



Change: The Magazine of Higher Learning

Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/loi/vchn20>

Balancing Acts: Designing Careers Around The Scholarship of Teaching

Mary Taylor Huber

Version of record first published: 25 Mar 2010

To cite this article: Mary Taylor Huber (2001): Balancing Acts: Designing Careers Around The Scholarship of Teaching, *Change: The Magazine of Higher Learning*, 33:4, 21-29

To link to this article: <http://dx.doi.org/10.1080/00091380109601806>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.



Balancing Acts

Designing Careers Around The Scholarship Of Teaching

BY MARY TAYLOR HUBER

Balance" is a blessing that many faculty seek in their professional lives, but it is one that few believe they can achieve without serious risk to the advancement of their academic careers. An elusive idea with physical, political, judicial, and moral overtones, the aesthetic sense of "balance" may come closest to what faculty usually mean by the term. John Ruskin, arbiter of artistic opinion in 19th-century England, once declared: "In all perfectly beautiful objects, there is found the opposition of one part to another, and a reciprocal balance." Perhaps it is

naive to hope for beauty in a 21st-century profession that values the parts of its work so unevenly. But the recent movement to broaden the idea of scholarship in the academy is beginning to bear fruit and show that differently balanced careers can indeed be designed and pursued successfully.

*Mary Taylor Huber is a senior scholar at The Carnegie Foundation for the Advancement of Teaching, where she directs research on cultures of teaching in higher education. She is coauthor of the Carnegie Foundation Report, *Scholarship Assessed: Evaluation of the Professoriate*.*

Higher education's teaching and service performance will be strengthened if faculty are encouraged to approach their work in classroom and community with the same care and curiosity that they bring to library, laboratory, studio, or field.

It should not be necessary to dwell long on the national conversation about faculty priorities, a vigorous discussion that has traveled far since the early 1990s when Ernest Boyer urged that the nature of academic scholarship be "creatively reconsidered." Convinced that a narrow focus on research productivity had *unbalanced* the work of the academy, Boyer and his colleagues argued that colleges and universities would not be able to fulfill their traditional missions unless they began to expand the definition of scholarship to cover a wider range of faculty activity.

Higher education's teaching and service performance will be strengthened, they suggested, if faculty are encouraged to approach their work in classroom and community with the same care and curiosity that they bring to library, laboratory, studio, or field. *Scholarship Reconsidered* proposed "creativity contracts" that would make it possible for faculty to cycle through periods where they would select their focus for inquiry and development according to their own interests and departmental or unit needs. Faculty who take advantage of the opportunity to develop varied scholarly interests and talents, the report concluded, will enjoy more balanced professional lives.

These promises retain their timeliness and appeal. Market pressures continue to raise the bar for entry to and success in the academic profession, pushing research productivity to new heights, while at the same time new students, new technologies, and new needs require more systematic attention to teaching and learning, and closer engagement with the larger community. By now, many institutions have revised their guidelines to include a wider range of scholarship in their systems of faculty roles and rewards. But the question remains as to whether faculty, departments, and institutions will actually take the risks that embracing new work inevitably entails.

Discouraging tales of tenure denials to innovative young scholars rightly publicize those risks. But while it is too early for statistics, it is not for stories about what actually happens when faculty *successfully* take up the call for thinking about curricula, redesigning courses, inquiring into student learning, developing new materials, experimenting with technology in the classroom, or building scholarly communities around teaching. These encouraging stories may prove even more useful than cautionary tales to those who undertake such work themselves or advise others who want to make new kinds of scholarship a significant part of their academic careers.

LEARNING FROM EXTRAORDINARY CASES

This article reports on four case studies that we are developing at The Carnegie Foundation as part of a larger inquiry into cultures of teaching in higher education today. In these studies we take a close look at careers that are being crafted, in part, around the scholarship of teaching and learning at doctoral and research universities. Our subjects are well known in teaching and learning circles. Randy Bass, an associate profes-

sor of English at Georgetown University, is best known for his work in teaching and technology; Daniel Bernstein, a psychologist at the University of Nebraska in Lincoln, for mastery learning and faculty course portfolios; Brian Coppola, at the University of Michigan, for innovation in chemical education and future faculty development; and Sheri Sheppard, at Stanford University, for engineering education reform. (See accompanying profiles describing their careers on page 24.) In this essay, the reader will find a number of lessons that are emerging from our conversations with these scholars and their colleagues. No enterprise of this sort is without its tensions, and we are grateful to these extraordinary scholars and their colleagues for talking to us frankly and at length about the ins and outs of their careers.

One of the first lessons we have learned is that the scholarship of teaching and learning is neither a single nor a simple thing. Yes, it has the characteristics that Pat Hutchings and Lee Shulman outline in "The Scholarship of Teaching: New Elaborations, New Developments" (*Change* 1999). It is not just teaching, but teaching gone "meta." It is teaching that involves inquiry into learning and that is being made public in a way that can be critiqued, reviewed, built upon, and improved.

Like any body of creative intellectual work, however, this scholarship is varied in content and form. For some, it involves reflection on and documentation of teaching and learning in their classrooms, shared and discussed with campus colleagues. But for faculty who have achieved national prominence in the scholarship of teaching and learning, like those considered here, it also includes well-documented classroom innovation, curriculum development, new resources for students and colleagues, grantsmanship, publication in peer-reviewed journals, presentations at conferences and other universities, Web activities, workshops for fellow faculty, participation on national panels and in curriculum projects, as well as elaborations, collaborations, new initiatives, and the like.

Consider, for example, the work of Sheri Sheppard, who is perhaps best known for developing "mechanical dissection," an activity in which her first- and second-year engineering students at Stanford investigate the relationship between the form and function of various mechanical devices. Designed as a way to provide a meaningful foundation for future mechanics courses, dissection activities involve teams of students taking apart and studying bicycles, blow-dryers, disk drives, and other devices, in order to develop an understanding of the engineering design process. The course makes use of dissection labs, student presentations, multimedia resources, redesign activities, and in some cases even prototyping. A set of formal evaluations, including interviews and video analysis, has consistently demonstrated the effectiveness of these activities. Through conference presentations, articles, Web sites, and workshops, mechanical dissection has spread to other schools in the National Science Foundation's (NSF) Synthesis Engi-

neering Coalition (through which it was developed) and beyond. Sheppard is now writing a textbook on mechanics that will include mechanical dissection, and she is also engaged in many other engineering education initiatives.

This leads to another important lesson. When people take up new forms of scholarship, old ideas about “balance” are best placed in quotation marks. Faculty work has long been represented as comprised of some specified proportions of teaching, research, and service, including academic citizenship and outreach. But when faculty take a scholarly approach to teaching and learning, or to service in its various forms, the boundaries between the conventional parts of academic life can easily blur. For our subjects, “balance” is less about the relationships among different kinds of work and more about their integration. Sheppard’s engineering courses feed directly into the conceptual development of mechanical dissection as an active learning strategy, while the latter returns the favor and feeds new understandings about teaching and learning directly back into the course itself.

Still, our subjects and the colleagues who support them have also had to find ways to translate these new kinds of scholarship into systems of evaluation that have not been made for the job. Of course, their scholarly achievements can be represented in conventional terms, but making such a case—dividing the work between teaching and research and service—requires special effort on the part of the candidate, while committees also must make an effort to discern the degree of distinction of an unusual and often unfamiliar body of work. Many candidates who try are unsuccessful. But those who do gain tenure and/or promotion at respected universities make a double contribution. In addition to the contributions to teaching and learning that these extraordinary scholars make through their work, their *careers* themselves—or at least *stories* about their careers—become a beacon to others, enlarging the academy’s capacity to nurture and value faculty whose scholarship is both sound *and* broadly defined.

ROUTES INTO THE SCHOLARSHIP OF TEACHING AND LEARNING

Our subjects’ stories map many routes into a scholarly career that includes significant work in the scholarship of teaching and learning. Some paths are purely personal: interests and insights that they variously trace to childhood, college, graduate school, and beyond. Some are circumstantial—opportunities sought or grasped *because* of their interest in the general domain of teaching and learning. For example, Randy Bass served three years as student representative on a committee to reform the general education program at his undergraduate college. Because his college was part of a consortium of colleges concerned with general education, Bass was able to attend national conferences and publish an article in *Liberal Education* on a student’s view of reform. During his sophomore, junior, and senior years, he worked closely with faculty who cared about teaching and learning and watched the reform process go through its entire arc, from a set of exciting new ideas to a program only slightly different from what they had before. Characteristically, Bass found this experience to be eye-opening rather than embittering, and considers it valuable preparation for his subsequent roles as national reformer and campus leader in teaching, learning, and technology.

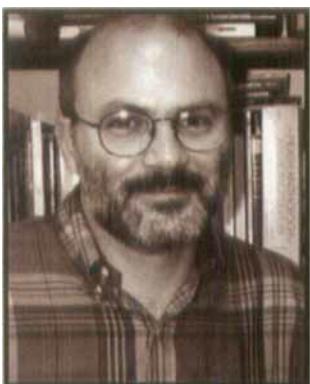
Opportunities for intellectual exchange about teaching and



learning should multiply during graduate school, because that is where most future faculty actually began to teach. Until very recently, though, few programs took this part of professional development seriously. Nevertheless, in the past, students who were determined or lucky could still nourish their pedagogical imagination. For psychologist Dan Bernstein, a graduate student in the late 1960s and early 1970s, the spark came from his dissertation advisor and from a fellow graduate student, whose unconventional views on assessment led Bernstein to a career-long interest in mastery teaching in his own psychology classes. Chemist Brian Coppola, funded as a graduate student by research fellowships, looked outside his department for teaching experience. Responding to a call for volunteer tutors, Coppola wound up working with a graduate student in education, who introduced him to literature on peer instruction, methods for classroom observation, and the benefits of interdisciplinary collaboration in education research.

As these scholars’ graduate experiences indicate, opportunities to engage in the scholarship of teaching and learning are shaped in part by the disciplines themselves. While there are

PROFILES



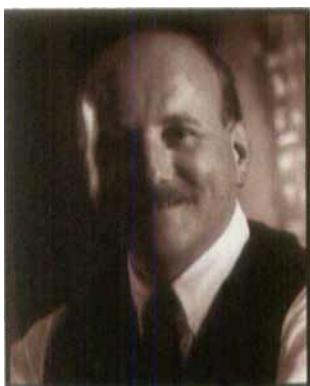
RANDY BASS is an associate professor of English and a member of the American Studies Committee at Georgetown University. He teaches courses in American literature, American studies, and the electronic representation of culture and knowledge. Bass has been working with educational technology since 1986 and has directed or co-designed a number of electronic projects and publications on the use of technology in teaching culture and history. He currently directs Georgetown's Center for New Designs in Learning and Scholarship, a university-wide center supporting faculty work in new learning and research environments, and the Visible Knowledge Project, a five-year scholarship-of-teaching project that is exploring the impact of technology on learning in the humanities. Winner of the EDUCAUSE medal for outstanding achievement in information technology and undergraduate education and a Carnegie Scholar in the Carnegie Academy for the Scholarship of Teaching and Learning, Bass received his bachelor's degree from the University of the Pacific and his PhD in English from Brown University. Visit georgetown.edu/bassr for more.



DANIEL BERNSTEIN is a professor of psychology at the University of Nebraska-Lincoln, and coordinator of the Peer Review of Teaching project, a multicampus effort to generate and evaluate course portfolios through faculty consultation and collaboration. He teaches graduate and undergraduate courses in perspectives in psychology, learning processes, and the psychology of social behavior. His current research focuses on methods of effective teaching in higher education. One line of work involves comparisons of student learning generated by lectures, mastery teaching, and various forms of technology. Another documents the impact of peer review of teaching on both the practice and effectiveness of college instruction. Winner of the University of Nebraska System's Outstanding Teaching and Instructional Creativity Award and a Carnegie Scholar in the Carnegie Academy for the Scholarship of Teaching and Learning, Bernstein received his bachelor's degree from Stanford University and his PhD in social and experimental psychology from the University of California-San Diego. Visit www.unl.edu/psypage/people/faculty/daniel_bernstein for more.

many cross-cutting issues, scholarly work on teaching and learning is finally not the same across fields. Each has its own intellectual history, and agreements and disputes about subject matter and methods that influence who is taught what, when, how, and why. Each has a set of traditional pedagogies, like lab instruction and problem sets in the sciences, and its own discourse of critique and reform. Each has its own community of scholars interested in the teaching and learning *of that field*,

with one or more journals, associations, and face-to-face forums for pedagogical reflection and exchange. For good and for ill, scholars of teaching and learning must engage what Joseph Schwab so elegantly distinguished as the substantive and syntactic structures of their disciplines: the "conceptions that guide inquiry" and the "pathways of enquiry [disciplines] use, what they mean by verified knowledge and how they go about this verification."



BRIAN COPPOLA is Arthur F. Thurnau Professor and an associate professor of chemistry at the University of Michigan-Ann Arbor. He teaches undergraduate courses in organic chemistry and graduate courses on teaching and learning in chemistry. His current research interests are in the mechanism and synthetic applications of dipolar cycloaddition reactions and in chemistry curriculum design, implementation, assessment, and evaluation. Coppola directs the Chemical Sciences at the Interface of Education program at Michigan, which is devoted to creating and documenting the professional development infrastructure needed to understand and promote the scholarship of teaching and learning. Winner of the University of Michigan's Amoco Undergraduate Teaching Award and a Carnegie Scholar in the Carnegie Academy for the Scholarship of Teaching and Learning, Coppola received his bachelor's degree from the University of New Hampshire and his PhD in chemistry from the University of Wisconsin. Visit www.umich.edu/~michchem/faculty/coppola for more.



SHERI SHEPPARD is an associate professor in the design division of mechanical engineering at Stanford University. She teaches both undergraduate and graduate design-related classes and conducts research on weld fatigue and impact failures, fracture mechanics, and applied finite element analysis. Currently a Senior Scholar at the Carnegie Foundation for the Advancement of Teaching, Sheppard is leading a major investigation of engineering education in the United States—examining where it's been, where it is, and where it may be going. She has served as a co-principal investigator on the multiple-university Synthesis Coalition, a National Science Foundation project that looked critically at the engineering undergraduate curriculum, and as co-director of Stanford's Learning Lab. A Fellow of the American Society of Mechanical Engineering and of the American Association for the Advancement of Science, Sheppard's bachelor's degree is from the University of Wisconsin-Madison, and her PhD in mechanical engineering is from the University of Michigan. Visit me.stanford.edu/faculty/sheppard.html for more.

From this perspective, chemists, psychologists, American literature professors, and engineers look at the world through different lenses and undertake intellectual inquiry into the teaching and learning of their subjects in somewhat different ways. Style? In some corners of academe, the model of scholarly discourse is the highly theorized critical essay, while in others it is an account of statistical results from a quasi-experimental research design. Quantity? Some fields are dense with

discussion about college pedagogy—composition and interdisciplinary studies, for example—while others, such as literature and history, are not. Depth? Some fields have large stores of intellectual capital that their scholars of teaching and learning can draw upon and contribute to. Communication scholars can see teaching as a communicative act; management scholars can see the classroom as an organization; psychologists can see teaching as inquiry into learning. Resources? Some fields,



especially in the sciences, have developed specialized communities of educators, who draw on ideas and methods from other fields but whose relatively well-funded curricular and pedagogical initiatives have brought wide attention to educational issues within their fields.

Like most scholars who turn to teaching and learning, then, our subjects' early educational agendas developed in conversation with different disciplinary worlds. Dan Bernstein's advisor in graduate school was a maverick who "really was interested in viewing education as a legitimate subject of psychological interest in behavior change. And so, of course he was interested in the way you teach, and dedicated to the idea that you would do it better, the same way you'd do anything better." Bernstein's growing interest in mastery teaching articulated well with his early experimental research on human motivation, while his later work in faculty development has kept a focus on student learning as its signature theme.

Randy Bass's fields of literature and American Studies were not as open to pedagogical discussion as Bernstein's corner of psychology, but Bass soon found allies in other disciplinary

neighborhoods. His dissertation research on the literatures of 19th-century America led him into interdisciplinary efforts to design new media educational resources—a brave and exciting new world at the time—while his later development of new media pedagogies as "engines of student inquiry" were inspired in part by ideas about writing across the curriculum circulating on the composition side of English studies.

For scientists, education reform agendas in their fields come very prominently into play. I have already mentioned that Sheri Sheppard's innovative efforts to provide a design experience for freshman and sophomore engineers was made possible by her participation in one of the National Science Foundation's Engineering Education Coalitions.

Brian Coppola's first professional opportunity to focus on issues in chemistry education came through an invitation to help design the University of Michigan's new undergraduate chemistry curriculum, which subsequently became well known for its focus on organic, rather than physical, chemistry; laboratories emphasizing student inquiry; and honors sections with peer instruction. Coppola sees his later development of a fellowship program for graduate students interested in teaching as part of a larger effort to build a scholarship of teaching in chemistry that is accessible to students and faculty at all stages of their careers.

TAKING RISKS, MAKING THE CASE

While most scholars of teaching and learning develop agendas that tie into their disciplines' histories, pedagogies, and investigative styles, they also live and work in specific departments in particular institutions that have traditions, divisions, aspirations, and rules of their own. The scholarship of teaching and learning may find warmer welcome in this or that department or this or that institution—for example, a campus where a lively community has formed around teaching and learning with support from key academic leaders.

Indeed, there are examples of both friendly and not-so-friendly campuses across the map of institutional types. Our subjects—Bernstein, Bass, Coppola, and Sheppard—are all from doctorate-granting universities where the challenges are considerable, but we believe that their stories will prove helpful as well to people at master's colleges and universities, baccalaureate colleges, and community colleges.

While all of our scholars have successfully negotiated their way through tenure (and in Bernstein's case, promotion) at their institutions, it has not been easy. Even though each has had the advantage of working in a department open to their interests in teaching and learning, they have also faced ambivalence about the scholarly status of such work.

For Bernstein—who was hired to take on his department's large introductory psychology course and awarded tenure in the late 1970s, based on the quality of his work with that course and on a "balanced" portfolio—institutional ambivalence about the value of teaching was registered in his pay check and other less-tangible signs of respect and regard. For those tenured more recently, however, the question has turned out to be less about the value of teaching versus research than about the status of the *scholarship of teaching* itself. Is it something untenured faculty should pursue? And how should it be counted—as "research," "teaching," or "service"?

Early warning signs came through loud and clear—as they

You have to let everybody in the department know in every possible way what it is you're doing, and why it is both intellectually and professionally serious.

would to any scholar fortunate enough to have knowledgeable and street-smart mentors who care about their progress through academe. Sheri Sheppard came to the design division of Stanford's mechanical engineering department with a research focus on weld fatigue and impact failures, fracture mechanics, and applied finite element analysis. But her strong interest in teaching led her to take on challenging courses, like Strength and Materials, with histories of low student ratings. "From the very beginning," one of her colleagues told me, "she was very stubborn about what she wanted to do and, against my better advice, did certain things which really wouldn't serve the goal of getting promoted—like teaching certain undergraduate classes that she didn't have to teach." When, a couple of years later, Sheppard took up work with the NSF's Synthesis Coalition for undergraduate engineering education reform, her closest colleagues again expressed concern, and she actually received a formal letter from her chair advising against it at this stage. She went ahead, however, with both her traditional research and the work on teaching and learning that Synthesis gave her the opportunity to pursue.

Bass, too, took risks. As a pioneer in teaching with technology at Georgetown, he introduced students to new media pedagogies, which ran afoul of their expectations, and suffered the predictable low ratings as a result. Bass himself tells the story of this "fall" and his later redemption through the scholarship of teaching and learning. This recovery was particularly important for his tenure decision, because he had also taken risks with his record of research.

He had known, of course, that the safest and wisest path to tenure would be to publish articles and/or a book about his dissertation topic, 19th-century documentary narratives. And he did begin to do so. But the horizon for traditional scholarship receded as one after another challenging new media project came his way. A senior colleague from another university advised Bass to "keep your hand in the traditional American literary scholarship" but also to go ahead with "the more innovative electronic ones." His departmental mentor advised—begged—Bass to publish at least some conventional work. As the tenure decision came closer, however, Bass came to believe that "to try to do both was a trap" and shifted his focus ever more surely to the electronic domain, where he was already gaining international renown.

Coppola's situation was different in fundamental ways. He had made his major break with expectations for a conventional career as an academic scientist while still in graduate school, and he began work at the University of Michigan in a typical (for the sciences) teaching-intensive non-tenure-track line. When several years hence it seemed possible that a tenured position might become available, Coppola and his mentors determined that his case would be strongest if his work on teaching and learning could be judged by the usual standards, and he implemented a familiar strategy right away. He won external

grants to support research on the effectiveness of his teaching innovations, published articles in refereed journals about his pedagogical research, organized conferences, lectured and led workshops around the country, networked extensively, and achieved national recognition as a chemistry educator. He also, not coincidentally, gave a lot of thought as to how best to present his case.

In these tenure documents Coppola noted that for scholars like himself, "instructional and research activities are naturally intertwined" and that "ironically, sorting through these issues is also part of what I consider to be included in my professional and scholarly purview." His sorting strategy provides a useful model. He divided his pedagogical contributions into three descriptive categories: 1) day-to-day teaching practices (chemistry teaching and learning), 2) the structure of an educational program (chemical education), and 3) assessment and evaluation practices (examination-related activities, as well as chemical education research).

Because candidates for tenure had to prepare separate statements of their plans in teaching and research, Coppola did so. While admitting that many of his activities "defy clean separations," he stated that he would include work within the first two categories in his teaching statement, leaving those in the last category for his statement on research. For example, the redesigned Introductory Chemistry curriculum and the specific features that he developed or codeveloped for it (including, for example, its interactive format and peer-instruction options) are elaborated under "teaching," while his publications in the area of philosophy and epistemology, teaching and learning skills, preparation and training, and assessment and evaluation are offered as "research."

Scholars do not, of course, always have the last word on the way their work is counted—a critical point when questions of weighting come to the fore. Sheppard's contributions to the traditionally defined engineering area of welding and fracture clearly constituted research in the eyes of her evaluators, but her grants, research, and publications in engineering education did not seem to count the same way. As one of her colleagues explained: "It's the color of your money." Funding has more or less prestige, depending on its source and purpose. In some fields and some departments, scholarship on teaching and learning is a relatively new and still marginal venture, and colleagues have a strong sense that work on teaching should count as "teaching," regardless of the specific activities it entails.

Bass's colleagues appear to have grappled less with what was "teaching" and what was "research" and more with the inadequacy of old notions of genre (article, book) or role (author, editor) when faced with electronic scholarship. Consider the *American Studies Crossroads Project*, which Bass describes as

a set of online resources for the study of the United States, including professional resources for the international American

Studies community, the organization of indexes to scholarly resources, the creation of curriculum and faculty development materials, and the coordination of an ongoing research project in which 30 faculty developed case studies documenting their experimentation with new technologies in the teaching of culture and history.

Bass himself presented this work as a project that cut across the scholarships of teaching, application, and integration, as defined in *Scholarship Reconsidered*. But what his colleagues wanted to know, it seems, was whether the site could be considered a book. This was not a simple counting exercise, but a search for familiar models by which to evaluate the quality of unfamiliar work.

DISCERNING DISTINCTION

Committees must not only resolve basic questions about what counts as what when they are still working within a research, teaching, and service model of faculty work; they must also discern the level of distinction of the scholar's achievements. Here again, however, when work crosses traditional boundaries, old ways of doing business do not necessarily apply. Certainly every case is unique, deliberations are confidential, and decisions about a scholar's past performance and future promise are made on the picture that his or her whole record provides. These specifics are not our concern. What is relevant here is what our subjects and their colleagues could tell us about the *general* questions that arise in assessing the quality of scholarly work on teaching and learning.

First, it is important to note that the current evaluation system works best for the scholarship of teaching and learning when "the standard metric" can be used virtually unchanged. The chemists who spoke to us about Brian Coppola's work were quite clear on this point. As Art Ellis at the University of Wisconsin put it: "I like to tell my colleagues in the research community that the metrics are all the same. You're looking for papers published in peer-reviewed, high-profile journals; you're looking for funding brought in from competitive sources like the National Science Foundation; you're looking for speaking invitations; you're looking for adoption or adaptation of the work in other people's programs."

The department chair at the time acknowledged that Coppola's success depended upon building a "portfolio of some substance," including "a record of scholarship—a publishable record," while his then-dean emphasized the importance of his having "national visibility beyond classroom performance, which we expect of all of our faculty"—including, in Coppola's case, "contributions which move the educational effort in a larger field and have promise of doing so beyond the [discipline]." Sheppard's colleagues at Stanford took a similar stance: distinction in the scholarship of teaching and learning in engineering would mean the same thing as distinction in any other specialty. For tenure candidates, this meant the promise of national and international leadership in that field.

Not only does this standard put a special burden on faculty like Sheppard, who come up for tenure with both a traditional and nontraditional record of scholarly work—the commitment to a "standard metric" glosses over other difficulties as well. First, the criteria by which these records are judged may be the same, but the application is different—not so much in principle

as in practice, because while engineers know very well how to evaluate work in, say, welding and fracture, they have less experience in judging the signs of "promise" for educational leadership. Letters from external reviewers are important in both cases. But this creates a second problem: such endorsements can be problematic if the community qualified to interpret the candidate's achievements is not well known to the committee members. As one colleague said: "It doesn't have the power of somebody saying: Oh yes, I know this character. He's a really tough cookie, and if he says this person's good, then they must be." In newly emerging research areas with a buzz, this is not likely to be a serious problem. But engineering education has a lower profile.

In some cases, the metric itself is much harder to apply. As Bass notes in reflections on his own case, faculty who work with new technologies and their supporters are often in the strange position of arguing that the key to assessing this work is that it is both like and unlike work of other kinds. Certainly the *American Studies Crossroads Project* is in some ways like a book. "Unfortunately," Bass points out, "as a publication, the *Crossroads Project* (like many others I could show you in digital form) commits all kinds of sins: it is....'self-published'; it is highly collaborative; it is never 'finished' but ongoing; and it is very difficult to locate in its boundaries and extent."

Electronic scholarship creates an even more fundamental problem for peer judgment. A departmental colleague explained: "The hard thing is for people to know how you... consider achievement that doesn't come in the form of some kind of juried print. I think people are sincere. They [just] don't know what the equivalent is in order to make sure that what you are getting is material that in effect has been peer reviewed. I think that's the big issue. You know how a university press goes about choosing a book, you know how a journal does it. It's very hard to know what the equivalent evaluation process is for stuff that is coming out [on the Web]."

Web-based resources are not the only forms of scholarship on teaching and learning to challenge both the social and technical adequacy of the academy's standard "metrics" for measuring the quality of scholarly work. Classroom teaching, for example, is notoriously hard to submit to peer review. In recent years, however, progress has been made on finding ways to make teaching more public and therefore more amenable to informed critique.

Dan Bernstein's most recent work in faculty development focuses on the preparation and review of course portfolios, one of the most promising ways of capturing the full range of activities involved in and reflecting upon teaching a college course. The goal, as Bernstein says, is to "create a model community of scholars who engage in regular substantive peer review to derive benefit from both reviewing and being reviewed....We hope that this project will both generate renewed enthusiasm for teaching and provide a vehicle for review that will enhance the standing of teaching as a serious part of professional life."

LESSONS LEARNED

What lessons can be drawn from these vignettes from our four extraordinary cases? First, of course, they raise questions about the ways in which we determine the distinction of scholarly work—a problem posed by any kind of scholarship that

comes via new media or unusual genres. Yet, in The Carnegie Foundation's second report on faculty work, *Scholarship Assessed*, my co-authors and I argued that this does not mean that the same criteria of excellence cannot be applied to all works of scholarship, be they in discovery, integration, application, or teaching. Our suggestions for such criteria—clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique—have provided a starting point for many fruitful discussions on how to make visible and evaluate the scholarly dimension of academic activity of many kinds. The challenge is to start conversations on campuses and in disciplinary groups about evaluating emergent work that the community sees as worthwhile, as well as to gain experience in doing so.

Second, these vignettes underline the responsibility of scholars of teaching and learning (and their supporters) to educate their own colleagues about the nature and significance of the work they are doing. In my interviews, I often asked people what lessons *they* would draw from the career in question. Perhaps the most eloquent answer I received came from John Glavin of Georgetown's English department, who concluded: "I would say that you'd have to go for absolute transparency. You have to let everybody in the department know in every possible way what it is you're doing, and why it is both intellectually and professionally serious. Another word for that is a kind of humility. I mean, you know more than most of your senior colleagues know at this point in this area, and you've got in a sense to make yourself available to them rather than expecting them to catch up with you."

The third lesson concerns the responsibility of faculty (and academic administrators) to support the scholarship of teaching and learning. Certainly, there is every reason to encourage one's colleagues to teach with questions about learning in mind and to tackle classroom problems as opportunities for informed inquiry. It makes sense, too, to help create local forums in which such work can be made public and a topic for intellectual exchange. It is important that younger faculty, especially, understand the risks of taking the time to bring this kind of work to higher levels, especially at institutions where one's scholarly record will be examined for promise of leadership in the field. Yet if there is a colleague who does have the interest, energy, and imagination, the right thing may be to help them do it well. They—like all young academics—will need all the help they can get, including lessons from the pioneers.

Tony Ingraffea, professor of engineering at Cornell who came to know Sheri Sheppard during the Synthesis project put it this way:

I am now mentoring two of our younger faculty, and I think the best thing I've done in both cases was to recount history. Tell them stories about Synthesis, and tell them stories about Sheri, and others. And tell them to be what they are, be courageous, be brave. Follow their ideas and do the right thing. I have not advised them to just do research and then later when they're successful, then they can start doing teaching. No. Not at all. What I've advised is that there has to be balance.

Let us conclude by returning to this elusive concept of "balance." As long as colleges and universities, and the people whose lives and livelihoods they sustain, think of academic

RESOURCES

- Bass, Randy. "Discipline and Publish: Faculty Work, Technology, and Accountability," Plenary Address, AAHE Forum on Faculty Roles and Rewards, San Diego, CA, 1999.
- Bernstein, D.J., Jessica Jonson, and Karen L. Smith. "An Examination of the Implementation of Peer Review of Teaching," *Evaluating Teaching in Higher Education: A Vision for the Future*, ed. Katherine E. Ryan, New Directions for Teaching and Learning, No. 83, San Francisco: Jossey-Bass, 2000, pp. 73-85.
- Boyer, Ernest L. *Scholarship Reconsidered: Priorities of the Professoriate*, Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching, 1990.
- Coppola, Brian P., Seyhan N. Ege, and Richard G. Lawton. "The University of Michigan Undergraduate Chemistry Curriculum 2: Instructional Strategies and Assessment," *Journal of Chemical Education*, Vol. 74, No. 1, 1997, pp. 84-94.
- Glassick, Charles, Mary Taylor Huber, and Gene Maeroff. *Scholarship Assessed: Evaluation of the Professoriate*, Special Report of The Carnegie Foundation for the Advancement of Teaching, San Francisco: Jossey-Bass Publishers, 1997.
- Hutchings, Pat and Lee S. Shulman. "The Scholarship of Teaching: New Elaborations, New Developments," *Change*, September/October, 1999, pp. 11-15.
- Ruskin, John. "Modern Painters of Many Things," *Modern Painters*, New York: Wiley & Halstead, Vol. III, 1856 (cited under "balance" in the Oxford English Dictionary).
- Schwab, Joseph. "Structure of the Disciplines: Meanings and Significances," *The Structure of Knowledge and the Curriculum*, ed. G. W. Ford and Lawrence Pugno, Chicago: Rand McNally & Company, 1964, pp. 6-30.
- Sheppard, Sheri D. "The Compatibility (or Incompatibility) of How We Teach Engineering Design and Analysis," *International Journal of Engineering Education*, Vol. 17, No. 4, 2001.

work as "teaching, research, and service," it will continue to be difficult to make an effective case for work that crosses the boundaries between them. It may be necessary to rethink old categories if the academy wants to produce new kinds and forms of knowledge and see them thrive. And it may also be necessary to rethink faculty assignments.

Scholarship Reconsidered proposed that individual faculty might achieve balance among the scholarships of discovery, application, integration, and teaching over time—focusing on one or another during different three- or five-year "creativity contracts." Others have suggested that balance be sought at the level of academic units or even whole institutions, so that those who wished could concentrate their energies on the scholarly enterprises that interested them most. Surely, some combination of arrangements like these will help. None of these balancing acts will work, however, until successful cases inspire more stories about the best ways to make a case for the scholarship of teaching and learning.