

Charting the Course and Tapping the Community:

The EDUCAUSE Top Teaching and Learning Challenges 2009

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Before an audience of his peers at the EDUCAUSE Annual Conference in October 2008, Barron Koralesky, the associate director of Information Technology Services at Macalester College, began to define a problem. As he noted: “[It] wakes me up at night and gets me in to work in the morning.” His problem? Encouraging faculty adoption and innovation in teaching and learning with information technology.

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Keeping faculty one step ahead of emerging technologies—and providing them with the support to manage what often feels like a rising tide of new tools and learning research—can indeed be difficult. Managing the widening gulf between early adopters and less technologically savvy faculty can be downright frustrating. And then there's the delicate balance needed between promoting technology tools and encouraging *teaching and learning* with technology.

Koralesky's problem was quite common among the sea of faculty, instructional designers, and librarians attending the session. So too were the other problems the panelists shared at the "Top Teaching and Learning Challenges 2009" brainstorming session at the annual conference: problems ranging from cultivating successful learning environments and developing 21st-century literacies to breaking through to today's text-messaging students. Though these issues are described with various phrases—"learning spaces," "information literacy," "Net Gen learners," "faculty development"—they dominate the pages of EDUCAUSE conference programs and professional publications. The same problems, it seems, have been waking all of us up at night for a long time.

A New Community Effort

Members of the EDUCAUSE community are challenging themselves to take action and work together to generate a network of solutions that reflect "uncommon thinking for the common good." Through focus groups held during the summer of 2008 and with virtual brainstorming and survey participation by the wider teaching and learning community throughout the fall, EDUCAUSE embarked on the task of identifying "The Top Teaching and Learning Challenges," with the final list released in January 2009 (<http://www.educause.edu/eli/challenges>).

Surfacing the issues was only the beginning of the conversation, however. The Challenges project is designed to be an experiment in community interaction and participation, in organizing peers to develop solutions and approaches that can be shared across geographic boundaries and institutions. The list of



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challenges is merely the agenda, set by the community. The true focus of the Challenges project is on knowledge-building: challenging higher education not only to list the issues but also to put the power of collective intelligence into action to address those issues.

The Challenges project thus represents a shift in member engagement. Instead of "pushing out" content through webcasts, white papers, or articles, the Challenges project "invites in" content from members, asking the community to contribute ideas and solutions or to participate in "lightning-round" presentations. This is a shift reflected in the growing Web 2.0 culture. Whereas Web 1.0 was characterized by the ability to search for information,

Web 2.0 has focused on the ability to contribute information and add to dialogues through rich tools like wikis, blogs, and social networks.

EDUCAUSE is reflecting on that sea of change, moving from a model of content delivery to one that emphasizes member interaction and engagement. It's a change built on the premise that individual members have much to gain by learning from one another—by listening to each other's ideas and by adapting strategies from peer institutions to their own campus. The Challenges project is designed to be a conduit for this interaction, providing an open opportunity and venue for members to share and collaborate for the common good.

The Project Design

The first phase of the Challenges project—conducted from August 2008 to January 2009—centered on identifying the top issues that would later become the focal point for community building. Through interactive focus groups in Adobe Connect, an online survey, and face-to-face brainstorming sessions at the 2008 EDUCAUSE Annual Conference, EDUCAUSE solicited feedback from members: What are the big issues dominating board-room conversations and meeting agendas? What challenges lie ahead for teaching and learning with technology? The initial list included more than twenty suggestions—from "cultivating global citizens" to "ensuring a line item for educational technology in the institutional budget."

As the project proceeded, online tools became the primary vehicles for generating project interest and awareness, from sending targeted e-mails to EDUCAUSE members to dispersing messages across the blogosphere, Twitter, and a Ning network.¹ Through a community ranking process, the community narrowed the list of twenty down to fifteen. Using an online ranking system, the community then whittled those fifteen down to five in a second survey in December. When the list of five challenges was released in January 2009, it held few surprises. The top vote-getters were an almost perfect reflection of the big issues that had emerged during the summer brainstorming

sessions. And they reflected the major issues that had dominated discussion sessions, webcasts, and EDUCAUSE programming over recent years. Ranked by popularity, the following are the top-five challenges for teaching and learning in 2009:

1. Creating learning environments that promote active learning, critical thinking, collaborative learning, and knowledge creation²
2. Developing 21st-century literacies (information, digital, and visual) among students and faculty
3. Reaching and engaging today's learners
4. Encouraging faculty adoption and innovation in teaching and learning with IT³
5. Advancing innovation in teaching and learning with technology in an era of budget cuts

With the list in hand, project members next turned to the task of cultivating a rich network of community solutions. The first step, however, was to create a “home” for the project—a virtual place for people to share ideas, post questions, or merely stay connected to the project. To meet that need, EDUCAUSE developed a social network dedicated to the project using Ning (<http://tlchallenges09.ning.com/>) and invited participants to create unique profiles and “join” the community. Within the interface, members could create working groups, post blog entries, start discussion threads, or simply add photos from their campus. Wikis were selected as the “workspace” for the project, a central home for all the resources generated around each challenge.

Throughout the project, “role cards” were used to solicit the names of volunteers interested in taking on leadership roles in the project. Distributed at EDUCAUSE events, the cards gave participants a chance to find their place in the project, whether that was by facilitating a discussion session, managing a wiki workspace, or serving as a content builder. The volunteers were then organized, through “role calls,” to determine lead collaborators. Those responding to the “call” self-selected tasks within the

project: developing the community’s wiki guidelines; structuring content on the wikis; writing about their campus solutions; or contacting colleagues who might be looking for co-authors to describe campus solutions.

The wikis, housed on the EDUCAUSE website (<http://www.educause.edu/wiki/TLChallenges09>), offer a place for community members to share content around each challenge, including multimedia (such as a webcast with faculty discussing institutional responses to the budget crisis), suggested readings, or “community snapshots” (brief examples of how institutions are responding to the challenges). Each wiki contribution includes the name of a contact person, helping to develop the most important resource of all: peer-to-peer engagement. As the project grows, these wikis are becoming the online repository for the community’s ideas.

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Taking the Long View

Since its beginning, the Challenges project has been promoted as an experiment in community interaction and participation. The word *experiment* is significant. Although the Web 2.0 culture celebrates participation and seeks to harness the “wisdom of crowds,” many in the higher education community have remained ambivalent about the true power of collective intelligence on the web. Wikipedia, long regarded as the poster child for collective intelligence on the web, has been both panned and praised for its desire to hand the reins of knowledge creation over to the masses. Online repositories for course content have grown steadily in recent years, but faculty often rebuff attempts to share their content freely, concerned for their intellectual property and by questions of attribution.

The Challenges project also serves as a medium for mentoring and professional development. As members of the community raise their hands to volunteer for project roles, they also are volunteering to mentor a colleague or are seeking mentorship. The project affords opportunities to work with someone from another institution to collect and build content or to facilitate discussion sessions at conferences.

The Challenges project experiment will test the willingness of the EDUCAUSE teaching and learning community to work and learn, as a unit, toward common solutions. Early enthusiasm has been high, but the on-the-ground solution-gathering has only just begun. As the project moves forward, finding answers to the following questions will be key to the success of this experiment:

- What avenues—online wikis? face-to-face discussion sessions? virtual social networks?—will be most successful for harnessing communal wisdom?
- How will community members choose to participate? As lurkers? As contributors? As active leaders in the project?
- Will institutions be eager to share their solutions?

We may already have begun to answer the last question. Since we opened the

wikis in February 2009, numerous “community snapshots” have been contributed, spotlighting the ways that institutions are addressing the top challenges on their campuses. From mashup contests that introduce students to and engage them in digital media creation to a summer “camp” that offers faculty development, the following offer a preview of the “uncommon thinking” that is being shared by the community.

Challenge #1: Creating Learning Environments That Promote Active Learning, Critical Thinking, Collaborative Learning, and Knowledge Creation

*Immersing Faculty in Smart Classrooms:
University of California, Santa Barbara*

The Instructional Technology Group in the Gevirtz Graduate School of Education at the University of California, Santa Barbara, has provided faculty with a “next-generation smart classroom” to use and experiment with current hardware, software, and functional room controls to improve the teaching and learning process before the installation of classrooms in the new Gevirtz Graduate School of Education building, opening in the summer of 2009.

These technology-rich rooms include short-throw interactive whiteboards, “huddle” boards, document cameras, student response “clickers,” and multiple computer-control panels (for up to three projection stations), as well as a faculty development and training program, ongoing faculty support with a graduate assistant in technology use, regular faculty demonstration colloquia, moveable furniture, and facilitated faculty user groups. Faculty have commented that using the “smart” rooms has changed their teaching, increased opportunities for student engagement, improved the use of open-ended projects and problem-based learning, and allowed for significantly greater opportunities for student learning and for building meaning. As one faculty member stated: “In the last fifteen minutes of class I asked students to ‘step back’ and review their learning experience that day . . . to ‘process’ the class in this new room. Discussion turned to



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the utility of access to the technology and laptops in class, and one student ‘confessed’ that she, in fact, used her laptop to ‘surf cyberspace’ on issues not related to class. But she also claimed that she did this probably less than she would have if she had not had access to the other technology and that, having

access, she felt a ‘moral compulsion’ to pay attention more than she would have without it.”

*Inviting the Community into the Classroom:
Washington State University*

In her blog *E-Portfolios for Learning*, Helen Barrett talks about lifelong and life-wide portfolios both as an opportunity for storytelling and as a personal learning environment. Barrett begins from a hypothesis that we will soon have cradle-to-grave portfolios, with our artifacts scattered “in the cloud.” Likewise, John Bransford, the co-director of the Learning in Informal and Formal Environments (LIFE) Center, has diagrammed the small fraction of our waking lives that we spend in school, as compared with the other places where we are learning.

Combining that thinking, the Center for Teaching, Learning, and Technology (CTLT) at Washington State University (WSU) has been viewing portfolios as workspaces, akin to a personal learning environment, and as hub-and-spoke models for course designs that would “dock” a course within a student’s portfolio. Yet the problem remained of how to manage the assessment of student work in a fluid environment. To meet that need, CTLT Director Gary Brown introduced the term “harvesting gradebook” to describe the gradebook that faculty need for work in these decentralized environments. As originally articulated by Brown, the gradebook “harvested” student work, storing copies of the work within the gradebook, where the work was assessed. On further discussion, the concept became inverted: assessments were “harvested” from the student work, which remained in situ.

The concept was initially tested in an upper-level apparel merchandising class. Fifteen teams of students used WordPress blogs to create electronic poster portfolio presentations for midterm and end-of-term assessments. The posters were evaluated by a group of faculty members and also by outside industry professionals, from a rubric modeled after WSU’s critical and integrative thinking rubric. In the end, both the faculty members and the outside professionals praised the project

for its ability to harvest feedback from reviewers across geographic boundaries, creating a personal learning environment that delivered authentic feedback from the community. From the experience, CTLT staff hypothesize that instructors can move toward facilitating rich feedback and away from providing all of the feedback—a very engaging situation.⁴

*Supporting Blended Learning:
University of Wisconsin-Milwaukee*

The University of Wisconsin-Milwaukee (UWM) developed the Blending Life and Learning initiative to offer degree and certificate programs with flexible class schedules that combine face-to-face, fully online, and blended courses. Blended courses replace a portion of traditional face-to-face classroom time with online assignments and activities. The UWM Learning Technology Center (LTC) provides faculty with opportunities to develop their courses for blended teaching and learning.

In blended courses, instructors have found that their role as teacher becomes more facilitative and learner-centered. As faculty move to active, student-centered teaching and learning, LTC staff suggest methods of authentic assessment that apply to the instructor's own disciplinary and programmatic needs and focus on critical thinking. Staff advise faculty on ways to promote engagement both online and in the face-to-face classroom, particularly with the goal of developing a peer learning community that employs collaboration to complete its learning activities. Finally, LTC staff acquaint faculty more fully with the pedagogical implications of using different types of media, such as digital and/or visual.

One faculty member reported: "My students have done better than I've ever seen; they are motivated, enthused, and doing their best work." Students are enabled to develop higher-order skills of critical thinking and problem-solving, and they are challenged to apply theoretical models to real-world data. Overall, the LTC supports faculty in their deployment of innovative learning environments that meet the newly emerging standards of 21st-century education.

**Challenge #2:
Developing 21st-Century Literacies
(Information, Digital, and Visual)
among Students and Faculty**

*Putting Digital History in the Hands of
Students: University of Mary Washington*
Jeffrey McClurken's undergraduate "Digital History" seminar at the University of Mary Washington (UMW) addresses the challenge of developing 21st-century literacies among students by engaging students in the process of creating digital history. The course readings, workshops, and discussions expose students to the

The class emphasizes the process of creating and presenting historical information in ways that are engaging and accessible, visual and textual, but it does not focus on learning specific tools or software packages.



philosophy and practice of the emerging field of History and New Media (<http://digitalhistory.umwblogs.org/>). In its most recent iteration, the course centered on four digital history projects, all of which were related to making local and institutional resources available in persistent, accessible forms. These projects created (1) a digital archive for the James Monroe Presidential Papers, (2) a site expanding on the Virginia state historical markers in the area, (3) an electronic document and video archive for the civil rights leader (and UMW professor) James Farmer, and (4) a digital exhibit of the school's centennial, told through newspaper excerpts and alumni video interviews.

Given just broad outlines for their topics and a basic introduction to Web 2.0 tools, the undergraduates (junior and senior history majors) designed, wrote contracts for, and created the projects largely as independent groups. They used a "digital toolkit"—an assortment of open-source or freely available tools (mainly the UMW blogging platform, Omeka, Google Docs, MIT's SIMILE Exhibit and Timeline, and Windows Movie Maker)—which was demonstrated to them in the first weeks of class. Students chose their tools based on the projects they wanted to create and what they were able to learn. The class emphasizes the process of creating and presenting historical information in ways that are engaging and accessible, visual and textual, but it does not focus on learning specific tools or software packages. Students thus learn that 21st-century literacies require the ability to adapt to new tools and approaches, as well as a willingness to experiment and play, but with a continuation of the long-held practices of rigorous research and scholarship.

*Peer-to-Peer Tutoring with Literacies in Mind:
Dartmouth College*

The Student Center for Research, Writing, and Information Technology (RWIT) at Dartmouth College is a peer-tutoring service that assists students with writing, research, new media compositions, and career and professional documents, encouraging 21st-century literacy skills in all of these areas (<http://www.dartmouth>

.edu/~rwit/). As a program, it mentors student staff in developing their teaching and interpersonal skills. For clients and staff, RWIT integrates and supports the learning process in three core domains: writing, research, and new media composition. RWIT's tutors assist all of Dartmouth's students, including graduate and ESL (English as a Second Language) students, with all stages of the composing process.

RWIT originated in 2003, out of a collaboration among the Composition Center, the Library, and Academic Computing. Today RWIT is administered by a team that includes faculty and staff from the Institute of Writing and Rhetoric, the Library, and Academic Computing. A small number of students, called "junior staff," assist the administrators with hiring, training, and mentoring tutors and perform limited operational duties. The junior staff members—who are, in most cases, seniors at the college—include a head tutor, a chair of recruiting and hiring, a special projects coordinator, and a head writing assistant, who serves RWIT's companion program, the Writing Assistance Program.

To become an RWIT tutor, new student staff must complete eighteen hours of basic training, which features ways of diagnosing and responding to student text (papers, research projects, and new media compositions). The training agenda includes sessions on writing pedagogy, library research, and composition in such common applications as PowerPoint and iMovie, as well as sessions on the affective issues in tutorial, style and tone in written commentary, grammar and style, plagiarism, use of graphics, and so on. RWIT training employs active learning strategies. Staff members continue their professional development by attending four to six hours of ongoing training sessions in each term that they work for the center. Senior staff design and conduct these sessions in RWIT's core and auxiliary domains: research (e.g., citation); writing (e.g., grammar and style); information technology (e.g., video project critiques); English as a Second Language (e.g., cultural awareness); and career and professional documents (e.g., résumé review).

An Open Invitation

If your campus is making significant strides toward addressing one of the EDUCAUSE Top Teaching and Learning Challenges for 2009, or if you have an idea for an approach that falls outside the box, EDUCAUSE invites you to contribute to the wikis and join the Ning community. You can submit a "community snapshot" that offers a brief look at your campus project, or you can identify yourself as a content expert willing to help others. You can suggest readings, write a case study, or point to a video or webcast at your institution. Regardless, this project is about *you*—your contributions, your ideas, your needs, and your agenda.

To learn more, visit the EDUCAUSE Challenges website:
<http://www.educause.edu/eli/challenges>

Many business majors find themselves managing portfolios throughout the semester and interacting in situations that are similar to those found on an active trading floor.



Challenge #3: Reaching and Engaging Today's Learners

*Hands-on Simulations for Next-Gen Learners:
The Pennsylvania State University*

At The Pennsylvania State University, real-life simulations are proving to be a dynamic way to engage today's learners while helping them to understand the value of the material being presented. The Trading Room in the Smeal College of Business (<http://www.smeal.psu.edu/traderoom>), for example, includes real-time ticker data and stock boards, as well as the computer systems and software needed for simulated stock-trading. Many business majors find themselves managing portfolios throughout the semester and interacting in situations that are similar to those found on an active trading floor.

Another hands-on simulation that takes place in many supply chain, business, and executive education courses at Penn State is the Beer Game (<http://www.beergame.org/>). Created by a group of professors at MIT in the 1960s, the Beer Game simulates the supply chain of beer through the factory, distributor, wholesaler, and retailer stages. Students typically work in pairs, with eight to twelve people per supply chain. The groups at each stage must make sure to keep beer in stock without crowding the warehouse. The "bullwhip effect" takes place when

orders spike or drop, creating instability in the overall system. A debrief occurs at the end of the game, for students to formalize their understanding of supply chains, business decisions, and outside influences on their positions.

In both of these simulations, students are drawn into the dynamic, “real-life” approach to authentic curricular activities while learning—through doing—how to manage complex problems and portfolios.

*Mashing Up Digital Media Creation:
Bucks County Community College*

Building on the work of Anu Vedantham, the director of the David B. Weigle Information Commons at the University of Pennsylvania (<http://wic.library.upenn.edu/mashup/>), Bucks County Community College in Newtown, Pennsylvania, is sponsoring the 2009 Bucks Global Video Mashup Contest to engage students in learning and to develop their awareness and understanding of new media

literacies. Students in an introduction to marketing class created an initial mashup video to introduce the contest and demonstrate the genre. Now, Bucks students are encouraged to create their own four-minute video—an editorial, documentary, or parody—that speaks to “any issue that is impacting our world today.” First-, second-, and third-place winners will receive a free three-credit course, a flip video camera or an iPod, and a \$75 gift certificate to the college bookstore, respectively.

A blog for the contest (<http://bucks-mashup.blogspot.com/>) includes tips for creating mashups, an example mashup that probes fair use, and a code of best practices for fair use in mashups. The project is designed to foster student creativity, to raise awareness around multimedia projects, 21st-century skills, and digital literacies, and to create a rubric for assessing video projects.

Faculty responsiveness has been high across the curriculum, indicating that

faculty are eager to innovate in teaching and learning with technology and that they are committed to engaging student learners. Mashups represent an effective way for students who are not yet confident writers to seek, evaluate, and process information and to create knowledge in ways that are meaningful but that reduce some of the fear that many associate with writing assignments.

Challenge #4:
Encouraging Faculty Adoption and Innovation in Teaching and Learning with IT

*Sending Faculty to Camp:
University of Indianapolis*

The University of Indianapolis hosts week-long Summer/Winter Camps to help encourage technology adoption and innovation among faculty. Current faculty serve as “Camp Counselors,” demonstrating how they have integrated various Web 2.0 technologies into their teaching. This

year's Winter Camp, for example, introduced faculty to micro-blogs, social bookmarking, start pages, aggregators, wikis, blogs, collaborative tools, chat tools, social networking, and associated applications. The Web 2.0 topics were presented during morning sessions, and discussion continued with Camp Counselors dispersed across various tables during a shared lunch. Afternoon sessions were devoted to hands-on activities, with assistance provided by Camp Counselors.

Camp Survival Kits were also distributed, including resources such as the *7 Things You Should Know about...* series from the EDUCAUSE Learning Initiative (ELI) and the ELI Discovery Tool *Applying Technology to Teaching and Learning*. Related articles from *EDUCAUSE Review* and *EQ* were also included, along with software quick-tip guides. A wiki was created to house camp materials, and a social networking site was used to promote use of the tool and to maintain longer-term contacts.

On the final day, camp attendees were invited to participate in a Camp Revue, showcasing the various projects they had created during the week. The campus community was invited to attend. The university also created a Web 2.0 community of practice that meets twice monthly to showcase and discuss current developments with the integration of Web 2.0 technologies into their teaching. The camps have enabled the university not only to introduce the tools to the faculty but also to develop a sense of community and continued support long after the camp session has officially ended.

Inspiring Innovation through Faculty Institutes and Showcases: Drexel University

Drexel University's Office of Information Resources and Technology (IRT) takes a proactive and ambitious role in introducing faculty to existing and emerging technologies for teaching and learning—technologies that they can integrate into face-to-face, hybrid/web-enhanced, and online undergraduate, graduate, and certificate offerings (<http://www.drexel.edu/IRT/>). IRT provides regular one-on-one, half-day, full-day, and brownbag training sessions. Additionally, as an institutional advocate for innovation in program de-



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livery, instruction, and student engagement, IRT has developed three annual events: the Institute on Innovation; the Faculty Technology Showcase; and the e-Learning 2.0 Conference.

All of these events introduce faculty to current and emerging technology topics, demonstrate new technologies and active learning strategies, and encourage faculty to showcase technology integration in courses/programs. As each academic year opens, IRT hosts the Institute on Innovation. This two-day institute offers three-hour courses on technology-related topics of interest. The 2008 Institute on Innovation provided courses for faculty, educators, and trainers interested in mov-

ing instruction to online and/or hybrid/web-enhanced formats. Later in the fall quarter, IRT hosts the Faculty Technology Showcase. For this event, faculty present on how they are incorporating technology into courses and demonstrate a myriad of applications supported at Drexel. In the spring, IRT hosts the regional e-Learning 2.0 Conference. For this event, which was hosted in March 2009, faculty share best practices and creative approaches for utilizing current/emerging technologies to optimize instruction and engagement. This event garners regional participation and attendance, so faculty can meet and collaborate with practitioners from different institutions, organizations, and corporations.

IRT records the majority of all event presentations and makes them available online for those who are unable to attend. Importantly, all events incorporate evaluation for continuous quality improvement.

Challenge #5: **Advancing Innovation in Teaching and Learning with Technology in an Era of Budget Cuts**

Breaking It Down over Breakfast:

Michigan State University

To help provide a low-cost institutional opportunity for ongoing professional development, Virtual University Design and Technology (vuDAT) at Michigan State University (MSU) has been convening a series of monthly breakfast meetings to introduce faculty and graduate students to new practices in teaching and learning with technology.

These breakfast meetings answered a simple problem on campus: a venue was needed to put faculty members in front of other faculty to share best practices in online teaching and to showcase the innovation taking place in online classrooms around campus. An advisory board of faculty members and organizational staff decided on a solution: a monthly series of one-hour talks and demos on best practices in online and blended pedagogy, given by faculty members and/or instructional technology staff implementing effective or innovative technologies, with breakfast served and time for discussion.

The Breakfast Series is open to anyone who is interested, but it is generally marketed to faculty, instructional technology staff, and graduate students. The meetings are run by a vuDAT staff member, who markets the event, coordinates speakers, reserves room space, organizes archival media collection (such as video), gathers feedback data, and produces and posts the archived video and podcasts. Another vuDAT staff member purchases food for the event (generally bagels, cream cheese, and a fruit option, along with juice and coffee) and helps with the set-up on the day of the event. The MSU Library provides the space in which the event is held, and two library staff members assist with the coffee service and audio recording.

This solution is extremely customizable, sustainable, and highly valuable. The Breakfast Series is more than just a speaking event: the question-and-answer sessions tend to evolve into a community of practice, with faculty members interacting not only with the speaker but also with each other; groups tend to linger in conversation afterward, exchanging business cards and ideas; and opportunities to line up speakers for future events tend to arise. In addition, this solution is highly malleable, lending itself well to monthly, bimonthly, or per-semester scheduling, and it could adapt well to any institution.

Leveraging Internet2 to Partner College Students and K–12 Teachers:

Montgomery County Community College

In the fall of 2008, Montgomery County Community College, with campuses in Blue Bell and Pottstown, Pennsylvania, piloted a program in which education majors observed real-time elementary school language arts instruction without leaving campus. Using Internet2, students were linked into kindergarten, first-grade, and fourth-grade classrooms at a nearby elementary school. Classroom observation is at the core of the college's education curriculum, and the Internet2 pilot enabled students to observe the same class at the same time, proving to be an invaluable teaching and learning tool.

According to Debbie Levin, a professor and the coordinator of the college's education program, usually only one to two students can observe a class in person

at any given time. Furthermore, because each student has a different experience at his or her site, it is more difficult for a professor to use those experiences collectively as a teaching and learning lesson back on campus.

The Internet2 pilot changes all that. Because Internet2 allows for two-way audio and video interaction, many of the elementary teachers engage in question-and-answer sessions with the college's students after their lessons. Moreover, school districts are enthusiastic about classroom collaboration with the college because it gives their teachers hands-on experience using the technology.

In addition to being an invaluable teaching tool, Internet2 classroom obser-

Because the college already uses Internet2 for other programs and activities, there is no additional cost associated with using it in the education curriculum.



ations allow savings in cost and energy. Because the college already uses Internet2 for other programs and activities, there is no additional cost associated with using it in the education curriculum. And because students are required to complete a certain number of hours in classroom observation, it reduces the college's carbon footprint by reducing the number of trips to off-campus sites. Montgomery County Community College continually reviews new uses of currently owned technologies as a way of containing costs while continuing to support and improve the teaching and learning environment.

A Network of Solutions

Although the EDUCAUSE community has chosen the Top Teaching and Learning Challenges for 2009 and contributors have started to edit the wikis, the real work has just begun. The door remains open for more involvement by both individuals and institutions. The Challenges project was created to build a network of community-generated ideas and solutions, with EDUCAUSE serving as the community conduit. Meaningful impact will require contributions from across the community—from land-grant institutions, private liberal arts colleges, research-intensive campuses, and community college systems. As the Challenges community grows, so too will the impact of our collective contributions and the opportunities for significant solution-building.

Notes

1. Perhaps unsurprisingly, last-minute messages on Twitter and Ning prompted the number of votes in the final community poll to double overnight.
2. For more discussion of this challenge, see the ELI Advisory Board, "Opening up Learning: From Spaces to Environments," in the Viewpoints department of this issue (May/June 2009) of *EDUCAUSE Review*, and also the "Learning Spaces" theme issue (March/April 2009) of *EDUCAUSE Review*.
3. For more discussion of this challenge, see Veronica Diaz, P. B. Garrett, Edward R. Kinley, John F. Moore, Celeste M. Schwartz, and Pat Kohrman, "Faculty Development for the 21st Century," in this issue (May/June 2009) of *EDUCAUSE Review*.
4. For more information, see Gary Brown, Nils Peterson, Meriem Chida, and Theron Desrosier, "ePortfolios, the Harvesting Gradebook, Accountability, and Community," *Campus Technology*, February 4, 2009, <<http://campustechnology.com/articles/2009/02/04/eportfolios-and-communities-of-practice.aspx>>.