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MEET THE INNOVATORS

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Ten Tech Innovators • 2013

DIGITAL INNOVATORS have shaken up every part of the American campus, including the admissions office, the curriculum, and scholarly publishing. Starting on Page B4, you’ll meet 10 top innovators of 2013, chosen by The Chronicle’s technology reporters.

Meanwhile, MOOC momentum continues to grow, as massive open online courses alienate some academics and win the support of others. One president of a liberal-arts college gained thousands of new students, and new insights on teaching, when he taught a popular course as a MOOC for the first time (Page B18). Another college president argues that seminars, not MOOCs, are the answer to higher education’s problems (Page B19).

For more debate and innovations, read on. This special issue reflects the work of numerous writers, editors, and designers, and we hope you enjoy it.

—CAROLYN MOONEY, SENIOR EDITOR, SPECIAL SECTIONS

Cover illustration by Keith Negley for The Chronicle

THE DIGITAL CAMPUS • THE CHRONICLE OF HIGHER EDUCATION B3
Creating Software to Enhance Admissions Diversity
By ERIC HOOVER

Admissions deans have long described their work as a blend of art and science. Juan E. Gilbert has designed a tool to enhance the latter. Call it the diversity algorithm.

The story began 10 years ago, when the U.S. Supreme Court ruled on the landmark admissions cases at the University of Michigan. After the decisions came down, Mr. Gilbert turned to CNN. Two commentators with opposing views of affirmative action were claiming victory. Both had it wrong, he thought.

“They were saying race, gender, and national origin was the issue,” says Mr. Gilbert, chairman of Clemson University’s human-centered computing division. “But the issue has to do with capacity—there are more qualified applicants than available slots, so you’re going to turn away someone who’s qualified.”

That someone might be white or black, a legacy or a first-generation student, a Spanish major or an engineering major. In a realm of scarce seats, the system is never going to be entirely fair to everyone. Still, Mr. Gilbert, 44, believes the selection process could become more transparent—and consistent.

How might colleges enroll diverse classes without giving preferential treatment to any students? How might admissions officers minimize subjectivity, and, in turn, guard against charges of unfairness? The answers, he argues, lie in a more sophisticated means of comparing applicants.

Not long after the Michigan decisions, Mr. Gilbert wrote data-mining software called Applications Quest, which automates the nuanced evaluation of applications known as “holistic review,” a fixture at selective colleges. The program allows users to assign equal weight to various attributes, such as an applicant’s race, gender, geographic location, and intended major.

The software was designed to remove the variability in outcomes (if asked to repeat its process, an admissions committee wouldn’t necessarily choose all the same applicants again). “This program would give you a holistic review that’s 100-percent reproducible, with no bias,” Mr. Gilbert says. And the why behind a particular acceptance, he says, would be measurable.

Applications Quest compares each applicant with every other applicant in the pool. This is done by measuring the similarities—and differences—among all applications on a 100-point percentage scale (two identical applications would be 100 percent the same, 0 percent different). These quantitative measurements produce clusters of similar applications. “These clusters represent holistic, diverse applicant pools and can facilitate holistic review,” Mr. Gilbert wrote in a 2008 article published in the Journal of College Admission. “By selecting applications from each cluster, holistic diversity can be optimized.”

Mr. Gilbert’s definition of “holistic diversity” goes beyond race and ethnicity. In a forthcoming journal article he co-wrote, he describes...
holistic diversity as “multifaceted variation among applicants, where the goal is to increase minority representation across a number of attributes, where ‘minority’ refers to the values within an attribute.” Men, prospective physics majors, low-income students, and first-generation applicants all might be underrepresented in a given applicant pool.

The article, now under peer review, summarizes the experimental use of Applications Quest at an unnamed major research university. The institution, identified as “Experiment University,” ran a batch of freshman applications through the software. After the applications were grouped into clusters, the program recommended the application that was most unique within each cluster. “The application still exemplifies the characteristics of its particular clusters,” the authors explain, “but what makes the application different is the variation of all the application’s attributes based on the holistic comparison of all other applications.”

In the end, the program recommended a class that was more diverse, broadly speaking, than the admissions committee had selected, with similar academic credentials. The committee took about five weeks to reach its decisions; the admissions committee had selected, with that was more diverse, broadly speaking, than Auburn wasn’t using the software now, however. Ms. Allen says she wouldn’t feel comfortable running the complex program without Mr. Gilbert around to guide her.

Elsewhere, some deans who have read about the software are skeptical. After all, many colleges already have sophisticated databases. “It’s difficult to see if, operationally, this will be a revolutionary change,” says Robert Springall, dean of admissions at Bucknell University. And not everyone buys the idea that colleges could—or should—squeeze subjectivity out of evaluations.

About 20 colleges have invited Mr. Gilbert to demonstrate his software. At each campus, he says, admissions officers were impressed.

(A patent is pending on the program.) So far, he says, only Clemson’s school of nursing uses it to evaluate applicants.

Some college officials may be awaiting the outcome of the latest Supreme Court cases on the issue of race in admissions. A decision is expected this spring or summer in a legal challenge to a race-conscious admissions policy at the University of Texas at Austin. The court recently also agreed to weigh the constitutionality of a voter-passed ban in Michigan on the use of racial or ethnic preferences in admissions at public colleges.

Mr. Gilbert argues that his program would help insulate colleges from legal challenges: “I keep telling them, the institution that does this broadly will be seen as an innovator, and will attract a very diverse group to their school.”

Making His MOOC an ‘Outreach for Poetry’

By STEVE KOLOWICH

Teaching students how to read and analyze experimental poetry can be hard enough in a small seminar class. Leading the same class in an online classroom of 36,000 far-flung learners might strike some as a fool’s errand.

Al Filreis, a 57-year-old professor of English at the University of Pennsylvania, disagrees. Many believe that massive open online courses are more suitable for teaching mathematics and hard sciences, ruled as they are by laws, formulas and right-or-wrong answers.

But Mr. Filreis, an early pioneer of MOOCs in the humanities, believes the MOOC format is in many ways ideal for his course, “Modern & Contemporary American Poetry.” In fact, he thinks the MOOC version of his course is just as academically rigorous as the classroom version he has taught for 25 years.

The key, he says, is being willing to get your hands dirty. “I learned everything that I know from teaching at summer camp,” says Mr. Filreis. One day, decades ago, when the professor was a camper at a YMCA in upstate New York, a sewage pipe on the grounds began to leak.

By the time Filreis and his peers woke up, the ground, shirtless and shitty,” the professor thinks the MOOC version of his course is just as academically rigorous as the classroom version he has taught for 25 years.

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That’s 52 posts per day, seven days a week.

“Nobody had ever done that,” says Mr. Filreis. “They still haven’t done it.”

Sometimes the professor weighed in with a substantial insight; other times, he chimed in with light praise or encouraging words, just to let students know he was paying attention.

And it was not just Mr. Filreis digging into the forums. The professor hired 12 teaching assistants to help him cheerlead and guide discussions.

Mr. Filreis got to know some of his MOOC students well enough that he wrote individual recommendations on behalf of several who were applying to undergraduate programs.

Given a MOOC format, which uses automation to meet the challenges of teaching at scale, Mr. Filreis’s efforts to make himself personally accessible to students were extraordinary. But that might be what it takes to run a course that relies on buy-in from participants while offering no formal credit.

One of the challenges of building a sense of community around a MOOC is that massive online courses are landless, says Mr. Filreis. In this respect, the Kelly Writers House anchors his MOOC to the university in an uncommon way. In addition to modeling discussions there, Mr. Filreis and his assistants have staged virtual tours of the house, a cozy yellow building nestled among trees off a campus walkway. The writers’ house is open to the public, and the professor extends an open invitation to any MOOC participants who happen to be in the area; he says “many” have visited.

“There isn’t a single MOOC, of the hundreds, that has an identifiable space ... a home, with an open invitation to anyone who has ever

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Fighting to Reinvent Teaching and Keep Costs Down

By JAKE NEW

CAROL A. TWIGG has been talking about reinventing college teaching for more than two decades, and for years she faced mostly resistance and skepticism.

She remembers trying to persuade professors at Empire State College to adopt computers in their classrooms and offices in the 1980s, for instance, only to have them accuse her of trying to turn them into secretaries.

These days, even her boldest proposals are getting a much more eager reception. Ms. Twigg says that as more and more educators turn to technology to help improve learning, she doesn’t feel like bragging.

“How have you changed and learned,” she says. “What’s obvious to me isn’t obvious to everybody.”

Her National Center for Academic Transformation, which she has led since 1999, just completed work on the largest-ever effort to remake remedial math courses with technology, which affected 120,000 students.

The project, supported by a $2.2-million grant from the Bill & Melinda Gates Foundation, involves courses for 38 institutions. The center helped remake 114 courses with 4,531 sections. On average, the original courses cost $400 per student, according to the center’s research. The redesigned courses were predicted to cost about $261 per student.

The redesigns were based on models used by the center over the past decade, Ms. Twigg says. Rather than being lectured at, students worked with interactive software in labs, receiving individualized help when they needed it and working through modules that could be completed only after a student mastered the material.

But not all of the center’s projects involve that approach.

“We figure out what works best for each institution based on examples provided to us,” Ms. Twigg says. “There’s not a one way to do it. We’ve never been about putting courses online. We’re not a MOOC. We really have a whole continuum of approaches. Some are fully online, some face to face, and everything in between. The model depends on who the students are.”

Before the project, the center had already worked with 30 colleges, redesigning more than 150 courses that have affected some 50,000 students annually.

A. Frank Mayadas, founder president of the Sloan Consortium, says he had been following Ms. Twigg’s work for 15 years.

“She started at a time when the subject was simply interesting but stuck with it until today when it’s become very important,” Mr. Mayadas says. Even now, he says, interest in information technology tends to ebb and flow with the arrival of popular and hyped ideas like massive open online courses, or MOOCs. While some of these ideas stick and make a lasting impact, others don’t fade away, taking some professors’ interest with them.

“In times when it’s popular and in times when it’s not, she’s stayed true to her calling,” Mr. Mayadas says.

Attitudes are changing, Ms. Twigg says, and some of the lingering resistance may be from a deeper problem. While she thinks the acceptance of information technology in higher education is much greater than 20 years ago, reducing costs is a different story. “Parents, students, legislatures are interested in that, but people in higher education are fundamentally not interested in dealing with that issue,” she says.

And that’s why Ms. Twigg and the center’s approach is not just about adding technology to a course. They aren’t technology advocates, she says, but advocates for improving learning and lowering costs.

“If technology can help do it, that’s great,” Ms. Twigg says. “If there are other ways to do it, we are interested in that as well.”

Growing up in Alexandria, Va., Ms. Twigg, 68, wanted to be a teacher. After majoring in both English and history at the College of William & Mary, she earned a Ph.D. in English literature from the State University of New York at Buffalo. After that, she served in various academic administrator positions at SUNY’s Empire State College. While attending a conference in 1980, Ms. Twigg saw her first PC. It was a TRS-80, manufactured and sold by the Tandy Corporation. It was gray, boxy, and sold for a few hundred dollars at Radio Shack.

Ms. Twigg says she looked at the computer and thought. “This is going to change the world.” More specifically, it was going to change the world of higher education.

In 1993, after serving as associate vice chancellor for learning technologies at SUNY, Ms. Twigg became vice president of Edcource, a nonprofit that promotes technology in higher education. It gave her a platform to spread her ideas across the country, but her center still faced resistance from professors throughout the 1990s.

“We talked about the impact of the Internet back then, and a lot of people thought we were nuts,” she says.

Her center is not actually a physical place; the team is spread throughout the country.

Ms. Twigg spends most of her time in Saratoga Springs, N.Y., working from home, where she writes essays and papers on information technology. A thoroughbred horse racer, Ms. Twigg says she reads design proposals in between races at her local track. Today, Ms. Twigg still finds herself face to face with a fair share of contrarian.

She’s still often invited to debate with them on campuses. But she spends much less time persuading people to use technology and more time helping those who are already on board.

“One of the things that makes our work so rewarding is that we’re generally working with people interested in doing these things,” she says. “There’s much less naysaying.”

When asked if she ever felt any doubts about her ideology over the years, she replied with one word: never.
**Challenging Online Education to Prove Itself**

By STEVE KOLOWICH

ANY COLLEGE LEADERS believe that online education can be as effective as the old-fashioned kind while also reducing costs to colleges and students. But for William G. Bowen, faith is not enough.

If higher education is going to change drastically in coming years, Mr. Bowen, a 79-year-old economist and former president of Princeton University, wants to make sure that change is guided by rigorous research.

The research standard that Mr. Bowen wants to apply—randomized experimental trials—is hardly new; researchers in education have been using the method for the better part of a century. But at a time of great fear, excitement, and hyperbole, advocating for such a painstaking approach is, in a way, innovative.

There is much at stake. Prophecies of a gathering wave of “disruption” have made presidents and boards at vulnerable colleges jumpy and suggestible. The fates of many institutions, let alone their missions, appear uncertain. And there is a weighty body of research suggesting that online learning can be just as good as face-to-face.

But Mr. Bowen believes that past research on online learning has holes. Along with his colleagues at Ithaka S+R, the research arm of the nonprofit Ithaka, which he founded, Mr. Bowen cataloged more than a thousand studies of online higher education. They were not impressed.

“Very few of these studies are relevant to the teaching of undergraduates, and the few that are relevant almost always suffer from serious methodological deficiencies,” he writes in his new book, *Higher Education in a Digital Age* (Princeton University Press). “The most common problems,” he continues, “are small sample size; inability to control for ubiquitous selection effects; and, on the cost side, the lack of good estimates of likely cost savings in a steady state.”

In other words: We don’t know if online education is the answer to the challenges facing many universities, and we don’t know if it’s not.

Mr. Bowen is no mere gadfly. He led a study last year, using the randomized-trials approach, that compared outcomes for students in partially online statistics courses to those of students in fully classroom-based versions of the same course. Unlike previous studies of the same online tool, an automated tutor developed by Carnegie Mellon’s Open Learning Initiative, Mr. Bowen’s study spanned a half-dozen public university campuses and included students from a range of academic and demographic backgrounds.

Setting up the experiment was a logistical “nightmare,” Mr. Bowen has said, and in the end its findings did not contradict the majority of studies already on the books. In fact, the results suggest that this particular mode of “blended” online teaching does not leave vulnerable students at a disadvantage.

But Mr. Bowen does believe, and others have agreed, that his methodology offers the most definitive affirmation of the “no harm” hypothesis to date. Ithaka is gearing up for another study, using the same approach, to test whether massive open online courses can be effective as part of a traditional college curriculum, at the University System of Maryland. Without investing in rigorous, neutral interrogations of online technologies, Mr. Bowen says, higher education risks falling sway to reactionaries and hype-mongers.

“What’s really important is first to recognize that online learning isn’t any one thing,” he told The Chronicle. “It’s a lot of things. People want to simplify, and sometimes they want to oversimplify, and that’s not wise.”

As MOOC fever has transformed online laggards like Harvard University and the University of Pennsylvania into the vanguard of a new generation of online teaching, Mr. Bowen, who has a lot of credibility with elite institutions, has been invited to address several notable gatherings, including those sponsored by Coursera and edX, two major MOOC providers. He has summarily doused the audiences with cold water. “To ‘disrupt’ or not ‘disrupt’ is not the way to intelligently discuss online learning,” he said last month in a talk to Coursera’s partner universities.

But the former Princeton president has his critics. Carol Twigg, director of the National Center for Academic Transformation (profiled on previous page), says that randomized experimental trials are tedious and often beside the point. Colleges that wait for perfect evidence risk sinking deeper into a hole, she says, and many colleges do not have that luxury. There can be a fine line between deliberation and inertia.

As for Mr. Bowen’s Ithaka study, “I think it was very thorough,” says Ms. Twigg, “but I don’t think studies convince people to do much.”

Mr. Bowen, for his part, acknowledges the limitations of his approach. In his book, the economist admits that one of the most significant lessons of his research with Ithaka was the difficulty of vetting online technologies using such a thoroughgoing methodology. Thus Mr. Bowen’s skepticism is turned on itself; higher education’s omnibusman begins to gnaw on his own tail.

“Looking ahead, I now think—heresy of heresies—that the case for using randomized trials should itself be subject to careful cost-benefit analysis,” writes Mr. Bowen in his new book. “Appealing as they are, this may be an instance in which, at least some cases, ‘the best is the enemy of the good.’”

**Helping Colleges Move Beyond the Credit Hour**

By MARC PARRY

IN THE DELICATE PROCESS of reforming how colleges measure learning, Amy Laitinen’s job sometimes feels like marriage counseling.

One of her main issues these days: competency-based education. Proponents tout this model—which allows students to progress at their own pace by mastering measured “competencies” rather than spending a fixed amount of time in class—as a balm for the ills of academe. It will improve quality and expand access for working adults, they argue, while lowering costs for both colleges and students.

Yet such nontraditional approaches raise anxieties for all the key players who need to get on board to make them widely available. The federal government, which disbursed more than $187-billion in financial aid in 2012, worries about fraud. Colleges worry they can’t innovate because their efforts won’t jibe with the existing financial-aid system. And accreditors, recently chastised for failing to ensure quality, worry about any moves that might again provoke the feds’ wrath.

Enter Ms. Laitinen.

Until 2011, the 39-year-old worked as a higher-education policy adviser in the Department of Education and the White House. Now, as deputy director for higher education at the New America Foundation, she has drawn on her administration connections and knowledge of government to become an important player in the burgeoning efforts to promote competency-based education and rethink the credit hour.

Much of her work at the Washington think tank is behind the scenes. She talks with the Education Department, accrediting agencies, and colleges to help each understand the others’ points of view. She has advised at least a dozen colleges considering competency-based programs, walking them through the financial-
Continued From Preceding Page

Learning From Big Business

By JEFFREY R. YOUNG

MOHAMMAD H. QAYOUMI thinks public universities should take a lesson from Wal-Mart—a view that might sound strange coming from a university president.

But Mr. Qayoumi, who leads San Jose State University, is referring to the retail giant’s ability to continually expand both its brick-and-mortar stores and its online services. “It has the biggest stores all over the country, but it is also really active in e-commerce,” he says. “It’s not an either/or; it’s an issue of how we can really bring a blend of the two together.”

Mr. Qayoumi is trying a similar blending on his campus. He is experimenting with using massive open online courses, or MOOCs, both to bring down the cost of delivering classes on his campus and to let high-school students and others get a head start on college—on the cheap.

For his first goal of cutting costs, the university teamed up with edX, the nonprofit MOOC provider started by Harvard University and the Massachusetts Institute of Technology, to offer a “circuits and electronics” course in which students watched free lectures made by MIT professors as homework and attended class discussions with instructors at San Jose State.

The experiment violated a basic premise of college teaching—that every professor should create and deliver his or her own lectures. “How different is the basic algebra course taught in Boston, or California, or wherever?” asks Mr. Qayoumi.

To help provide a cheaper online-only option, the university forged a partnership with Udacity, a for-profit MOOC provider. In a pilot project, the company worked with professors at the university to create three introductory mathematics classes. The courses are free online, but students who want credit from San Jose State can take them for just $150, far less than the $450 to $750 that students would typically pay for a credit-bearing course.

Continued on Page B10
The Book of Not-So-Textbook Solutions

Quicker Better Safer
Joanna Slusarz
Paperback, 215 pages, 19 solutions

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Continued From Page B8
Both moves are part of Mr. Qayoumi’s plan to “reinvent” public universities. He has laid out that vision in a series of reports that call for public colleges to use technology to produce more graduates while spending less money. In one, he suggests that some high-school students might take a year’s worth of courses as MOOCs before even coming to a college campus.

Some professors question the president’s notion that colleges should look to industry for inspiration. “It almost treats students like they’re industrial products, like ‘How many widgets can we get through those programs?’” said David Parry, an assistant professor of emerging media at the University of Texas at Dallas, in an interview this year after San Jose State announced its project with Udacity.

Mr. Qayoumi, though, sees the move to online learning as a way to actually improve the quality of education. In large lecture classes, he says, people romanticize the classroom experience and overstate the effectiveness of the chalk-and-talk format. When professors give monologues to a room of 120 students, few actually interact with the sage on the stage.

So far, data are proving him right. In his experiment with the edX circuits class, 91 percent of the students who watched the lecture videos from MIT passed, while only 55 percent and 59 percent passed in the two traditional sections offered as control groups.

The president compares higher education today to the railroad industry in the 1940s and 50s: Companies that stubbornly clung to the view that they were in the railroad business failed, while those that diversified, considering their mission as transportation in whatever form, thrived.

“How can we really help our students be successful?” he asks. “How can we be this cradle of creativity and an intellectual center of new ideas and new knowledge?”

“We are a learning enterprise,” he says. And he’s willing to abandon the old rails of traditional instruction.

Mr. Qayoumi, 60, grew up in Afghanistan and trained as an engineer at the American University of Beirut. He did his doctoral thesis at the University of Cincinnati on how to rethink electrical systems to make them more efficient.

He worked in industry for several years—as an engineer in the Middle East—which he credits for giving him his business-minded approach to college leadership.

In the mid-90s he became associate vice president for administration at San Jose State, and held administrative positions at two other California institutions before becoming president of California State University-East Bay, in 2006. He took over the top job at San Jose State two years ago.

He has also played a role in the rebuilding of his homeland, serving as senior adviser to the minister of finance of Afghanistan, from 2002 to 2003, and as a board member of the Central Bank of Afghanistan, from 2003 to 2006.

His reports and his experiments with MOOCs have recently brought him into the national spotlight. He has presented his ideas to Secretary of Education Arne Duncan, and Gov. Jerry Brown of California has taken an interest in his projects.

Mr. Qayoumi often talks as if he’s running a start-up technology company rather than a state university. “We would like to move as fast as we can,” he says of his plans. “We want to fail fast, learn from it, and move on.”

BIG IDEA

Colleges can borrow strategies from business to help students move through more quickly and cheaply. Mohammad H. Qayoumi, San Jose State U.

2013 Tech Innovators

BIG IDEA

Incorporating data can help colleges improve student performance.

William D. Law Jr.
St. Petersburg College

Pushing a Data-Driven Culture on One Campus

By JEFFREY R. YOUNG

WILLIAM D. LAW JR. was talking about “big data” before it was a buzzword. Mr. Law, president of St. Petersburg College, has long argued that colleges can improve student performance with a little number crunching, just as many businesses increase efficiency by looking for trends in all the contacts they have with their customers.

Mr. Law, 64, entered the top job at St. Petersburg three years ago with not just an interest in the topic but also a unique expertise: Back in the 1980s, he led the college’s institutional-research department, meaning he was in charge of providing achievement metrics to campus leaders.

One of his first acts as president was to push for a better way to share such numbers. Until then, to find out, say, whether students in online courses were doing as well as those in traditional settings, a dean would have to send a request to the research department and wait two to three weeks for the answer. That report might prompt a follow-up question that would take weeks more to answer. By then the semester could be over.

Mr. Law oversaw the creation of a system called Pulse, which lets him and other administrators get answers to such questions instantly, anytime, through a simple Web interface with the college’s databases.

“There are some presidents for whom this would be horrific,” he says. Knowledge is power, after all, and many collegues carefully guard access to key metrics, some of which may be unflattering. “Not everyone is as enthusiastic about sharing information as I am,” Mr. Law says with a laugh.

The key, he says, is to make sure that everyone on campus is clear about what the numbers mean, and that everyone can see the same information at the same time, so no one feels blindsided.

But providing the data is one thing; people also have to use it. So Mr. Law has worked to keep numbers in campus conversations as the institution attempts to add new services, such as a system of alerts that flag students who might...
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Devising New Roles for Scholars Who Can Code

By JENNIFER HOWARD

Bethany Nowviskie likes to build things. As a graduate student at Wake Forest and then at the University of Virginia 20 years ago, she “started to tinker” with computer programming, building projects that were “intensely hide and goofy and fun.” One was an impromptu, online John Keats archive. Another was a Mad Libs-style program that generated Keats and Wordsworth poems based on phrases fed into it. The results had a Keatsian-Wordsworthian flair, but “I could never get them to rhyme,” she says.

That kind of playfulness led her to more serious computing projects, such as working on the Rossetti Archive, a pioneering digital collection of material about the 19th-century English artist and writer Dante Gabriel Rossetti. Such projects helped demonstrate the possibilities of mixing humanities and computing—now called digital humanities.

“It was pretty easy to see we were on the brink of a massive transformation of our collective archive, and I wanted to be a part of that,” Ms. Nowviskie recalls. For her, the most exciting thing about graduate school was the chance to create “concrete manifestations of the learning we were doing,” and to do that in a collaborative environment where people wanted to build tools as well as study texts. She calls this “translation-all” work—bridging the gaps between scholars, technology experts, and so-called alternative-academic workers whose jobs don’t follow traditional university trajectories—and it drives much of what Ms. Nowviskie does.

Now director of digital research and scholarship at the University of Virginia Library, Ms. Nowviskie has become a driving force in digital humanities. At the library-based Scholars Lab, she brings together teams of researchers and programmers to work on collaborative, tech-enabled scholarly projects. An all-together-now ethos infuses Ms. Nowviskie’s outlook. She chairs the program committee for this year’s Digital Humanities conference, the annual gathering of the international Alliance of Digital Humanities Organizations, serves as president of the Association for Computers and the Humanities, and advocates for the growing alt-ac work force—people with advanced degrees and scholarly training who work in academe but not in traditional academic jobs—and pushes the field to ensure that gender, race, ethnicity, and economic status don’t get left out of digital-humanities conversations.

Ms. Nowviskie, 39, grew up in West Virginia. She was a book-loving kid who did “some gam-...
EXAM TOMORROW Video chat with study group on laptop, discuss earlier procrastination, procrastinate further + Pull up OneNote on tablet, edit potential questions with group in real time + Review syllabus on class SkyDrive to triple-check test time + Post “good luck” cat GIF to group newsfeed

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“the larger frame in which their particular interests played out,” Ms. Rumsey says.

One of her recent projects, called Praxis, aims to help graduate students develop a broader view of humanities scholarship. A few years ago, Ms. Nowviskie noticed that students who came to work at the Scholars Lab were still “shifting and polishing” their work, she says. That sat uneasily with the ethos of a place “where we’re building a whole lot of things collaboratively” and releasing work in stages.

Praxis attempts to address that disconnect. It’s a yearlong fellowship that brings a group of UVa graduate students together at the lab to learn how to work as a team to build tools for humanities research. For instance, the first two groups of fellows created a Web-based collective-annotation program called Prism. “We’re trying to teach them good software-development practices too: Sharing your work in increments, being a little more bold about saying what you don’t know but also just putting the work out there,” Ms. Nowviskie says.

As word spread about Praxis, she began to get calls and e-mails from administrators at other institutions who wanted to know how they could put similar training programs in place for their students. “That made me think that what I really should do is lay out all the parts and pieces of our local program against some like-minded institutions,” she recalls.

Working with Katina Rogers, a senior researcher specialist at the Scholarly Communication Institute, Ms. Nowviskie helped establish the international Praxis Network. The network went live in March, supported in part by money from the Andrew W. Mellon Foundation. The Praxis effort ties in with Ms. Nowviskie’s continued commitment to alt-ac careers. “If it looks like you’re building infrastructure, it if looks like you’re building the plumbing” for a scholarly project, your intellectual contributions still tend to be undervalued, categorized as service work rather than scholarship, Ms. Nowviskie says.

“I have spent so much of my career working with software developers who are attached to humanities projects,” she says. “Most have higher degrees in their disciplines.” Unlike their professorial peers, though, they aren’t trained to “unpack” their thinking in seminars and scholarly papers. “I’ve spent enough time working with them to understand that a lot of the intellectual codework goes unspoken,” she says.

That will be the focus of “Speaking in Code,” a two-day symposium she’s organizing at UVa this fall, which will focus on the theory and practice that isn’t visible or intelligible to many humanities scholars. Train more humans in tech, or encourage them to create intellectual partnerships with people trained in it, and those barriers begin to break down.

Ms. Nowviskie sees such projects as critical to the future health of the humanities. “If we don’t create paths for people who have a deep love and appreciation for the humanities to remain in the orbit of the academy, to contribute to this vast transformation of our cultural inheritance, to think about how we may do analysis and interpretation going forward, and to think about how we preserve this work for future generations,” she says, “we are lost.”

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By JENNIFER HOWARD

JASON HOYT thinks scientific publishing can be faster, sleeker, and a whole lot cheaper. The Stanford-trained geneticist is a fan of open-access journals, which make scholarly articles freely available online rather than put them behind paywalls. But he argues that having authors shoulder big publishing fees—a popular model for open access—burdens researchers with costs that are too high, often thousands of dollars per article.

So he left the world of research and started his own open-access, peer-reviewed publishing platform, which brings a lean, start-up mentality to scholarly publishing. Called PeerJ, it charges authors far less than many other publishing options do, and it offers a submission-to-publication timetable measured in weeks instead of months.


A basic individual membership begins at $99 and entitles a researcher to publish one article a year in PeerJ. (T’he base price go up a little if you wait to pay until you have an article accepted.) Membership doesn’t guarantee publication; articles must make it through peer review, handled by a board of almost 800 academic editors who are established researchers in science and medicine.

The advisory board includes five Nobel laureates, as Mr. Hoyt and PeerJ’s co-founder and publisher, Peter Binfield, will happily tell you. As a start-up without the name recognition of, say, Nature, PeerJ counts on the reputations of its editors and reviewers to help persuade other scientists to give it a try. PeerJ authors and reviewers frustrated by the traditional closed-review approach can opt for open peer review, a feature that Mr. Binfield says has already proved popular.

Beyond the basic membership level, there’s an “Enhanced” option—$199 for two articles a year—and an “Investigator” level ($299 for unlimited articles per year). At all levels, publication depends on successful peer review.

Membership has the added incentive to take advantage of a preprint service, which enables researchers to distribute drafts before publication. And PeerJ has just begun offering an institutional option to allow colleges or academic libraries to pay their faculty authors’ way. All co-authors on a paper must have PeerJ memberships.

Will enough institutions and individual authors sign on to sustain PeerJ? The open-source advocate and publishing guru Tim O’Reilly must think so. O’Reilly Media and his “seed-stage” investment group O’Reilly AlphaTech Ventures are PeerJ’s chief sources of start-up capital. Mr. Hoyt and Mr. Binfield think that cheap, open-access publishing with a user-friendly design will appeal to researchers, especially as the site becomes more tailored to individual authors’ contributions.

PeerJ offers authors profile pages where they can pull together relevant information about themselves and their work. Although PeerJ won’t become a “Facebook for scientists,” Mr. Binfield says, the site will make it possible to follow what happens to specific articles, and how active contributors are as commenters on other articles.

The platform went live in February. As of April 23, PeerJ had published 70 peer-reviewed articles. It has about 600 paying authors so far.

Keith O’Rourke, director of the Computational Biology Institute at George Washington University, serves as one of the start-up’s academic editors. In an interview on the PeerJ blog, he explains what he sees as the problem with traditional scholarly publishing: “Paying to do the research, writing the paper, and then paying to publish seems like a crazy model,” he says, adding that “even supposed ‘open access’ models require payments of $1,500-$3,500 per publication.” That makes PeerJ’s low-cost, pay-once system very attractive, he says.

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Dan Rosensweig, Chegg

Mr. Hoyt grew up in Silicon Valley in the 1980s. When he was 6, his family got an Atari 400 computer and he started programming. “It was just a fun thing to do,” he recalls. When the online service Prodigy came along, “I really knew I was hooked on computers.” Eventually, he says, he got “sidetracked by science.” But an interest in technology is “just in my blood, I guess.”

While working on his Ph.D., Mr. Hoyt joined the Stanford lab run by researcher Michele Caled, where he worked on nonviral gene therapy. He liked the research but missed the pace of programming, how quickly things could be tried and reworked. With programming, “I found the feedback loop was much, much faster,” he says. “It was a lot more satisfying than many failed experiments.”

In 2006 he built an online reference manager that lets researchers store scientific literature. That caught the eye of the founders of the start-up Mendele, which was doing something similar. Mr. Hoyt completed his doctorate in 2008 and went to work for Mendele as chief scientist and CPO to push for research and development. After a couple of years, though, he found that he had regrets about not pursuing his own start-up idea. “I had a desire to go out on my own,” he says.

He thought about the possibility raised by some of the researchers working on the human genome: What if we could sequence an individual's DNA for as little as a hundred dollars? And if we could dream of pulling that off, Mr. Hoyt asked himself, why not a hundred-dollar article?

“I knew that the margins were way too high in publishing, and they could come down,” he says. It didn’t make sense to him that it had to cost thousands of dollars to get a paper into print. And as a believer in open access, he “was always against subscription paywalls.”

“It seemed to me that there was a gap in the whole publishing market,” Mr. Hoyt says. “Nobody was taking a lean start-up approach to publishing.”

To float the idea, he created a landing page on a Web site that anonymously suggested the idea of $99 scientific publishing. Word spread fast in open-access circles. One person who took notice was Peter Binfield, a physicist, Mr. Binfield was then publisher of the PLOS One community of open-access journals, one of the highest-profile open-access publishers.

He joined PeerJ last May, to help test out ideas that he might one day bring back to his larger platform.

“It doesn’t have to cost $1,350 to publish every paper,” Mr. Binfield says, referring to what the journal PLOS One charges. “PeerJ is an attempt to put that statement into the real world and see if it works.”

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Chegg Inc., and soon introduced its first textbook rental service, textbookflix.com (originally billed as the Netflix of textbooks).

The goal over the next five years was to become “Number 1 in textbook rentals.” In 2010 that goal was so entwined with the company’s identity that Chegg sent a notice of trademark infringement to another textbook-rental Web site that claimed the No. 1. Later that year Mr. Rosensweig became CEO.

Mr. Rosensweig, 52, also didn’t always plan on creating a “student graph,” although he has always had an interest in education, he says; his mother was a schoolteacher in Scarsdale, N.Y. After graduating from Hobart and William Smith Colleges, he got his first job with a company selling word processors door-to-door in Manhattan. Just hours after he started, the company laid off his entire division.

He then went to Ziff Davis, a media company, where he stayed for 15 years, working his way up from persuading small computer stores to carry the publisher’s computer magazines, through the circulation department, to associate publisher of PC Magazine. In 1998 he became president of ZDNet and merged the company with CNET, another online source of information-technology news. From 2002 to 2006 he was chief operating officer of Yahoo.

He briefly tried early retirement but then became CEO of Activision Publishing’s Guitar Hero division. That job only lasted about a year. As a music fan (he says he’s seen Bruce Springsteen in concert 64 times), Mr. Rosensweig enjoyed the work, he says, but something was missing: “My customer wasn’t the Guitar Hero player. It was Wal-Mart.”

When he was approached by Chegg, in 2009, he saw an opportunity to work for a company that dealt directly with consumers. His two daughters were also approaching college age, a factor that he says helped him make the decision to accept Chegg’s offer.

“It was really interesting to do it at a time when it’s important for my kids and to the country,” Mr. Rosensweig says. “Higher education was under tremendous pressure, and I thought if I can make life more affordable to students, then I wanted to take that chance.”

Mr. Rosensweig and the people he hired—who include former employees of Google, Netflix, and Facebook—moved quickly to push Chegg further than its textbook-rental roots. “Save time, save money, and get smarter” became the message, he says. The company slowed the expansion of its textbook division and focused on connecting students to one another and to colleges, and on offering tutoring and studying services.

Chegg acquired six higher-education companies in just over a year and created several mobile apps. This year it began looking into free textbooks, in a partnership with OpenStax College, run by Rice University, and the Twenty Million Minds Foundation, a backer of open-source textbooks.

While Chegg is increasingly popular with college students, the company’s growth has not created many fans among traditional textbook sellers, according to the National Association of College Stores. “When a student rents or buys from their college store, the money they spend is going to pay local people’s salaries, and often in the case of a college store that worker is a fellow student,” says Charles Schmidt, the group’s director of public relations. “In addition, a portion of the cost paid is returned to the university and comes back to benefit students in the form of scholarships and reduced fees, something that can’t be said of money spent with a large corporation based half a continent away.”

Nothing Chegg is doing is entirely new, Mr. Schmidt adds, noting that college bookstores have offered textbook rentals since as long ago as the 1860s. Nearly all of the association’s 3,000 members, he adds, themselves offer rental programs with savings similar to Chegg’s.

But, while Mr. Rosensweig maintains that textbook rentals are still a large and important part of Chegg, the company has expanded beyond that business, to become a “student hub.” Chegg is competing not just with textbook stores but also with publishers, tutoring programs, even school counselors, he says. So far, he says, “I think you’ll see us working with mentors and helping students find jobs and internships.”
Major Players in the MOOC Universe

Millions of students have signed up for massive open online courses, and hundreds of universities are offering some form of Web-based curriculum. Most students aren’t paying much for these classes, if they’re paying anything at all. So where is all that knowledge—and all the cash—coming from?

**COMPANIES**

- **Coursera**: This for-profit MOOC founded by Andrew Ng and Daphne Koller partners with 60 colleges (and counting) for its classes. The company is experimenting with a career service that makes money by connecting employers to its students, and attracted $22-million in venture capital in its first year.
- **Khan Academy**: Salman Khan made waves when he quit his job as a hedge-fund analyst to record short video lectures on everything from embryonic stem cells to—you guessed it—hedge funds and venture capital.
- **Udacity**: This for-profit MOOC, started by the Stanford professor Sebastian Thrun, works with individual professors to offer courses. By March 2013, Udacity had raised more than $21-million in venture capital.
- **edX**: Harvard and MIT put up the original $60-million to start this nonprofit MOOC. So far, students can take classes only from Harvard, MIT, and UC Berkeley, but classes from nine more universities are coming soon.

**UNIVERSITIES**

- **Harvard**
- **MIT**
- **Stanford**
- **UC Berkeley**
- **U of Pennsylvania**
- **L. Rafael Reif**
- **Anant Agarwal**
- **Koller**
- **Google**
- **Andrew Ng**
- **Daphne Koller**

**companies to watch**

- **MOOC2Degree**: This upstart’s main selling point is real, translatable credit, as long as students can get admitted to the college, that is. At least nine colleges are planning to participate, and Jeb Bush has spoken favorably of the venture.
- **Canvas Network**: Network’s owner, Instructure, is one of Blackboard’s biggest competitors. David Wiley, an early MOOC skeptic and promoter, has gotten behind the project, and more than a dozen colleges have signed up. The company has received more than $9-million in investments.
- **CourseSites**: Blackboard is only just starting to compete in the MOOC universe with its CourseSites platform. So far, only a handful of universities have tested it out.
- **Udemy**: Professors, authors, professionals, and celebrities create and sell courses about pretty much anything at Udemy, which has raised more than $16-million in venture capital.
- **Thinkful**: One of the nonprofit Peter Thiel’s 20 Under 20 fellows started this career-development-oriented company, into which Mr. Thiel has invested $1-million.

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*Graphic by Xanissa Holdaway; illustration by Nigel Hawtin*
My Modern Experience
Teaching a MOOC

By MICHAEL S. ROTH

My Coursera course, “The Modern and the Postmodern,” might have been labeled “course least likely to become a MOOC.” In many ways, it is an old-fashioned “great books” course, although I prefer to call it a “good-enough books” course, and in the 20 years I’ve been teaching it, it has always relied heavily on student interaction in the classroom.

We’ve always started in the late 18th century, usually with Kant and Rousseau, and then wound our way through 200 years of mostly European intellectual history—Karl Marx, Gustave Flaubert, and Friedrich Nietzsche in the 19th century, Sigmund Freud, Virginia Woolf, and Michel Foucault in the 20th. In recent years we’ve finished up with the philosophers Kwame Anthony Appiah, Judith Butler, and Slavoj Zizek. We are interested in what happens when the modern search for the “really real” is replaced by the postmodern embrace of intensity and difference. We explore how modernist artists and writers have looked for a foundation that will ground their ideas and formal experimentation, while postmodernists have given up the search for a firm base.

Last summer my institution, Wesleyan University, where I am president, became the first liberal-arts college to join Coursera. I’d been discussing online education with the faculty, students, and board members, and I had a notion that we should start our own program. But after reading about Coursera’s success in attracting large numbers of students to courses taught by talented professors at strong universities, it seemed to me that we should become a partner. The Coursera folks wanted to know which classes we would offer, but at that point summer was half over, and I wasn’t certain who among my colleagues would want to participate. I knew I could volunteer myself for starters, and so that’s what I did. Eventually, professors from six different departments agreed to join me in offering courses.

If “The Modern and the Postmodern” is an unlikely candidate for a MOOC, I was an equally unlikely candidate to teach one. As a university president, I don’t have as much time to devote to teaching as I would like, and taking on this additional assignment, with all its unknown variables, seemed to many in the administration as overly ambitious. Actually, some told me it was crazy. In addition, I was no fan of the massive online classes I’d checked out. It seemed clear to me that whatever learning happened online via lectures, quizzes, and peer-graded essays was very different from what I’d experienced in residential colleges.

I was intrigued, though, by the prospect of sharing my class with a large, international group of people who wanted to study. And I wondered if the experience would change the way I thought about teaching and learning. I certainly wasn’t looking for ways to replace the campus experience, but I was open to expanding the framework within which to think about it. Given the thousands of students who register for MOOCs, it is impossible for professors to give detailed feedback on individual assignments. How would students learn via
Let’s Make 2013 the Year of the Seminar

By DANIEL R. PORTERFIELD

THE PAST YEAR has seen the meteoric rise of the MOOC, or massive open online course, which lets 100,000 strangers—or more—log on to free classes branded “Stanford” or “Harvard.” The New York Times went so far as to call 2012 the “Year of the MOOC.” Amid the cacophony of voices calling for colleges to cut costs and reduce student debt, many of us who work in higher education find ourselves playing defense on an issue we don’t yet know enough about.

I believe we have a collective responsibility to challenge the notion that MOOCs are the future of American higher education. If we really want to make a difference for most students, let’s make 2013 “The Year of the Seminar.”

Don’t get me wrong: I’m all for making taped lectures, academic chat rooms, and technical training available online, as well as offering Web-based information to learners in the developing world who are fortunate enough to have broadband access. MOOCs can do those things well. But when we look at how seminars shape and sharpen the mind, it becomes clear that American students need more small, rigorous classes—lots more. Here’s why:

First, seminars help college students develop a set of higher-order intellectual capabilities that literally rewire the brain. Students must read complex texts closely and answer nuanced questions posed by professors. They must listen actively, reflect critically, form their own positions, and share ideas with peers. They must write papers that support original arguments with evidence and then respond to detailed faculty critiques of their work. Often they must synthesize

Continued on Following Page
And then there's the profound role of the professor. No MOOC can give young minds the in-person experience of working directly with older experts to create, deepen, and connect ideas. Research from the University of California at Berkeley’s Center for Studies in Higher Education and many other studies have shown that students grow from directly engaging with scholars and witnessing how they think. Seminars allow students to absorb their professors’ methods and moves, their certainties and doubts, their efforts to factor out bias and place new concepts within landscapes of the known. This is how colleges kindle the next generation of free and creative minds.

Moreover, in terms of holistic development, students on the cusp of adulthood grow far more from being engaged and valued by a professor they respect than from being lectured to as an anonymous mass and then graded by digital assessment tools. This is obvious, but we’ve forgotten it. And the greatest teachers can serve for decades as responsive mentors and touchstones of integrity—but only if students first get to know them authentically, face to face and mind to mind.

There’s also the fact that, unlike MOOCs, seminars create direct, interactive experiences of citizenship and community. Probing class discussions—the kind that require students to look one another in the eye, connect authentically, and build trust as the semester progresses—show the young that humans view the world in myriad ways. They teach students both to invite one another’s contributions and to disagree constructively. When students occasionally say the wrong thing, or must engage their peers when defending an unpopular notion, they learn firsthand why democracies prize and protect freedom of speech.

In these ways, each seminar develops its own personality, a searching spirit of “we” that crosses the supposed divides of background and identity and can be joyful in itself. Take as an example the seminar “Water, Life, and Society” taught at my institution, Franklin & Marshall College, by Dorothy Merritts, a professor of geoscience. Students move seamlessly from lectures to hands-on work with global-water databases to discussion, and team up to do research and present case studies that elucidate major international water conflicts. Through this intense interaction, they learn how to analyze the complex causes and potential solutions of critical water issues—intellectual skills that will serve them well long beyond graduation.

MOOC providers argue that they create virtual learning communities that connect people from around the world in ways that a physical classroom does not. This is true only if we greatly diminish the meaning of the words “learning,” “community,” and “connect.” And pioneering thinkers like Jaron Lanier, author of You Are Not a Gadget, vividly illustrate the further risks of investing too much meaning in these ersatz “communities,” which are often constructed not for their users, but rather as “bait . . . to lure hypothetical advertisers.”

Some might say, “Quaint, but we can no longer afford such labor-intensive, ‘inefficient’ college classes.” That’s ex ac tly backwards. There’s a huge return for students and society if we can enroll more undergraduates in more seminars—even at, yes, more cost.

That’s because seminars enhance one another. By taking several at once and many over a college career, students experience the disparate ways that scholars define, transfer, and assess knowledge. This can lead students to the revolutionary insight that all knowledge is created and constructed, and thus that they can become creators, too.

In today’s knowledge-based societies, where so much change is driven by competition, technology, and science, people who can create new ideas or new intellectual paradigms will always be leaders. A country that cannot produce such leaders of thought will not lead.

MOOCs, like the Internet itself, offer real value in providing access to certain kinds of information, but those who see MOOCs as the quick and easy solution to the national imperative of educating more students and producing great thinkers and entrepreneurs will find only fool’s gold. It will be a shame and a disservice to students if institutions begin basing a college education predominantly on MOOCs or other massive lecture courses.

Finally, for those who see MOOCs as the future of American higher education, ask yourselves how the people we educate today will deal with complex issues in the workplace of tomorrow. Imagine a team of national-security leaders in 2025 analyzing whether the people who see MOOCs as the quick and easy solution will have produced leaders of thought who can create new ideas or new intellectual paradigms. Imagine government officials, public-health experts, anthropologists, and economists searching together for the solution to a border-crossing disease. All taking account of multiple views. All trying to interpret data. All working at the mind’s limits.

The vital work that takes place in such a scenario is the real-world form of the seminar—still one of the best models for developing the mind that has emerged in four centuries of American higher education.

Let’s see the MOOCs top that.
Continued From Page B19

someone “failed to complete” The New Yorker in the week she received it. Most don’t sign up for the class or the magazine for purposes of “completion.” Half of those who enroll often don’t even actively begin the class, while others will learn with the course rather than seek to finish it for purposes of a grade and certificate (although some do want that).

There are many access points for increasing one’s understanding of the world and its history. Students use MOOCs differently than they use the classroom, and we should pay attention to that rather than think the online world fails to replicate a “really real” classroom. When I teach my course on campus next year, I want to give my undergraduates the benefits of what I’ve learned from the online version. This will be more than just using recorded lectures as homework. It will be integrating perspectives on things great thinkers have said—and things I’ve said—from an amazing range of people from across the globe.

The discussion forum for “The Modern and the Postmodern” has many threads. Some comment on the teaching (happily, they are very enthusiastic about the lectures), others on the grading (more than a few complaints about the peer evaluations), and still others offer lots of complementary material to add to our study—from songs to scholarly articles to cartoons.

O ne Courserian wrote about how much he enjoyed the class because it was a respite from taking care of his disabled parent. That sparked a conversation with several others in similar situations. Others talked of missing the excitement of being at a university, while still more talked about never having had that opportunity. At Wesleyan we embrace the label “Diversity University.” My MOOC, which is nearly over, has impressed upon me aspects of difference and inclusion I don’t often encounter on campus.

One discussion thread asked why Courserians feel the need to keep studying. A student from Singapore wrote about our class “igniting the fire for learning” while a Swiss graduate student enrolled with his “mum” so that they could discuss the material together. She’s dropped out, but he says that he finds the camaraderie online to be a reminder of why he went to a university in the first place. Somehow, the graduate seminars he takes in Zurich don’t live up to his expectations.

A student in South India says that decades after having completed formal schooling, “Learning makes me feel alive.” And a student who doesn’t say where she’s from simply writes:

“Baudelaire has captured me. I love the living and the feeling and the participating in life’s beauty and ugliness. I have taken to carrying Paris Spleen around town with me as I walk and bike.”

Turns out the “massive” part of these open courses is the least interesting thing about them. My students don’t feel like a mass. It’s the differences among them, and how they bridge those differences through social networks, that energize their MOOC experience and mine.

Michael S. Roth is president of Wesleyan University. His most recent book is Memory, Trauma, and History: Essays on Living With the Past (Columbia University Press, 2011).
While I was hiking the Appalachian Trail this past summer, Georgia Tech, my home institution, announced its affiliation with Coursera and launched itself headlong into the MOOC world.

It occurred to me as I ambled down the trail that day that an intensely embodied experience like long-distance hiking seemed the opposite of long-distance education. Hiking requires taking not only a careful equipment inventory but also a constant inventory of your own body: checking hydration, sore muscles, arthritic knees, blisters, and an always-too-heavy pack.

I realized that to MOOC or not to MOOC was not really the question. The real issue was how brick-and-mortar institutions could embrace MOOCs while continuing to build on the strengths of local, capital-intensive pedagogical practices—actual-in-the-flesh pedagogy in a world of Coursera.

In the months before this announcement, a Georgia Tech faculty panel had, as a result of a strategic-planning process, decided to focus on a number of undergraduate initiatives that included design pedagogy. Design, like MOOCs, is a hot pedagogical term these days. Once designating a fairly narrow set of material practices, design has come to embrace a broad range of activities, including interactive, game, and even lifestyle design.

Although it does take advantage of the Internet to collaborate at a distance, most design practice involves small, tightly organized teams grappling not just with ideas but also with the physical materials necessary to execute them. So perhaps thinking about the use of design to teach—any subject, including literature—is a way to begin to understand what MOOCs might be missing.

In the fall of 2009, I taught an upper-level seminar on Thoreau. The students, who came from a broad range of disciplines, were asked to read Walden before the semester began, and on the first day I set them two tasks: to collectively timber-frame a replica of his house using only the tools he could have used (no power tools), and to document the process through text, video, and Web-based materials.

Although there are many renderings of Thoreau’s famous house, no true plans for its construction exist—only the scattered passages in Thoreau’s book, a drawing by his sister, and the conjecture of a number of scholars—so my students first had to design their frame. But before that, they had to understand timber-framing as a practice.

In other words, they had to develop a number of design skills, articulate a
building plan (which would also deal with safety issues), form documentary strategies, and, ultimately, learn how to swing an ax and mortise a joint. We spent the next few months studying the history of building practices, reviewing literature on the relationship between cognition and tool use, and, of course, rereading Thoreau. We also spent a lot of time chopping, sawing, chiseling, and documenting, and we spent time learning that we needed to learn yet another set of skills. The semester ended, grades were assigned—and the work continued.

Our frame was raised the following February by students in the course and volunteers who had joined us over the months. The students ended up with a timber structure, blisters, and a few adze-related wounds, as well as research papers, video interviews, poster sessions, a short documentary film, and presentations at two scholarly conferences.

This experience highlights the value of design-intensive pedagogy. Those students had to design a house but also a syllabus, a research strategy, and various forms of public presentation. Nothing was given; everything was a problem awaiting a solution. It goes without saying that you cannot square a timber with a broadax via the Internet—YouTube videos notwithstanding. The results of their research can be downloaded all over the world, but the class as a practicing design team was resolutely local—fixed and weighted in the front yard of Georgia Tech’s Architecture School building.

As pedagogy, the work of the “Thoreau Housing Collective” extended across the institution, as we were joined by volunteers, many of whom just wanted to get their hands dirty. We also conducted impromptu lectures and demonstrations for curious passers-by. Building the house was hard work, but so is design-oriented pedagogy. The Thoreau we came to know demanded a constantly redesigned set of processes that were usually determined by a confrontation of minds, hands, tools, and materials.

So a few summers later, after that long day hiking on the trail, I made camp, pulled out my iPhone, and thought about Coursera, pedagogy, and my institution. My aching body provided some perspective.

As I wandered around the Web for information about Coursera and MOOCs, it was clear to me that a great deal of learning can and obviously does take place online, but what brick-and-mortar classrooms still provide is that moment when people confront a problem in the same local space. We learned Thoreau not just by reading what he wrote but also by doing what he did, and that made all the difference.

Maybe next time, I’ll teach a class about bricks and mortar.

T. Hugh Crawford is an associate professor of science, technology, and culture in the School of Literature, Media, and Communication at the Georgia Institute of Technology.
Massive Open Online Adventure

Teaching a MOOC is not for the faint-hearted (or the untenured)

By KAREN HEAD

When I was first approached about teaching a MOOC, my initial response was no. I wondered how anyone could possibly teach writing in a massive open online course—a question that many of my colleagues are still asking. But I decided to accept the challenge, because when so many people are hyping this new pedagogical technology, I didn’t want anyone who was already an eager proponent to misrepresent what is really involved in designing and teaching a MOOC. There is no way to ignore MOOCs, so becoming part of the conversation by also becoming part of the process is the only way to find out what is, or is not, possible.

It has been a steep learning curve, as I have reported in periodic postings on The Chronicle’s Wired Campus blog. Among the lessons I have learned so far: The time demands, logistics, and politics of developing a MOOC will bury you—particularly if you do not have tenure. There are also important questions about evaluation. And there are new safety and privacy issues associated with teaching a MOOC, issues that no one seems to be discussing.

In November my 19-person team at the Georgia Institute of Technology was awarded a grant from the Bill & Melinda Gates Foundation to explore the possibilities of teaching a first-year MOOC on college writing. We were one of four institutions to receive such grants.

Originally we were set to begin in late April, but we pushed back our start date by a month because of technical problems and misunderstandings about procedures. A month ago, we hired an expert to consult with us about the Coursera platform, which our course will use. Then we learned that in addition to extending our timeline, we needed to change certain curricular features. For example, we wanted to have students review the short writing samples they would produce in quizzes during sessions of the course, but we discovered that students’ answers would not be available to them after quiz completion. Based on our early enrollment, we expect to have at least 20,000 students. The largest course I’ve taught before expect to have at least 20,000 students. The other unit at Georgia Tech values this kind of inquiry. However, for faculty members in many other disciplines, I doubt that a MOOC would count as anything more than a line item in a teaching portfolio.

Given the stumbling blocks we have already faced, I am sure there will be additional challenges. The MOOC feature that troubles me most is the formal, recorded video format. When I record the videos, I am standing in a small, dark studio. The other principal investigator on the project, Rebecca Burnett, hunches behind the camera. She is my only audience. This is not how I usually teach. I prefer discussions to lectures, and I crave the connection I have with students in a traditional course. In fact, this MOOC format is in direct opposition to everything I believe good teaching to be. Perhaps I will have a greater sense of connection to the students once we start the course, but I will never know them the way I know my traditional students. This troubles me because knowing my students will help me understand how best to teach them.

One of the most important conclusions I’ve drawn from the experience is this: If you are an untenured faculty member, you really shouldn’t attempt a MOOC. The planning process alone is overwhelming. Because I have a grant and because research about writing instruction is part of my accepted research portfolio, I will submit all MOOC-related work as part of my future tenure case. I am very fortunate that Georgia Tech values this kind of inquiry. However, for faculty members in many other disciplines, I doubt that a MOOC would count as anything more than a line item in a teaching portfolio.

The other disadvantage of being an untenured MOOC instructor is politics: Many constituencies want MOOCs to be the great new educational revolution, and their motivations can vary widely. As I mentioned in a recent blog post, we have regular videoconferences with the three other universities that are designing composition-related MOOCs. This consortium has been important because all four teams must confront certain political and practical realities. Those who do not have such a support mechanism might find themselves in difficult territory, and should ask some important questions before undertaking a MOOC.

Will you be able to publicly express your concerns if something about your MOOC seems pedagogically unsound? If your university doesn’t have the technological capacity to support you, will you have to solve the problems yourself? Who will pay your video-production costs? (Our MOOC has spent $12,000 on production so far.) Will you be able to challenge administrators who want to control your content? Will you be forced to submit to evaluation schemes that would allow your course to carry credit?
Battles about evaluation and credits may become too risky for untenured faculty members to fight. In all four of our cases, we have been asked by administrators if we want to take steps toward making our courses for-credit. Two groups currently evaluate MOOCs: The American Council on Education operates a credit-recommendation service that evaluates individual courses. And as a possible first step, Coursera offers Signature Track, a fee-based system of validating completion of one of its MOOCs.

Our consortium’s members—in what I believe will become an important moment in the history of our field—collectively decided to add intention statements to our syllabi, stating that our courses are not equivalent to semester-long college-composition courses. The main reason for this decision was not that we believe our courses have inferior content, but that there is simply no way to adequately evaluate the writing of thousands of students—something we would need to be able to do to certify their work. The evaluation of student work in our course will employ guided peer assessment.

But, some of you might ask, what about new machine-grading technologies being touted in recent articles? The answer to that question is a long one. For now, I will say that such mechanisms remain unable to provide substantive evaluation, and I recommend that those who want to learn more on the subject look into the extensive research done by Les Perelman at the Massachusetts Institute of Technology.

A side from the actual course preparation, I have encountered other unexpected issues. Days before enrollment opened for our course, one of our IT specialists advised me to change my public e-mail address because there is a good chance that some students may try to reach me outside the course platform. This has the potential of overloading my inbox, making my regular university duties harder to manage. This conversation quickly led to a consideration of other potential privacy issues. Might students call me at work? What if a local student decided to come to my office at Georgia Tech? What about my general privacy and personal safety? Those were questions I had never considered. Suddenly this adventure had a darker element.

I hope the worst outcome is the sobering, hourlong conversation I had with the chief of Georgia Tech’s campus police. The director of security for my building suggested that I temporarily move my office to a more secure location, in a different building on the campus. I had decided that all of this was ridiculous until some unknown person began repeatedly calling me. He refused to leave messages, saying only that the call was in reference to MOOCs, and he pressed my staff to give out my personal mobile number. Instances like that suddenly feel ominous. If universities ever require faculty members to teach MOOCs, they will also need to consider the possible implications of requiring someone to become a public figure.

When my colleagues see me (which isn’t very often these days), they ask if I would still make the decision to teach a MOOC, given what I now know. As the French author André Gide wrote, “One doesn’t discover new lands without consenting to lose sight of the shore for a very long time.” While it hasn’t been smooth sailing, I still see this as an important adventure.

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Forming a social network is as simple as remarking to a classmate.

“Did you get that?”

Btw paper is due 2day

Using social networking to control first-year stress

By SHARAN PAUL

Two years into retirement I was bored and felt completely out of touch with the fast pace of the world around me. After years spent working as an Air Force journalist and raising three children, I wanted more. I wanted to be smarter. I wanted to go to college! If I did go to college, I’d be able to learn everything I always wondered about: what Shakespeare really means with his flowery prose, how a group of ragtag farmers created a country that became one of the great superpowers in the world, and whether I am in fact a good writer, as my family and friends have often told me.

So in 2011, at age 55, I enrolled full-time as a freshman at Kent State University’s Stark Campus. But would I be able to keep up?

I knew that technology would be a challenge for me, and that trying to catch up with a generation so skilled at everything technical would be stressful. When I graduated from high school, computers were mainly seen in science-fiction shows on television. The Internet did not exist, and the idea of a telephone that I could carry around in my pocket remained far in the future. The high-school yearbook was our Facebook. MySpace was half of a bedroom I shared with my sister. Online was where I stood for sale prices at J.C. Penney, and texting was a telegram from Western Union, which never brought good news. Social networking meant knowing someone who knew someone—having a community of people to go to for advice or a helping hand.

By the end of my first semester at college, it was apparent that my classmates, most of whom were under 21, were even more stressed out than I was. And the small neighborhood community I had relied on most of my life had grown to global proportions. I noticed that fellow students were adept at social networking and spent a large amount of time texting, tweeting, and posting to Web sites. But I also saw them trying to juggle jobs, classes, homework, and their complicated social connections all at once.

My grandson once told me that when I have a problem that seems unsolvable, I should just think of the principle of Occam’s Razor: the simplest answer is usually the best answer. If college is the biggest source of stress in a student’s life, and students spend most of their time on social networking, wouldn’t it make sense to combine the two?

Although many professors in traditional as well as online courses are already using social media to connect students for study and research, colleges could be doing much more. They could leverage social networking to give students a system of checks and balances that would help them learn to manage their time, keep up their grades, better manage their stress, and generally adjust to their first year in college.

My college, like others, offers first-year students a program that helps students identify and reduce stress by learning relaxation and coping skills and by exercising. But while such programs may offer students short-term help, the college-wide programs I looked into seemed to give students practical tools that would help them network with others. I had to learn that on my own, along with several of my fellow students.

First-year students especially need help with time management. My history course required students to write numerous essays throughout the semester. Even with the syllabus, it was easy to become confused over what was due and when. With six of my fellow freshmen, I set up an “early warning system” for due dates. Each one of us was responsible for one assignment alert, and would text the others seven days, and again four days, before the paper was due. Because each person only had to keep track of one due date, we were always on time, and the pressure to remember all the dates was gone. The social network that resulted from our system has nine members now, and we talk to each other before class, sharing our personal lives, time-saving tips, and essay topics. The familiar medium of texting allowed my fellow classmates and me to accomplish the requirements of this course more efficiently.

Social media can also provide students with effective stress release, and an efficient way to belong to a group. Forming a social network is as simple as remarking to a classmate, “Did you get that?” Three classmates in my “Media, Power, and Culture” class were struggling with their grades for different reasons. One was stressed because she had trouble making it to class in the morning. Another could not understand the complex concepts we were learning. The third was overwhelmed by the volume of material covered at a rapid pace. Together, we formed a group we now call the “study buddies.” When the review sheet for a test comes out, one person types it up along with her or his answers and e-mails it to the other students. Individually, we check it for accuracy, make corrections, and fill in missing answers. We e-mail it back to everyone in the group. In the space of a few hours, the four of us have a complete and accurate study guide.

Currently I am helping one student catch up on her missing classes through e-mail, and now she attends class more regularly. Two others in the group are now Facebook friends. Using instant messaging on Facebook, she breaks down complex concepts for him, while he shows her shortcuts to studying. All of our grades have improved, and we all feel significantly less stressed out at exam time.

We have also used the study-buddy network to share textbooks. When I discovered two students in my sociology course could not afford to buy the textbook, we set up a book-sharing system in which three students had the book for one week each. All three finished their work with good grades.

In another course, I noticed that one student was sending Twitter questions constantly, an indication that she was struggling with the work. She needed the extra help a tutor could provide, but she worked two jobs and attended both high school and college. We arranged for her to receive tutoring, and because time was an issue for her, they met via FaceTime (an iPhone application) on her lunch breaks.

These types of student efforts should be featured as a prominent part of college’s programs for new students. Ideally, a college’s Web site would have links to programs like our study-buddy model and early-warning system, along with instructions on how to form such networks and an electronic bulletin board for students who want to announce new groups. Orientation sessions could include a segment on how these social networks operate and how to start one. If each professor could discuss virtual study groups on the first day of class, or include instructions on the syllabus on how to find others enrolled in the course, that would provide a starting point in a familiar medium.

Taking the idea one step further, professors could offer class-participation points to those who take an active part in a study-buddy group. Social networking goes far beyond the use of social media. Although it may be easy to lump them together, they are two very different things. Social networking is an interactive and mutually beneficial relationship between people. Social-media tools provide a delivery system that can be used to develop a social network, which in turn reduces stress.

Stress has certainly been a part of my first year of college, but thanks to social networking, it has been a strange and wonderful journey.

Sharan Paul is an English major at Kent State University’s Stark Campus and also takes courses at Stark State College.
Go Where the Students Are: Facebook

A S I LOOK BACK on those days when online discussion became part of classes, I long for the easy engagement it seemed to generate among students. In 1999, the Internet was cool. Adding online interaction to traditional courses got students excited and motivated them to perform better. Today, though, the Internet is no longer inherently cool, and is even a little boring. I can use the coercive power of grading to require online participation, but I cannot force the organic buy-in that seemed so promising in the late 1990s. When using learning-management systems like Blackboard, I constantly have to remind students to log in, to check the boards, and, especially, to talk to one another rather than just answer my questions.

Frustrated by this artificial dynamic, I have rethought my approach to using the Internet for teaching. I call my new philosophy “Go Where the Students Are.”

Right now, my students are on Facebook. When I first thought about using Facebook for teaching, I hesitated. Facebook isn’t perfect. It treats its subscribers as products for sale. Its privacy settings are deliberately confusing. It’s the place where students post inappropriate pictures that get them into trouble. And yet my students go there every day. Some of them, through their mobile devices, never log out. I decided to try to leverage their comfort with social media for the benefit of my class.

When I started using the Internet in the classroom, back in the late 1990s, mostly just by building Web sites and creating discussion boards, engagement seemed to come so easily. Once students learned how to click on a link or use the “back” button on a browser, the class took off. Students started posting late at night. They showed online discussions of primary sources to friends in their dorms. They seemed to be thinking about the course all the time. As a result, they came to class more prepared, wrote better papers, and did better on tests.

Many of my fellow graduate students and professors found similar results, especially in the big introductory classes. Online discussion provided a means for...

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I cannot change students’ entry points to a class, but maybe by meeting them there, I can better influence where they finish.

based on our online discussion and their specific contributions. I sometimes stay out of the conversations and watch my students collectively wrestle with issues and expand the scope of the class. Not only do they bring in resources and topics that I might never have found, but they do it at 2 a.m. on the Saturday after Thanksgiving. And when that little red number appears on the Facebook page indicating that someone has posted a message or responded to a comment, the students (and I) have a Pavlovian response to click and check out the new posting or comment. The discussion ebbs and flows over the course of the semester, but it never really stops.

Some caveats: Although I am a medieval historian, I have mostly used Facebook in a liberal-arts-and-sciences seminar on “Evolution, Eugenics, and Disability.” I have also just begun a Facebook page for a class on the history of Jerusalem, with the online component providing a forum for discussion of contemporary events. These topics are easy to locate online, so students can use the Internet to generate content. My classes are relatively small, with a maximum enrollment of 25. Having seen online discussion forums work in big classes in the late 1990s, I believe my approach would work in much larger classes. But Twitter could also be used to encourage student engagement with course material.

As the semester draws to a close, I’ve been thinking about ways to go where the students are beyond choosing Internet platforms. Students often enroll in medieval-subject classes out of a love of fantasy books and gaming. That’s where many of them are. I use the television show Game of Thrones to talk about Orientalism, even though I still don’t understand the difference between the fictitious cities of Vaes Dothrak and Meereen. The Hobbit, written by a medievalist and recently playing in a theater near you, naturally lends itself to opening discussions about medieval culture, power, myth, and narrative. More seriously, when the events of 9/11 dominated American discourse about Islam, I used them as a foil to talk about the complexities of medieval interfaith relations and the shifting meanings of the words “crusade” and “jihad.” I cannot change students’ entry points to a class, but maybe by meeting them there, I can better influence where they finish.

I don’t know where your students are. I don’t know where my students will be five years from now. When they leave Facebook, I’ll probably fail to notice at first. Tweens today may use Facebook, but studies suggest that already they think of it as their parents’ social-media site. The easy buy-in that today’s students have for Facebook will surely fade. Compared with their predecessors of just a few years ago, my students are savvier about not sharing personal information online. This is useful, as it takes away some of the risk of using Facebook in the classroom.

The day is coming when students won’t naturally check Facebook constantly. There will, however, be some form of virtual social space, which I will try to identify and adapt for teaching. Perhaps if I go where my students are, they will move closer to where I’d like them to be.

David M. Perry is an associate professor of history at Dominican University, in Illinois.
Until recently, I had two strict rules about cellphone use during theater classes and performances: no cellphones in the classroom, and no cellphones during the show. But since today’s students are rarely separated from their cellphones, I began to wonder if there was a way to tap the technology for artistic purposes.

I had heard of a symphony that instructed its audience to keep cellphones turned on during performances, to be used as part of the musical presentation. I also had heard of a theater in southern Georgia that encouraged audience members to bring laptops to the show to help actors decide the ending.

All of this inspired an experiment last fall at Georgia State University, where I teach courses in acting and “Introduction to the Theatre.” For an experimental adaptation of Shakespeare’s *Hamlet* that we called *Hamlet 2.0*, we allowed audience members to keep their cellphones on during the show, and encouraged them and the cast to communicate via Twitter and Facebook during the live performance.

For this student performance, we used three screens on stage—two of them provided the location of various scenes, and one was used to post social-media messages for the audience to see. (There were several other experimental aspects of the play: We used a reverse-gender cast, without changing pronouns or titles, and all the characters’ soliloquies were projected onto one of the onstage screens.)

We assembled the cast late in the spring semester, and when we met again in June, we asked the actors to use social media to help with character development. Over the summer, they began to create Facebook pages for their characters and to encourage friends to “friend” them on their characters’ pages.

For example, Guildenstern was thought of as a party girl (remember, we reversed the characters’ genders) who would keep up with all types of reality television, so that character would “like” pages such as those of the Kardashians. The actress who played Guildenstern wrote one Facebook posting that said: “Tonight, the traffic held no compassion. I couldn’t keep up with Kardashians.”

The actress who portrayed Polonius said the use of social media provided the most thorough character development she had ever experienced. “Getting into character wasn’t something I took 20 minutes to do each night before rehearsals,” she told me. “I was constantly thinking in Polonius’s mind, figuring out what he would be doing on a casual Thursday night or which television shows he would like on Facebook.”

Cast members continued to post on their own characters’ Facebook pages and to communicate with other characters through rehearsals and, later, during performances. This was a challenge to some actors and a help to others. Polonius, for example, didn’t have much to do with the other characters, and ended up communicating primarily with his children, Ophelia.
When Hamlet was confronted by Laertes, an audience member posted a comment on Hamlet’s Facebook page warning how intimidating and powerful Laertes was.

One actor said that during performances, the live feed “forced me to stay in character even when no one could see me.” Another found that the live feed became an extension of the show. Audience members had their own take on the use of social media during the performance. Some enjoyed the spontaneity and interaction, while others found it distracting. “It made you pay attention because you had no idea what would happen next,” one viewer said.

Our experiment was intended to explore whether social media could enhance a live theatrical performance. I think social-media features can be effective for both actor and audience: They help actors develop their characters and maintain an active presence throughout the show, even when they are not on stage. And audience members can feel as if they are active participants in the creative process.

Since theater has to compete with film, television, and computers, I believe including modern social networking in theatrical productions is a risk worth taking. It may even lead to a new genre of theater.

Norman Ferguson Jr. is a visiting lecturer in the department of communication at Georgia State University.

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**THE DIGITAL CAMPUS MAY 3, 2013**

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During rehearsals actors had a chance to get used to the idea of using Facebook during a performance and to incorporate Twitter as well. We also had to work through a few technical snafus. We discovered early on that when characters posted on Hamlet’s Facebook page it was projected on the big screen, it would not automatically refresh. We decided that Hamlet would have to refresh her own page live but instead would go to a different part of the stage to update Facebook using a computer on a desk. Once the actors got used to the idea of texting and posting, they used this technology to comment and contribute to the action on stage.

For example, when Hamlet was having personal issues with her father, another character would offer encouragement via Twitter, which would appear on the social-media screen. And when Hamlet was confronted by Laertes, an audience member posted a comment on Hamlet’s Facebook page warning how intimidating and powerful Laertes was.
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