting with folks from the university and two nearby community colleges to prepare for the development of a new pre-calculus course.

It's one piece of a quiet but sweeping push to develop, deploy, and test Open Learning Initiative courses at public institutions around the country, led by an alphabet soup of education groups.

The failure rate in such precalculus courses can be so bad that as many as 50 percent of students need to take the class a second time. Ms. Thille and her colleagues hope to improve on that record while developing materials of such quality that they're used by perhaps 100,000 students each year.

Facing Skepticism

But first the collaborators must learn how to build a course as a team. As Ms. Thille fires up her PowerPoint, she faces a dozen or so administrators and professors in Chicago. The faculty members segregate themselves into clusters—community-college people mostly in one group, university folks mostly in another. Some professors are learning about the initiative in detail for the first time. There is little visible excitement as they plunge into the project, eating muffins at uncomfortable desks in a classroom on the sixth floor of the Soviet-looking science-and-engineering building.
By contrast, Ms. Thille whirs with enthusiasm. She describes Online Learning Initiative features like software that mimics human tutors: making comments when students go awry, keeping quiet when they perform well, and answering questions about what to do next. She discusses the "dashboard" that tells professors how well students grasp each learning objective. Throughout, she gives an impression of hyper-competence, like a pupil who sits in the front row and knows the answer to every question.

But her remarks can sometimes veer into a disorienting brew of jargon, giving the impression that she is talking about lab subjects rather than college kids. Once she mentions "dosing" students with a learning activity. And early on in the workshop, she faces a feisty challenge from Chad Taylor, an assistant professor at Harper College. He worries about what happens when students must face free-form questions, which the computer doesn't baby them through.

"I will self-disclose myself as a skeptic of these programs," he says. Software is "very good at prompting the students to go step by step, and 'do this' and 'do that,' and all these bells and whistles with hints. But the problem is, in my classroom they're not prompted step by step."

Around the country, there's more skepticism where that came from, Ms. Thille confides over a dinner of tuna tacos later that day. One chief obstacle is the "not-invented-here problem." Professors are wary of adopting courses they did not create. The Online Learning Initiative's team-based model represents a cultural shift for a professoriate that derives status, and pride, from individual contributions.

Then there's privacy. The beauty of OLI is that developers can improve classes by studying data from thousands of students. But some academics worry that colleges could use that same data to evaluate professors—and fire those whose students fail to measure up.

Ms. Thille tells a personal story that illustrates who could benefit if she prevails. Years ago she adopted a teenager, Cece. The daughter of a drug user who died of AIDS, Cece was 28 days' truant from high school when she went to live with Ms. Thille. She was so undereducated, even the simple fractions of measuring cups eluded her. Her math teacher told Ms. Thille that with 40 kids in class, she needed to focus on the ones who were going to "make it."

Ms. Thille believes that a system like the Open Learning Initiative could have helped Cece. The program offers a nonjudgmental space to try things, get feedback, and try again without feeling "exposed and stupid, which is how she felt in class."

Cece finished high school, then college, and then a master's degree in social work—a journey made possible in part by the doggedness of Ms. Thille, who persisted through her daughter's rants and raves and screams.

That stubbornness bodes well for Ms. Thille's long slog to reform higher education.
A Business Professor Turned CIO Practices What He Teaches

THE INNOVATOR: Bradley C. Wheeler, Indiana University

THE BIG IDEA: Encourage colleges to take a more aggressive stance in bargaining with providers to trim costs.

By Jeffrey R. Young

Apple is revered in business circles for its tough bargaining with suppliers to keep down production costs on its popular iPhones and computers. Colleges should emulate that aggressive stance when buying their technology, argues Bradley C. Wheeler, chief information officer at Indiana University at Bloomington.

Mr. Wheeler has spent most of his career as a business professor, and he is applying the same lessons he teaches his executive-MBA students to managing the university’s technology.

Lately, that has meant getting involved in a subject not usually handled by CIO’s: textbooks.

The administrator has led a pilot effort at Indiana to broker a deal with publishers that greatly lowers the per-book cost in exchange for a guarantee that every student will buy the e-textbooks they are assigned (by instituting a course-materials fee). Other universities are following Indiana's lead.

In recent talks, he compares managing college technology to a chess match, with colleges on one side and tech companies on the other. "It is very collective," he says, and colleges need to work together and look ahead several moves to try to picture what tomorrow's technology and needs might be.

Collaboration has been his game plan for years. He has led or participated in several efforts by colleges to build their own open-source alternatives to commercial education software. The largest are Sakai for virtual classrooms and Kuali for administrative functions.

The 47-year-old was raised on a farm in a "one-flashing-light, peanut town" of 1,200 people in Oklahoma. His family also owned a local car dealership, and he learned to help out in all areas of the business.

In that small-town environment, he says he learned that "no one's disposable—you have to make the relationships work over time."

"Some people say I'm anticorporate, but nothing can be further from the truth," he adds. "I just believe the buyer side has to be organized and work as well as the seller side."
An Outsider Calls for a Teaching Revolution

THE INNOVATOR: Salman Khan, Khan Academy

THE BIG IDEA: Build a vast library of short educational videos, a challenge to end the lecture as we know it.

Salman Khan's short educational videos are available free online. "I can't think of a higher-impact use of my time," he says. (Photo: Alison Yin for The Chronicle)

By Jeffrey R. Young

In just a few short years, Salman Khan has built a free online educational institution from scratch that has nudged major universities to offer free self-guided courses and inspired many professors to change their teaching methods.

His creation is called Khan Academy, and its core is a library of thousands of 10-minute educational videos, most of them created by Mr. Khan himself. The format is simple but feels intimate: Mr. Khan's voice narrates as viewers watch him sketch out his thoughts on a digital whiteboard. He made the first videos for faraway cousins who asked for tutoring help. Encouraging feedback by others who watched the videos on YouTube led him to start the academy as a nonprofit.

More recently Mr. Khan has begun adding what amounts to a robot tutor to the site that can quiz visitors on their knowledge and point them to either remedial video lessons if they fail or more-advanced video lessons if they pass. The site issues badges and online "challenge patches" that students can put on their Web résumés.

He guesses that the demand for his service was one inspiration for his alma mater, the Massachusetts Institute of Technology, to start MITx, its self-guided online courses that give students the option of taking automatically graded tests to earn a certificate.

Mr. Khan also works the speaking circuit, calling on professors to move away from a straight lecture model by assigning prerecorded lectures as homework and using class time for more interactive exercises, or by having students use self-paced computer systems like Khan Academy during class while professors are available to answer questions. "It has made universities—and I can cite examples of this—say, Why should we be giving 300-person lectures anymore?" he said in a recent interview with The Chronicle.

Mr. Khan, now 35, has no formal training in education, though he does have two undergraduate degrees and a master's from MIT, as well as an M.B.A. from Harvard. He spent most of his career as a hedge-fund analyst. Mr. Khan also has the personal endorsement of Bill Gates, as well as major financial support from Mr. Gates's foundation. That outside-the-academy status makes some traditional academics cool on his project.

"Sometimes I get a little frustrated when people say, Oh, they're taking a Silicon Valley approach to education. I'm like, Yes, that's exactly right. Silicon Valley is where the most creativity, the most open-ended, the most pushing the envelope is happening," he says. "And Silicon Valley recognizes more than any part of the world that we're having trouble finding students capable of doing that."
Entrepreneur Finds a Way to Offer Credited Courses on the Cheap

THE INNOVATOR: Burck Smith, StraighterLine

THE BIG IDEA: Make online education cheaper by letting companies offer courses on behalf of colleges.

Burck Smith, chief executive of StraighterLine (Photo: Jacquelyn Martin, AP Images)

By Nick DeSantis

Burck Smith thinks online courses should be cheap—really cheap. In his world, students can take a course for less than the price of a pile of textbooks. An entire first year of college costs just $999.

As the founder of StraighterLine, he has worked to streamline the cost of providing popular courses online, and has formed partnerships with accredited colleges that give the company's students transfer credit.

It has been a hard sell at times. After StraighterLine introduced its first courses in 2008, some of the company's early academic partners backed away from their agreements, saying the classes didn't meet their traditional tastes.

Mr. Smith is undaunted. Lately he has taken his case to cost-conscious state legislators, hoping they might sway colleges to accept transfer credits more readily. Now, StraighterLine counts a group of 25 for-profit and nonprofit institutions among its partners, and Mr. Smith says 250 others have accepted coursework from the company's 4,500 students.

Mr. Smith credits his public-policy education (from Harvard University) and think-tank research (he is a member of the American Enterprise Institute's Higher Education Working Group) with showing him that technology investments haven't helped universities lower costs or improve productivity. He says he learned that effective change couldn't come from inside the system.

He's out to prove that StraighterLine's courses can succeed where colleges have failed, with a slate of offerings that includes college-level algebra, introductory economics, and an anatomy lab course featuring kits of animal parts for at-home dissections.

"If I can't actually point to an example of how college can be made much, much cheaper, and point to an example of the ingrained contradictions within the existing system, then I can talk all I want, but no one's going to pay much attention," he says.
An Academic Hopes to Take the MLA Into the Social Web

THE INNOVATOR: Kathleen Fitzpatrick, Modern Language Association

THE BIG IDEA: Have scholarly associations set up bloglike online forums to let scholars share ideas and openly conduct peer review.

Kathleen Fitzpatrick, director of scholarly communication at the Modern Language Association, is helping the group build a platform to encourage academic blogging and social networking. (Photo: Mark Abramson for The Chronicle)

By Jeffrey R. Young

A blog post changed Kathleen Fitzpatrick's professional life. Now she's helping to infuse the spirit of blogging into scholarly societies and shaking up academic publishing in the process.

In 2006 Ms. Fitzpatrick, now 44, was an associate professor of English at Pomona College, struggling to get her first scholarly book published. The text was finished, and it had been favorably reviewed twice, but it remained in limbo as she searched for a publisher, leaving the ideas locked on private hard drives. In a post on a blog called The Valve, she proposed that scholars should share their draft monographs online and let them go through peer review the way blog posts do—with comments by knowledgeable colleagues.

She said that her "big mouth" on the issue got the attention of like-minded researchers, and she soon co-founded a project called MediaCommons that put her idea into action, providing an open platform for scholarly peer review of books.

Suddenly she was a rising star in digital humanities. Colleagues flocked to her popular Twitter feed, and she was invited to serve on the program committee for the annual conference of the Modern Language Association, where she was again an outspoken advocate for change. Her message: "Young scholars are moving into a field that is going to look very, very different from the way it has looked for the last 100 years," and the organization should be part of those professional changes.

Rosemary G. Feal, the MLA's executive director, not only listened to her ideas but when the group decided to start a new office devoted to scholarly communication, she helped hire her to try them out. Last year Ms. Fitzpatrick started the gig, and she is now working to create a bloglike platform, called MLA Commons, for the group's 30,000-plus members. The online community will have some social-media features as well, Ms. Fitzpatrick says, but the details have yet to be announced.

Matthew Gold, of the City University of New York, who helped develop the open-source software the MLA will use for its platform, says the association's hiring of Ms. Fitzpatrick signaled that it was serious about change. "There was a collective feeling of shared success that one of us had been promoted into a position that went far beyond the digital humanities circle itself," he says.

Ms. Fitzpatrick continues to spend time blogging, including for The Chronicle’s ProfHacker. Not that she thinks old-fashioned books should go away. She has a new one of those out, too: Planned Obsolescence: Publishing, Technology, and the Future of the Academy (NYU Press). She first released it to the world back in 2009, inviting anyone to comment.
A President Brings a Revolutionary University to Prominence

THE INNOVATOR: Robert W. Mendenhall, Western Governors University

THE BIG IDEA: Build a new kind of online college from the ground up, focusing on whether students can demonstrate "competencies" rather than on counting the number of courses taken.

Bob Mendenhall, president of Western Governors U. (Photo: Western Governors U.)

By Goldie Blumenstyk

Western Governors University, first conceived in 1995, embodied an idea that was ahead of its time. And early in its life, that showed.

Traditional accreditors resisted its model: an all-online, competency-based institution. Experts scoffed at its grandiose promises to reshape higher education. Students, unmoved by its founders' ambitious early enrollment projections, mostly stayed away.

Yet a Utah technology entrepreneur named Robert W. Mendenhall, who had been asked to kick-start the venture a few years into its existence, says he never doubted. "It took me about 30 seconds to decide I would do it," says Mr. Mendenhall, WGU's president since 1999. "I was always confident that we'd pull it off. The idea made so much sense."

Today the unusual institution has drawn growing notice from national mainstream news media and at meetings on college affordability by both the U.S. Senate and President Obama. It has a growing student body of more than 25,000 students.

Mr. Mendenhall, now 57, came to WGU when it had no students and no degrees. "The vision of it was just coagulating," recalls Michael O. Leavitt, the former Utah governor who was instrumental in the institution's founding and in Mr. Mendenhall's hiring.

With his know-how for building start-up businesses, a practical willingness to shed time-consuming and unpromising components (like a plan to run an online catalog of online courses from other institutions), and what Mr. Leavitt calls a determined "sense of mission" for low-cost, competency-based higher education, Mr. Mendenhall kept the nonprofit institution moving.

Internally, he was an "in your face" presence, a colleague says, while externally, thanks in no small part to the political backing of 19 governors, he pulled the strings that would eventually land WGU millions in federal grants to develop its online programs and its distinguishing proficiency exams by which students progress toward a degree, and millions more from the Lumina Foundation to create what would become its turning point, a teachers' college.

That college and the university's regional accreditation came in 2003. "We've been growing by 30 to 40 percent a year ever since," says Mr. Mendenhall, who frequently boasts that the overall capital investment in WGU of about $20-million in government backing and another $20-million from private sources, is less than what many colleges spend to construct one building. For most degrees, tuition is just $5,800 per calendar year; student mentors and course mentors guide students through the curricula of more than 50 different undergraduate and graduate degrees.

Mr. Mendenhall, who earns about $700,000 per year, has turned down several job offers from the private sector. That loyalty is not surprising, says Mr. Leavitt. "He believes he's changing the world a bit in higher education, and he's right."
A Digital Humanist Puts New Tools in the Hands of Scholars

THE INNOVATOR: Daniel J. Cohen, George Mason University

THE BIG IDEA: Find new ways to do humanities research using digital tools, and give even non-techy scholars the ability to use them.

By Marc Parry

When Daniel J. Cohen went to work at George Mason University in 2001, its Center for History and New Media boasted a name and little else. Run from the office of its founder, Roy Rosenzweig, the center soon graduated to a modular trailer jokingly called "the van in the parking lot with the fiber-optic line running into it." Raccoons took refuge beneath it.

Today the center is a well-oiled machine with more than 100 Web projects, which reach 16 million people. Its staff works in an office suite that feels like a dot-com, Nintendo station included. And Mr. Cohen's specialty of digital humanities—thinking about how technology can advance scholarship in fields like history—is ascendant, with popular-press write-ups and a growing presence at major academic conferences.

Still, 20 years into the life of the Web, Mr. Cohen feels that many scholars don't grasp the full potential of digital tools. They dismiss computer techniques for reading mass amounts of text. They see the Web as a place to distribute electronic copies of articles rather than as a platform that fosters new ways of thinking.

"I'm particularly worried about the humanities," Mr. Cohen says in his corner office at the George Mason center, which he has run since 2007. Traditional forms of scholarly communication suffer from "inertia" that keeps them hanging around "long past their freshness date."

His solution: Hack the academy.

Mr. Cohen is a leading architect in the design of a parallel academic universe, one filled with alternatives to tradition on many fronts. Meetings? The center's staff started a series of free-form academic "camps" for people interested in mixing digital tools and humanities scholarship. Publishing? Mr. Cohen's shop built PressForward to aggregate blogs and other online scholarship. Tools? His center developed Zotero, which helps scholars gather sources, and Omeka, which lets institutions mount online exhibits without dirtying their hands in the digital plumbing.

"He's a huge force for good in the profession," says Anthony Grafton, a professor of history at Princeton University. Mr. Grafton, who recently stepped down as president of the American Historical Association, predicts the field will increasingly move into digital work. And Mr. Cohen will be "a very important person in teaching generations of historians to do that, not by taking what is basically a book and slapping it on the Web, but by doing something which is distinctively digital."

Mr. Cohen keeps up a highly visible online presence, with a digital humanities blog and more than 7,000 followers on Twitter, but in person he doesn't come off as the tech-hipster type. The modest 43-year-old scholar greets a reporter wearing an ensemble of blue button-down shirt, green V-neck sweater, and gray slacks. When he mentions how the center once
consulted a brand expert about changing its name—perhaps something snappier, with a
futurist word like "Next"—he rubs his face and flashes a sheepish look.

Mr. Cohen trained at colleges steeped in tradition, earning a hat trick of Ivy League degrees
from Princeton, Harvard, and Yale. He intended to major in math as an undergraduate.
Growing up outside Boston, he had so excelled with numbers that he ranked among the 20
best high-school students in New England and competed in the 1985 International Math
Olympiad, "trying to score higher than the Soviet kids."

But he felt out of his league among the math minds of Princeton's storied Fine Hall. He
branched out to studying religion and the history of science. His early research explored how
a group of 19th-century mathematicians considered math a "language of God."

Mr. Cohen might still be cloistered in obscurity had he not crossed paths with Mr.
Rosenzweig, a pioneer of using technology to reshape history scholarship and reach the
public. In 2001, Mr. Rosenzweig hired Mr. Cohen to undertake a science-history project,
which would be the younger scholar's first foray into digital humanities. The research effort
grew out of a concern that science was expanding rapidly while the history of science was
not. Mr. Cohen investigated how to capture the difficult-to-preserve born-digital objects of
modern science, like giant databases.

Then came 9/11. Mr. Cohen and colleagues deployed the techniques they had honed in the
science project to document the attacks. E-mail, voice mail, blogs—more than 150,000 items
went into the center's September 11 Digital Archive. The Library of Congress now archives
the collection, its first major digital acquisition.

These days Mr. Cohen thinks a lot about how to do history in an era of abundant digital
materials. In a recent project, he examined whether one scholar's famous assertions about
Victorian thought, made on the basis of close reading of classic literature, held up against an
analysis of Google's collection of over a million Victorian books.

Critics view such "distant reading" as superficial. Others, like the historian Zachary Schrag,
grouse that Mr. Cohen's publishing experiments risk destroying what's valuable about
traditional scholarly communication, like good editing that improves manuscripts and filters
out the "crud."

Mr. Cohen pushes back against the pushback. For example, he views big data-versus-close-
reading as a false fight; better, he says, to adopt a hybrid approach that draws on both. That
response reflects Mr. Cohen himself: a smart mix of old and new.
"I've always felt like a bit of an outlier in the digital library sphere," says John P. Wilkin, associate university librarian for library information technology at the University of Michigan. That's not what one expects to hear from a leader in the drive to build, connect, and preserve enormous collections of digitized material—a super-library for the 21st century.

Mr. Wilkin is executive director of HathiTrust, an online digital repository with more than 10 million volumes. Created in 2008 with the help of Google's ambitious book-scanning project, the effort is housed at Michigan but draws on the collections and resources of more than 60 partner institutions. "From the beginning, it was about the collective interest of libraries," he says. "Not about Michigan's collections, but about the ways those collections are meaningful to other libraries."

To Mr. Wilkin, emphasizing the digital in "digital library" misses the point. The challenges of building an online library are the those of building any library in an era of superabundant information. What do you include? How do you make collections findable and usable? The answers get harder to pin down as the amount of material increases.

"Our sense of the scope of the problems is imperfect," he says. "We don't know what a corpus is, what the comprehensive corpus is. We don't know what we're aiming at."

Figuring that out absorbs a lot of Mr. Wilkin's attention at HathiTrust. Even in the face of a lawsuit brought by the Authors Guild and other groups over access to digitized, copyrighted material, the repository has pressed ahead with efforts to get a handle on orphan works, whose rights-holders can't be identified or located. "The orphan-works problem, the in-copyright problem, all these things don't have numbers in the way they could have numbers," Mr. Wilkin says, noting the lack of estimates of how many works are affected. Part of his mission is to find those numbers.

Meanwhile, under his direction, the HathiTrust repository continues to grow, as new partners join and more volumes are added.

Mr. Wilkin originally planned to be an English professor. Working on his master's degree, he was uncertain enough about his tech skills that he brought his kid brother to the Library of Congress for help in using its online catalog.

After contemplating his job prospects, Mr. Wilkin decided to abandon the Ph.D. track and head to library school. There he discovered that he did have a knack for using computer systems, and for tasks such as database design. It turned out that such things "came very easily to me," he recalls.

That facility has served him well as the projects he takes on have gotten bigger and more complex. In his early days as a librarian at the University of Virginia and at Michigan, he
helped put literature collections and government data online. Since the mid-1990s, he has been involved in large-scale digitization at Michigan. For instance, he worked on the Making of America project, a joint venture with Cornell University, which created an online library of primary-source documents about American history from the antebellum period through Reconstruction.

At that point, Mr. Wilkin realized that it wasn't enough to focus on text encoding and transcription. Technology had made possible "the reproduction of library materials on a large scale," he says. At the University of Michigan, that included shifting the library's preservation strategy "from reformatting and microfilming to entirely digital," he says.

Other libraries were dubious. "We didn't convince anybody—anybody—that that was the right thing," he says. "There was so much skepticism."

When Google's book-scanning project came along, digitization got big enough to capture people's attention. The dream of a large-scale digital repository didn't look so far-fetched after all. "Having a sense of scale changes everything," Mr. Wilkin says. "I will say, emphatically, that we had this conception in mind from the beginning. The first drafts of the agreement with Google had the seeds of the idea."

Digital preservation has become the watchword now, but some of the fundamental challenges that confront libraries have always been with them: how to manage ever-bigger amounts of information and how to make best collective use of resources. "What has been interesting to me is how technology can help the library transform its work—not the digital library, but the library," Mr. Wilkin says. "Because we're hybrid libraries, and will be for as long as the artifact matters."