

## In This Issue

### STUDENT ACHIEVEMENT

*CTE View*—Dan Bernstein discusses the tension faculty members face when they try to meet two goals simultaneously: increase students' completion rates while also preserving the high quality of the education delivered. Page 2.

*CTE News*—This spring, CTE will host two series: "Teaching Today's Students" and "Teaching Research Methods Courses in the Disciplines." We're also hosting a new reading circle on a short article by Lee Shulman. See page 3 for details.

*Perspectives*—Two members of a CTE reading circle, Tony Rosenthal and Leslie Tuttle, talk about the issues raised by Derek Bok in *Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should Be Learning More*. Pages 4–5.

*Good Work*—Susan Zvacek highlights one way Chris Haufler is using technology in a large class. Page 6.

## Researchers report ways to meet challenges of teaching unprepared students

Students now arrive at college less well prepared than they once did. They often lack solid basic skills and now work many hours to pay for college and sometimes a car. ... Many students lack confidence in themselves as learners and do not make responsible learning decisions. ... Obviously, these descriptions are not characteristic of all students, but most faculty quickly agree that teaching college students today is far more challenging than it once was.—M. Weimer

Few faculty members disagree with Weimer's statements. KU classes often include a number of at-risk or unprepared students with inadequate reading, writing and numeracy skills, and many of these students do not succeed. Although the odds are against them, some do make it. In *Teaching Unprepared Students: Strategies for Promoting Success and Retention in Higher Education* (Stylus, 2008), Kathleen F. Gabriel reports a study by Bloese (1999) who found that when professors "treated the students as academically capable, and held them to high standards" (p. 84) in an environment of respect, all students—even the unprepared—performed at higher levels. Gabriel notes, "Thus, low retention and graduation rates for unprepared and at-risk stu-

dents can be improved, and faculty can have a major impact on accomplishing this. How professors teach and interact with at-risk students makes the difference" (p. 4).

A recent article in *The Chronicle of Higher Education* (Feb. 7, 2010) describes one approach that works. In "How Students Can Improve by Studying Themselves," David Glenn reports that researchers at CUNY's Graduate Center found that developmental math students were significantly more likely to pass an exam if they used "self-regulated learning." This technique requires students to go through a series of steps to help them evaluate how they study and notice where they are going wrong. CUNY students in composition, sociology, nursing, and mechanical engineering courses have also used the technique, with good results.

One benefit of modifying teaching for at-risk or unprepared students is that all students benefit from improving course design. To see a KU-based example, see Estela Gavosto's e-portfolio at [www.cte.ku.edu/gallery/units/math/index.shtml](http://www.cte.ku.edu/gallery/units/math/index.shtml)

—J. Eddy

Weimer, M. (2002). *Learner-centered teaching: Five key changes to practice*. San Francisco: Jossey-Bass.

## Attaining quality education via flexible paths to learning

Dan Bernstein, CTE

Years ago at another university a campus-wide teaching committee received a request from the physics and engineering departments for money to teach their own calculus courses. Their faculties lost time teaching remedial math to students who had completed the calculus prerequisite in the mathematics department, and they were confident that their students would be properly prepared if they taught the prerequisite courses.

Conversations with mathematics faculty members revealed that students who received a C in the first calculus course had only a one in five chance of passing the second calculus course. When asked about these data, one person said,

“Giving a C means please get out of math.” While colleagues in other fields may take a passing grade to mean that students are prepared for courses requiring

skill in calculus, the mathematics faculty offered a more socially constructed account of grading. With expectations from academic leaders that a large percent of students in foundational courses will pass, calculus instructors took to using partial credit and extra credit on easier material as a substitute for mastering course fundamentals.

My thoughts turned to my former colleagues as I listened to prominent speakers at a recent conference argue that our goal must be higher completion rates while also preserving high quality education. We are asked to achieve two goals simultaneously: increase the percentage of Americans who complete an undergraduate degree and assure that those students demonstrate quality skills, knowledge and understanding. How do we reconcile the ideals of policy leaders with the challenges encountered by faculty members in real learning environments?

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The mathematics professors offer a reasonable position on grading, one echoed by faculty who teach other required service courses. A primary function of giving grades is to differentiate among students, identifying who learns the fastest and the deepest. Instructors are constantly reminded about grade inflation and urged to restore meaningful spread in grades so students receive realistic feedback. We are also asked to differentiate information so that employers, scholarship committees, and providers of further education can make informed decisions. In those contexts, curve grading that reflects relative standing within a class makes sense.

A focus on comparison, however, ignores another function of grading, namely certification of accomplishment. Passing a course or receiving a degree also certifies

demonstration of qualities conventionally identified with an advanced level of skill, knowledge, and understanding. Previously our system presumed that high standards for admission into post-secondary study meant that those in the middle of the curved distribution (C students) were competent, even if not showing exceptional achievement or promise. As we have properly included most students in post-secondary education, many of us have found (like the mathematicians) that being in the middle of a distribution does not guarantee sufficient accomplishment to meet conventional quality expectations.

My analysis focuses on individual rates of learning. Course sessions proceed at a rate suited to the average student, so some students could easily learn more and faster while others cannot keep up and fall further behind until they fail.

*continued page 3*

## “Teaching Today’s Students” and new reading circle at CTE

In late February and March, CTE will facilitate six discussions for faculty, instructional staff and GTAs. No registration. Lunch sessions are brown-bag; we'll provide beverages and treats. All sessions will be held in 135 Budig Hall. Contact CTE at [cte@ku.edu](mailto:cte@ku.edu) or 864-4199 for more information.

### Teaching Today’s Students: 12-1 PM

February 24: Class Discussions: Getting Students Engaged

March 22: Designing Semester-Long Assignments

March 29: Questions About Grading in an Age of Entitlement: What’s a Teacher to Do?

### Teaching Research Methods Courses: 3–4 PM

March 1: Humanities

March 3: Social Sciences

### Lunch & Conversation: March 25, 12-1 PM

Digital Curricula at KU: Why, How, and Who Benefits?

In addition, CTE will host a new reading circle on “Excellence: An Immodest Proposal” by Lee Shulman. Bob Goldstein will lead the discussion on this two-page article on March 25, 8–9 a.m. in 135 Budig. Breakfast will be provided. If you’d like to participate, contact Judy at [jeddy@ku.edu](mailto:jeddy@ku.edu).

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## Attaining quality education via flexible paths to learning

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Forty years ago two notable educators, Benjamin Bloom and Fred Keller, developed systems of individually paced learning, asserting that learning foundational skills is necessary for successful continued learning. Their systems supported students repeating topics until well learned before moving to advanced material. Students work through courses at different rates, demonstrating learning at different times. In this system, a grade reports the final level of accomplishment, rather than students’ relative rate of learning. In principle, every student could learn all content well and receive an A. Grades sacrifice their service to differentiation in favor of certification of achievement.

How can this idea help us achieve the goals of attainment and quality? Our social, academic and economic cultures will always need some differentiation among students, so we should have both curve graded courses and courses in which high level learning is certified for passing students. Mastery learning works in foundation courses (introductory knowledge, methods, core content areas), while more variation is appropriate in ad-

vanced and specialty courses. We also need to allocate resources to design flexible learning environments that support individual rates of progress. This means rethinking faculty work so some instructors can spend more time on course design and providing individual feedback. With these changes, academic leaders can honor learning outcomes that are valuable to an institution.

A footnote: One math professor sought a solution to the second course failure problem. He concluded that mastery teaching was too much work for his entire course. Instead, he identified essential foundations for the next course and required mastery of those concepts to receive a C. The B’s and A’s went to those who successfully followed him into advanced domains. While not a perfect solution, it showed sensitivity to the issue. It is worthwhile for all of us to be clear what we mean when a student earns a C in one of our courses.

*This column originally appeared in the Teagle Foundation Liblog on February 8, 2010, and can be found at [www.teagle.org/liblog/default.aspx](http://www.teagle.org/liblog/default.aspx)*

## PERSPECTIVES

### An exchange on *Our Underachieving Colleges* by Derek Bok

*Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should Be Learning More* (Princeton University Press, 2006) was the subject of the inaugural session of the CTE Reading Circle, which took place in November. Two members of the circle, Tony Rosenthal and Leslie Tuttle, both historians, talk about the issues raised by Derek Bok, a former president of Harvard University.

Tony: I thought this was a sharp critique of the structural situation of largely autonomous professors who can afford to get complacent with teaching as a method of delivering information while they push a rigorous research agenda. Bok writes, "However much professors care about their teaching, nothing forces them or their academic leaders to go beyond normal conscientiousness in fulfilling their classroom duties." But he is careful to distance himself from other popular studies that dump on professors, and I think he has fashioned a call to arms for faculty to question what they are really accomplishing in the classroom. At one point he reviews what faculty often say about their goals and finds consensus around the idea of promoting critical thought, but then he asks, how is critical thinking being taught and how do professors know that their students are learning it? I think this has the potential to unsettle many well-intentioned teachers.

Leslie: A sharp critique, yes, but is it a fair one? Bok calls his book "*Our Underachieving Colleges*" and starts from the premise that colleges are failing to produce results. But, the higher education system in the US is still generally regarded as the best in the world. Students who have even bachelor's degrees earn far more over a lifetime than those who don't. I don't argue everything is perfect in higher ed, but even as Bok tries to distance himself from the (largely conservative) writers

who write polemics about complacent profs, he still spends much of his book blaming professors.

This is troubling to me because Bok explicitly excludes questions about the economics of universities from his analysis. He applies pressure to faculty without taking into account all the ways that faculty have been asked to do more with less. He does not discuss the de-funding of public higher education after the Cold War, nor does he address data showing that a majority of college teachers now serve in contingent positions.

I'm not dismissing the insightful things he does say. What I found most appealing was Bok's strong argument that college education must prepare students to engage morally and politically with the complex, diverse world, albeit without "indoctrinating" them. And he's right that we seldom ask what it is about the work we assign that transmutes students into able critical thinkers. What do we know from research that can shed light on how these intellectual capacities are best acquired? These are productive questions to ask.

Tony: Yes, I also found his advocacy of civic engagement as a key part of the curriculum and the goal of developing the moral character of students to be compelling, though I'm not as troubled as he is by those like Henry Giroux who work within a framework that promotes social justice as well. That seems to go right to the heart of the relevancy of a college education. I agree that Bok could have been more attentive to the structural changes in the lives of professors that you point to, which sometimes work against innovation in teaching, but I also think that we have to work with the university that we've inherited, not the one we came out of or the one we hope to create in the future (a lesson I've learned from CTE). To that end, his observations about the tendency of faculty to hide their teaching from the scrutiny of

colleagues, the hesitancy of professors to consult research on teaching, and the obstacles that we create for interdisciplinary teaching all ring true to me. These seem like useful directions that could improve teaching and student learning without calling for vast new commitments of time or resources. He is really just asking for more collaboration: "In most institutions... teaching methods have become a personal prerogative of the instructor rather than a subject appropriate for collective deliberation."

Leslie: Agreed: we would probably find our teaching more rewarding and get better results if we spent as much time reflecting on

it as we do our scholarship. But Bok ends his book questioning where the energy to implement such a change will come from. Neither college administrators nor tenured faculty have much incentive to change the status quo, he admits. Teaching is the labor that already occupies most of our time, even if it isn't highly rewarded. Assessing teaching in new ways is likely to require even more labor and is inherently risky. The best chance for change, in his mind, comes from the way that we train graduate students. If we expose today's Ph.D. students to the scholarship of teaching and learning, there's a good chance a slow revolution that is already in process will eventually transform the situation on the ground.

About the "reluctance of professors to consult research on teaching"—knowing how to find and evaluate such information is akin to learning a new discipline. We need ways to make this scholarship more accessible to practitioners. How often does our own main professional journal, the *American Historical Review*, publish articles about teaching? More than it used to, but still not enough.

I'm not saying that all forms of change are inherently good, but avoiding change is a sure way to fail at our goals.

Tony: Well, it is a new literature, but it turns out that you can teach old dogs new tricks (we just have to find the equivalent of treats to motivate professors to change their habits). I've picked up a lot from exploring the literature on teaching across disciplinary lines, from experiments in other fields that I've found relevant to solving problems that I've encountered. The CTE library is very useful in that regard. But as to your comment that assessing teaching in new ways is risky, isn't that what universities are all about, taking

intellectual risks and constantly experimenting? In some ways I've never felt more inventive than when I've put myself in uncomfortable teaching situations.

If we don't try new methods, we will become irrelevant as a social institution in no time. I'm not saying that all forms of change are inherently good, but avoiding change is a sure way to fail at our goals.

Leslie: That's another can of worms—who gets to say what success looks like? We need assessment techniques that can provide persuasive evidence about what really works in the classroom. Even Bok doesn't seem to think we're there yet. Yet he claims that it is neither expensive nor difficult to "test students' proficiency in writing, reasoning, or foreign languages... [or to] compare the results in one section of a course using innovative teaching methods with those in another section taught in conventional ways." After trying on a very limited basis to do this myself, I don't think it's easy.

But I don't wish to end on a negative note. I think we'd agree that even if it's hard, we stand to gain if we provide instructors with information, support and incentives to experiment. I may think Bok overstates the "crisis," but that doesn't diminish the value of faculty engaging in processes that will ultimately result in deeper learning.

### Student interactivity in a large class

Susan Zvacek, IDS

Many of us inwardly (and sometimes outwardly) groan at the thought of teaching a really large class, worried that an auditorium environment may not prove conducive to meaningful in-class interaction. Some KU faculty, however, have adopted the use of a student response system (“clickers”) as a way to deal with this challenge. Clickers—similar to the polling devices used by studio audiences on television shows like “Who Wants to Be a Millionaire?”—offer instructors a way to connect with students and help them stay attentive throughout the class. A rapidly growing body of research suggests that integrating questions throughout a lecture can make a positive difference in learning by assessing understanding on the fly, identifying misconceptions, offering practice with newly-learned skills, helping students articulate their ideas and encouraging regular attendance.

Chris Haufler, Ecology and Evolutionary Biology, has used clickers for several years and considers the front-end labor of crafting good questions well worth the time. Haufler’s class responds to questions that pique their interest in the lecture to follow (“preview” questions), as well as those assessing their understanding of concepts already covered in class. He’s also found that introducing the use of clickers immediately in the course offers a motivational nudge to students.

Questions pertaining to what students already know (or believe) about science and scientific research (e.g., “What is science?”) present a foundation with which to begin the course, and students enjoy seeing how their responses compare to those of their classmates.

Although Haufler doesn’t award points for clicker use, nor use the system for testing (IDS discourages using clickers for any high-stakes activity), students willingly participate in the in-class exercises. On a recent mid-semester evaluation, students commented that using clickers helped them “remain attentive and more involved,” and that they were “more focused” during the class. Students also appreciated the immediate feedback and were, overall, more aware of their own learning progress.

If you’d like to increase student engagement in your classes—big or small—contact IDS at [ids@ku.edu](mailto:ids@ku.edu) to learn more about student response systems, what the research literature tells us about clickers and learning, or how to get started.

#### Special thanks

To George Semb, who has graciously donated his collection of *Teaching of Psychology* and other journals to the CTE library. Thank you!