New ways for students to represent learning: Implementing what we’re discovering from the science of learning

Anyone who has taught more than a couple years has seen teaching fads come and go. Some new strategies have been shown to be effective ways to improve student learning; others have been quite questionable.

The work that John Bransford has done on the science of learning goes well beyond teaching fads, and it has important implications for higher education.

In *How People Learn: Brain, Mind, Experience, and School*, Bransford and his co-authors report, “There is a good deal of evidence that learning is enhanced when teachers pay attention to the knowledge and beliefs that learners bring to a learning task, use this knowledge as a starting point for instruction, and monitor students’ changing conceptions as instruction proceeds” (p. 11). Furthermore, the authors note that “the emerging science of learning underscores the importance of rethinking what is taught, how it is taught, and how learning is assessed” (p. 14).

This issue of *Teaching Matters* focuses on one piece of assessment—how students can represent their learning. Traditional forms are well-known to us: examinations, term papers, lab reports, etc. As several authors in this newsletter indicate, it is important for students to be able to communicate their understanding in various modes for various audiences. While there is value in students learning to write academic-style papers, most graduates of our programs will need to communicate what they know and understand in other ways, as well.

Which brings us to this new, leaner format for *Teaching Matters*, which we’re publishing primarily online now. We’re offering by request a print version we’re producing in-house. If your department has an Ambassador, you’ve received information about getting a hard copy. If your department doesn’t have an Ambassador and you’d like a hard copy, e-mail a note to cte@ku.edu. And let us know what you think of this new format. Your feedback will help us continue to make *Teaching Matters* a newsletter that’s worth reading.

Special thanks to Meghan Kuckelman for the newsletter redesign.

—J. Eddy
Translational communication: Better learning for students, more opportunities for instructors

Students typically write academic-style papers to summarize, integrate, and apply what they have learned from their research into scholarly knowledge. Our writing format is a fine tradition, and we should make sure that form survives with another generation of young scholars. Still, there are good reasons for KU faculty members and students to expand their repertoires for articulating what we know. Scholars everywhere are called upon to contribute to public discourse, so we need writing styles that are accessible and interesting to the audiences for our analyses. Students routinely use many forms of writing and multi-media, and they seem most engaged in research when they can present it in a format that connects to their world. In addition, our composition studies colleagues note that a sophisticated writer communicates fluently in multiple genres, so there is a general intellectual benefit from practicing cross-genre communication.

In a KU psychology course students are writing advice columns for parents, and in a political science course students write op-ed pieces on international policy. These assignments require the usual rigorous reading and analysis of scholarly research, but the students engage in translational writing for a different purpose or audience, rather than replicate the academic discourse of their sources. In history and communications classes, students play the role of classical historical figures at key moments of public debate and decision; they spend out of class time on research to inform their performance in the role-playing game. In classes in urban planning and in women’s studies, students research topics in the usual way, but they report the results of their studies in short video presentations, mixing images, text, and sound into digital stories. These and many other examples show the range of communication genres available to KU students and faculty alike.

These new approaches provide a wonderful opportunity for collaboration among faculty members from different programs. A history professor may not be prepared to coach students in developing oral arguments for a two-state solution at the end of British rule in India, but a colleague in communication studies could help with assignments that would bring students along. Similarly, a psychology professor can learn from someone in broadcast journalism about effective ways to get a rich understanding across in a short digital story. The benefits go both ways, however, as an historian or a psychologist can help students in speech or journalism learn to read and synthesize complex research, capturing deeper lessons, not just the surface.

For all of us, this promises to be a terrific area of collaboration in the coming years. We can help energize students by giving them choices about genres of articulating intellectual understanding, while we also learn skills in translational communication that could be useful for our own lives as scholars participating in public discourse.

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This semester, CTE will host three mini-workshops on ways to be efficient with your time for teaching, as well as four Lunch & Conversations. All sessions will be held at CTE in 135 Budig Hall.

September 15, 3 - 4 PM: Making the Most of Your Time for Teaching
"Small Change, Big Results." Discover how to use one option for not only improving learning but also moderating prep time for class: redirect class time from lecturing to group activities.

September 21, 12 - 1 PM: Lunch and Conversation
"Options for Civility Issues." How the Student Conduct Review Team can help with issues regarding a student’s behavior, including early detection and assessment, resource referrals, and consultations on safety concerns.

September 23, 3 - 4 PM: Making the Most of Your Time for Teaching
"Teaching Efficiently." Discussion will focus on a time-management tool for balancing your time for teaching, research, and service.

October 2, 12 - 1 PM: Lunch and Conversation
"Asking Questions About Student Learning." How faculty members in the Kress Foundation Department of Art History were able to use what they already do to identify program goals, articulate skills they expect of graduates, and determine where they would find evidence of students’ accomplishments within their major.

October 8, 3 - 4 PM: Making the Most of Your Time for Teaching
"Improving Learning in Large Classes." How to develop instructional partnerships, which increases resources and support for students without increasing instructor workload.

October 22, 12 - 1 PM: Lunch and Conversation
"Integrative Learning." The Department of Geology has identified a key integrative skill in their undergraduate major, and it has used this work to identify strengths and weaknesses in students’ understanding. Learn how your department can benefit from their findings.

November 10, 12 - 1 PM: Lunch and Conversation
"So You’re Teaching a Class Online." A mini-workshop for instructors who are teaching online for the first time. Co-sponsored by CTE and Instructional Development and Support.

No registration. Lunchtime sessions are brown-bag; we’ll provide beverages and treats. All sessions are open to faculty, instructors, and GTAs.

CTE to host reading circle on Our Underachieving Colleges

Faculty members, instructors, and GTAs are invited to participate in a reading circle that will meet at CTE on Friday, Nov. 6, from 8–9:30 a.m. The group will discuss chapters from Derek Bok’s book, Our Underachieving Colleges. If you would like to participate, contact Judy Eddy at jeddy@ku.edu by Oct. 1 for a copy of the book.

Synopsis: Drawing on a large body of empirical evidence, former Harvard President Derek Bok examines how much progress college students actually make toward widely accepted goals of undergraduate education. Bok also describes the changes that faculties and academic leaders can make to help students accomplish more. Without ignoring the contributions that America’s colleges have made, Bok delivers a powerful critique—one that educators will ignore at their peril.
When I told colleagues that my students were going to reenact the French Revolution in my Spring 2009 undergraduate history class, my plan elicited a predictable quip: “Are you losing your head?”

Maybe. I was experimenting with Rousseau, Burke and Revolution in France, a game from the Reacting to the Past series originally masterminded by Barnard history professor Mark Carnes. Since the mid-1990s, Carnes and a team of collaborators have been singing the praises of role playing as a powerful spur to student learning. The Reacting series now includes nine intricately choreographed simulations intended to immerse students in debates drawn from key moments of historical ferment. Every student is assigned a role, complete with a position to defend and victory objectives to pursue. Fueled by reading in primary and secondary sources, students might become a seventeenth-century cleric defending Aristotelian science against the ostensibly heretical views of Galileo, or a Sikh trying to protect co-religionists during the post-WWII discussion about the fate of India. Instructors, for their part, also take on a new role. They become “gamemasters,” present during class mainly to observe and clarify procedures, but working intensely behind the scenes to push students toward deeper reflection on the knotty issues under debate.

Sitting in the back of my own classroom meant evaluating my students’ learning from a different vantage point. The start was rocky, as students were uncertain and initially reluctant to take charge of their “National Assembly.” But the game finally hooked nearly everyone. Attendance was high, even as April weather beckoned. The classroom became the scene of drama, suspense, and laughter as students voted to depose their king and reconstruct France as a republic.

My students were having fun, but were they learning? My skepticism started to melt when a student broke character one day to announce, “I just don’t get this general will concept from Rousseau. It seems like it just opens the door to liquidating anyone who disagrees with you.” I had to smile; the mechanics of the game had brought him to a visceral understanding of an important scholarly argument about the Revolution.

In my classroom, Reacting inspired my students to learn demanding material and put their knowledge into action. It also helped them appreciate the complex ideological pressures that shaped—but did not fully determine—how a specific moment in history unfolded. The tendency of role play to dissolve the analytical distance between students of history and the object of inquiry has, arguably, both a positive and negative side. Next time, I’ll tweak the game to ensure students have more time to step back from their roles and re-engage with the past as past. But for anyone who values imaginative, empathetic engagement with the cares of people long dead, role play exercises like Reacting can be—pardon the pun—a revolutionary teaching experience.
Cognitive Development (PSYC 430) is a survey course on the mental changes that take place from birth through adolescence. One course requirement is to write a paper on a cognitive development topic using primary research sources. The paper takes the form of a hypothetical advice column in a parenting magazine. Students are presented several “reader questions” related to cognitive development and are instructed to write a response to one of these questions using psychological research. The project is designed to integrate a number of skills; students must identify and locate appropriate sources, read and evaluate psychological research, apply their research findings to real-world situations, and write a clear and cohesive response to the question.

When I first taught the course in 1999, I found that students had a difficult time identifying and evaluating scholarly sources. They also had difficulty reading, analyzing, and integrating the information provided by empirical articles, and many struggled with basic writing mechanics. Because the writing task is “real-world,” student interest in the assignment is high. The challenge I faced was helping students read, understand, and use psychological research. Thus, across several offerings of the course, I made a number of changes to the term project, including breaking the assignment down into multiple subcomponents to be completed throughout the semester.

There were several indications that the latest course modifications were successful. Not one student required individual assistance locating and selecting his or her empirical resources this past semester, and no one submitted articles from inappropriate sources (e.g., popular media). I was very impressed with the insightful and constructive feedback students gave each other during the peer review process; most students provided high-level comments on their peers’ writing mechanics, clarity, detail and conclusions.

For more information about this teaching project, see my e-portfolio on CTE’s website: www.cte.ku.edu/gallery

Digital stories as a medium for social change

Personal storytelling could be a medium for social change. This is the idea that the Center for Digital Storytelling advocates and one of the reasons I developed the Digital Gender Story Project assignment for my course, Introduction to Women’s Studies (Honors). Students worked on this project for an entire semester. They had the opportunity to choose whatever stories they wanted to tell that would allow them to make visible how gender, as it intersects with other categories of identity such as race, sexuality, class, nationality, ability, and age, shapes their lives. I asked them to contextualize their stories within the larger institutional structures of (hetero)sexism, racism, etc., and to see their own agencies in negotiating these social hierarchies. It was a big project, so I divided it into smaller steps: taking photographs, writing an analytical paper, attending visual literacy and film-making workshops, presenting unfinished version of their digital project in class, and meeting with me to discuss their progress throughout the semester.
Although it was a complex assignment, I was pleasantly surprised to see how students’ projects turned out and how enthusiastic they were about them. I asked them to produce a six-minute project; some ended up submitting 20-minute films! They took pride in their projects when they showed them in class and to a group of faculty members at a special session at CTE. They also helped each other and shared whatever knowledge they had about the software. Hence healthy competition and productive collaboration were the dominant modes of interaction among students, and clearly the digital project helped shape such an environment. But when a student mentioned that the project allowed her to embark on a journey that is part of a long-overdue emotional healing process that involves social activism, I was speechless.

The goal of the KU EcoHawks student project is to design a production quality, fuel neutral series hybrid vehicle using the tenets of sustainability, which include applying engineering principles to solving real-world problems by focusing upon the interconnectedness of the environment, energy, economy, education and ethics. To date, students have recycled a 1974 Volkswagen Super Beetle and incorporated a generator running on 100% biodiesel from used campus cooking oil as part of the KU Biodiesel Initiative. The generator fills lead-acid batteries that move the vehicle by powering an electric motor connected directly to the original transmission. This system permits exchange of the installed power generation unit for another that operates using a different fuel (ethanol, CNG, etc.), allowing for flexibility according to local energy infrastructure and future fuel availability. Theoretical computations indicate the vehicle should achieve over 50 mpg, an 80% increase over the original design. Renovating this vehicle resulted in CO2 reductions between three and 12 tons over embedded emissions from building a new car. Next, students will try to get the vehicle road-worthy to take real world data. In addition, they will make it a plug-in hybrid and build a solar energy filling station to increase mpg with an environmentally benign source.

Since this project is extremely pertinent given the national climate, students have jumped at the opportunity to learn as much as possible. Starting without any knowledge of hybrid vehicles, the students have learned theory beyond their classroom activities and applied it to a relevant product. This will benefit their future efforts by helping them learn independent of recitation and listening. In addition, by working on a tangible product that they can envision driving around Lawrence, it provides a practical outlet for information learned in their classroom activities. Finally, as illustrated by their final designs, it is evident that students are considering sustainable practices in their efforts, leading to a better-rounded engineer.