

Reflections REFLECTIONS from the Classroom

*A collection of essays on teaching written by notable teachers
at the University of Kansas*



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Volume 4

Fall 2001

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*A collection of essays on teaching written by notable teachers
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Foreword

Reflections from the Classroom is an annual publication to be shared and discussed among the University community. We hope you find this fourth volume informative. It represents a small collection of essays written by our colleagues from across our campuses. By reading what others have written about their teaching, I believe we are better positioned to reflect upon our own growth as teachers, and in many instances what we believe and how we approach our teaching will be reinforced. Several authors stated that writing their essay was an enjoyable experience but a more difficult exercise than they imagined. I thank those who contributed their viewpoints about their teaching and learning and sincerely appreciate sharing their perspectives in this public forum. As a community of learners, we need to raise our comfort level in sharing our experiences and perspectives about teaching and learning in a more consistent and meaningful manner. We hope Reflections is one step in that direction.

This fourth volume begins with a white paper titled "Interdisciplinary Courses and Team Teaching: Crossing Academic Borders." The intent of the white paper is to prompt thought, reflection and discussion about interdisciplinary teaching. What began as a reasonable effort to delineate domains of study and methods of investigation has ended up in a heightened focus of discipline specialization. Today, academics are being held responsible for knowing more and more about less and less. Can interdisciplinary approaches assist to correct the excesses of disciplinary specialization? The authors suggest that such approaches potentially benefit not only the faculty involved but the student, as well. Should there be more emphasis on interdisciplinary work at KU? The authors acknowledge that there are real or perceived departmental and institutional obstacles that need to be explored. The authors point out that one of the great advantages of being a research university like KU is the opportunity to bring forth these topics and issues into our campus dialogue. Finally, the authors suggest a series of questions that could be used as a starting point in exploring interdisciplinary courses and team teaching that would hopefully prompt a community conversation.

Following the white paper are five essays on teaching written by teachers in varying stages of their careers, representing different disciplines. None of the authors prescribe for us what we should or should not do, but rather they share their insights and perspectives about what they have experienced, learned and continue to learn about their teaching.

We believe that through our collective wisdom and by sharing our experiences in classrooms, laboratories and studios across our campuses, we can begin to better understand that improving teaching and learning is a never-ending challenge and exciting process. As we share with each other through publications similar to Reflections, and through formal and informal discussions about teaching and learning with our colleagues, we will truly create a campus culture which reflects that teaching is central to the mission of the University.

Fred Rodriguez
Director
Center for Teaching Excellence

Interdisciplinary Courses and Team Teaching: Crossing Academic Borders

Anton Rosenthal and Fred Rodriguez

A trend in academic research in the last 20 years is the widespread embrace of projects and methods that cross disciplinary boundaries. For many scholars, this shift out of the confines of specific disciplines, which often date to the 19th century, has been long overdue. Particularly, as many mid-career professors move beyond the limits of their graduate training and conceive new areas of investigation, an increasing number are seeking answers to complex problems, not only from other disciplines, but with colleagues from other disciplines.

In light of this change, one might ask the following questions: What are these professors doing with these interdisciplinary approaches? Why do they take the time and put forth the effort to create new courses? What needs are they meeting for themselves, for their students, for their institution? Are these efforts, in fact, interdisciplinary or are they simply offering new wine in old bottles? It has been suggested (Davis, 1995) that the ideal interdisciplinary course brings together faculty from different perspectives to create a new subject. What obstacles discourage faculty from developing new perspectives and, in turn, new courses? How can barriers be overcome so that teachers and students can experience a new way of thinking about teaching and learning? These questions are not easily answered, but they are worthy of exploration.

Where we are, where we've been

New academic spaces such as cultural studies have arisen to allow the exchange of ideas between and among scholars from various fields. New scholarly organizations have come into being to promote communication across disciplinary lines. The Social Science History Association, for example, originally the refuge of marginalized quantitative historians and demographers, has broadened to include a wide range of researchers mixing history with anthropology, sociology, geography and political science. Innovative journals have developed out of these

groups, and university presses and commercial publishers have reconfigured their lists, with editors prioritizing articles and books that cross disciplinary boundaries and thus appeal to wider audiences. Funding institutions from the Social Science Research Council to the American Council of Learned Societies to the National Endowment for the Humanities actively promote interdisciplinary research and sometimes teaching. On the KU campus, the Hall Center for the Humanities has facilitated such scholarly exchanges through seminars, workshops, symposia and fellowships. Various programs from international studies, women's studies and environmental studies have grouped together professors from divergent backgrounds who can focus on a common set of objectives and themes.

With all of this effort and energy devoted to stretching or even eliminating old boundaries of teaching and learning, what is the current state of interdisciplinary work? If research flows out of teaching, then one might expect to find a significant contingent of courses that conflate previously distinct subjects or involve faculty from different departments, professional schools and programs teaching together. Anecdotal evidence and a quick perusal of the KU Undergraduate Course Catalog and the Timetable of Classes, however, suggests that in any given semester there are relatively few courses on this campus that are team-taught by professors from different disciplines and perspectives. Nor does there seem to be much movement of professors from one department to another, positioning themselves as the sites of mobile interdisciplinary experiments. Why is there this gap between the paucity of interdisciplinary undergraduate teaching and a relative boom in innovative research?

One way to begin to think about this question is to recall how the disciplines were formed and understand how they became so well established. In recounting that history, Clark (1990) reminds us that

the emergence of the disciplines was accompanied by the development of academic departments corresponding to the disciplines, national professional associations to serve the disciplines, and graduate education to train scholars and socialize them into the disciplines. Apparently, this mutually reinforcing set of developments worked well, for the academic disciplines are now able to celebrate approximately a century of productive existence.

Once the disciplines and professions emerged and specialization came to dominate, a pattern developed where professors would teach their subjects, in their classrooms, as disciplinary specialists. With traditional structures of teaching arrangements, whatever integration or connection takes place across separate and discrete subjects is achieved by students, usually on their own, if at all. Professors teach what they know and, if possible, only the special area that they know best.

In addition to this historical tradition, some may argue that undergraduates are not intellectually prepared and motivated to venture into the uncertainty and unpredictability that they may encounter when two or more disciplines converge. Students may be challenged enough as they move, for example, from Biology at 8:30 a.m. to English at 9:30 a.m. to Sociology at 10:30 a.m. without having the subjects integrated into a single class. Yet it seems clear that once students have sampled survey courses, they become interested in interdisciplinary work and begin making some connections themselves that faculty often hope to attain in their own work. In the past few years, advisors have begun to notice an increase in double majors with students often staying, on their own, an additional semester or year to complete their coursework. Furthermore, interdisciplinary programs like Latin American studies seem to be thriving at the undergraduate level, while several traditional majors have declined. If the demand appears to be increasing, why is there a shortage of offerings?

Perhaps the problem lies with limited opportunities for faculty development related to innovative teaching across disciplines. For example, the Keeler Family Intra-University Professorships offered at KU provide a one-time, semester-long experience and retraining in new disciplines for a small number of faculty each year. However, their restricted eligibility to limited years of the sabbatical cycle potentially set up logistical barriers. Another obstacle is the perception that the course minimum enrollment policy requires 24 students for a new team-taught undergraduate course

to be launched. More importantly, challenging ideas and practices that are the basis for one's own education can be daunting for a single professor, particularly when these are embedded in the daily workings of a department that governs teaching assignments, service obligations and merit pay raises. Moreover, within the current environment of departments directly and indirectly competing with one another for shrinking resources, individual faculty requests for the space and time to engage in intellectual growth related to teaching can be seen as expressions of disloyalty or personal ambition. Sustained faculty development may be put aside in an era of budget restraints and hiring uncertainties, in which faculty are being asked to cover the basics while taking on additional work created by phased retirements, full retirements and resignations. In some respects, though, the interdisciplinary approach addresses, and possibly solves, many of these very issues we currently face in higher education by creating a more flexible workforce. In what ways, then, can professors gain the expertise and the confidence to embark on interdisciplinary work, either on their own or with others?

Where we can go

Research has shown that interdisciplinary course work and team teaching take many forms. There is no single way or approach. Studies (Davis, 1995) have shown that the degree of collaboration varies considerably from course to course and within courses with regard to planning, content integration, teaching and evaluation. The rationale for offering interdisciplinary courses varies, sometimes as a reaction to the excesses of disciplinary specialization, but at other times as a response to new directions in the social, cultural and academic environment. Through research and studies in higher education, we know more about how people behave when they work together in groups and teams, and we know how to apply this knowledge to faculty collaboration through team teaching. Faculty, research suggests, generally enjoy the process, finding it time consuming but extremely satisfying in a number of ways.

A response to this new reality is to train faculty in how to work as part of a community of scholars. It is no longer possible, or at least unlikely, that anyone today can become a true renaissance scholar, mastering vast amounts of knowledge. Then the task becomes learning where, what and how to borrow from other disciplines. Scholars today need to know

what the major developments are in other disciplines and how to appropriate, adapt and incorporate those findings with their own. This reasoning provides a strong justification for interdisciplinary studies and team teaching.

Although it would be difficult to argue at this point in time that a new curricular paradigm is emerging, ready to replace the traditional disciplinary and professional structure, some signs, at least, indicate that universities are offering more than just an interesting collection of courses. If this is the case, to what extent do such courses represent a trend, and where is the trend going?

One way to begin to answer this question for KU is to note the growing number of courses that come from many topics faculty and students want to study that don't necessarily arise from disciplinary formats. Women's studies, American studies, environmental studies and international studies are prime examples of such new areas of inquiry. As these new areas evolve, they are not easily placed into existing disciplinary structures. A growing number of new subjects that no longer fit traditional disciplinary structures will impact the present-day curriculum.

The current information age, referred to as a virtual "knowledge explosion," is coalescing into many new subjects. The disciplines have not lost their power to generate new knowledge, but side by side with them other forces, assisted by new methods and technologies, are producing new subjects. As is the case with plant and animal evolution, sometimes scientists discover forms of life that can't be classified into existing species. Some new subjects don't fit into the domains of old subjects, and new scholarly domains need to be created to study them and teach about them. Over the next few decades, many new subjects that simply don't fit existing categories of academic disciplines are likely to be created. Furthermore, as Davis (1995) suggests, these new subjects many not be simply new disciplines but instead subjects that don't take on the characteristics of a discipline.

Another sign on the horizon is the new interest in not only in what to study but also how to study it. For example, in the past one could count on fairly predictable research methods in most disciplines over the years; recently there has been a renewed interest in approaching old subjects in new ways. In the social sciences, qualitative methods, such as ethnographies and case studies, were used sparingly 15 years ago, and then only in their home disciplines. Now they are

widely used in creative ways across all social sciences and in many of the humanities.

Interdisciplinary approaches offer a myriad of unexplored benefits not only to students but to new and veteran faculty and the university, as well. For assistant professors, team teaching can serve as a way to incorporate their new ideas by engaging and involving their expertise and fresh perspectives. Collaboration between veteran scholars with differing perspectives can energize them and provoke their intellectual stimulation as they reexamine the structure of their belief systems and ways of analyzing their discipline. Retraining faculty in new methods and fields can lead to a wider variety of course offerings. Similar to what editors have done, departments can appeal to a wider group of students with these new courses. As alluded to earlier, this provides greater flexibility in the use of limited faculty resources for teaching. All of this can take place on a weekly basis in the classroom, lab or studio, sustained over a long period, if institutions of higher education create a space for it to evolve.

There are bound to be conflicts, occasional lapses of trust, and diversions of attention. Yet, imagine what an exciting teaching environment can be created by virtue of our very diversity of disciplines. Imagine the challenges to habitual thinking about teaching and learning, the stretching of faculty vision, the growth and development of each individual involved, the new sources of rewards for teaching and, of course, the increased motivation to teach.

An integral part of any teaching and research university's mission is to continue to push for innovation and create open spaces in which new teaching and research configurations will grow. Without it, we risk simply reproducing in large part the course offerings and the educational environment in which we were trained a generation or two ago. The work is not easy, but as Wissoker (2000) pointed out, it is important:

We must acknowledge that interdisciplinary spaces are hard to construct and hard to maintain. It is relatively easy to produce disciplinary versions of purportedly interdisciplinary spaces. ... Those do nothing but reshape the boundaries and methods of the existing disciplines. The real challenge is to find a way to hold the interdisciplinary and the disciplinary in view, not only as authors, but as readers, listeners, and participants in academic institutions. Only then will truly interdisciplinary work flourish.

Through all this effort to develop interdisciplinary courses and engage in team teaching, is there a constant purpose, a consistent theme? A question posed earlier in this essay asked what are all these professors doing with these interdisciplinary approaches. They are, of course, trying to achieve many different things, but one unifying statement is this: They are trying to find and then introduce students to new perspectives. What is valuable about new perspectives? Polanyi (1969), the famous philosopher and sociologist, put it this way:

At the time when flying by aeroplane was first developed, around 1914-1918, traces of prehistoric settlements were discovered from the air in fields over which many generations had walked without noticing them. Though the aerial photographs clearly revealed the outlines of the sites, the markings on the ground which constituted these outlines frequently remained unrecognizable. Such sites are comprehensive entities that are precisely traceable without mental effort from a distance, while the identification of the particulars at close quarters presents great difficulties.

Surely each generation fails to notice many things in its intellectual journey, but perhaps the faculty and at least some students of the next generation will see things no one else has seen by developing new perspectives through interdisciplinary approaches.

Questions to guide us

This white paper suggests that interdisciplinary work currently exists in various sectors of our university. It also suggests that these opportunities are not being addressed systematically across campus for a variety of reasons—some obvious, others not. The authors suggest that as a community of scholars, we should engage in a conversation about interdisciplinary work, which we will facilitate this academic year. We plan to address questions such as these:

- What benefits and what costs are there to devoting faculty resources to team teach cross-disciplinary courses?
- Are there institutional barriers that compromise this type of labor-intensive instruction because of demands for student credit hour production or maintaining traditional departmental offerings, or both?
- What types of analysis and skills do interdisciplinary courses offer that cannot be delivered in more traditional forms of teaching?

- Nationally, as many institutions of higher education have embarked on these new avenues of inquiry and instruction, are we at KU at least keeping pace with other public research universities in our offerings and support for interdisciplinary courses?
- What incentives and support can or should be created to encourage faculty and departments to take the time and effort to construct these courses?
- What academic spaces exist for faculty to conceptualize and develop hybrid courses?
- Is team-teaching with colleagues an intimidating experience for faculty who have grown comfortable in their own classrooms, labs and studios?
- Is team-teaching with friends even more uncomfortable?
- Do split appointments foster or impede interdisciplinary teaching?
- Should faculty be given more flexibility and freedom in configuring their appointments as they develop their careers and as their intellectual interests change?

We hope you will join in this conversation as we collaboratively discuss and explore these questions for KU.

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Reflections in an Olden Eye

Richard L. Schowen

I never had any intention of becoming a teacher. During my Appalachian childhood my family, along with most of our neighbors, made its way from one economic crisis to the next, terrified of the slippery slope down into real poverty. We knew education to be the route to a more secure future, but to us the only rational choice for a child who liked school and science was to educate himself for a financially comfortable, if perhaps strenuous, life as a physician. So it was with that aim before me that I encountered my first college teachers, indeed the first college teachers I had ever seen, shortly after my seventeenth birthday in 1951.

Financial stringencies had dictated that I attend Morris Harvey College in Charleston, West Virginia. I do not know whether the institution's successor, the University of Charleston, is better behaved than the Morris Harvey of my time—but in 1951, that formerly Southern Methodist college exploited its faculty members with a ruthlessness that gave prison labor a good name. My teachers were miserably paid (many had to moonlight to survive), heavily overworked, and were provided with next to no facilities.

Astonishing to me, they were almost all able, dedicated, and creative. Faced with a cat-dissection course but unable to buy preserved cats, my zoology teacher had me accompany him on a tour of mountain farms to collect rabbits dying of a parasitic affliction. The mythical cat-dissection course thus became a rabbit-dissection course in extant reality.

As a sophomore who had passed general chemistry and general zoology, I was offered the opportunity for around 60 cents an hour (I think) to supervise the general chemistry laboratories, the (rabbit) dissection labs, and to take charge of the course in "Human Anatomy for Nurses," a course I had never had and about which I knew less than nothing. Fortunately, the course consisted entirely of memorizing the names of the component bits and pieces of the human skeleton and of a number of protuberances and other surface features of the individual bones. The method used was to pass out, say, four or

five tibias to the group of 20 or so young women, then hold up a tibia and slowly name its features. The students then were given several opportunities to chant out the names as the instructor pointed to the features. I memorized the bones of the day on the night before the class (more exactly in the early morning since I was also working evenings as a movie usher), and because the young women were intelligent, cheerful, and tolerant, we all made our way through to the end of the semester.

These experiences did not suggest to me that university teaching should become my life's work. Indeed, as my family set out in the summer of 1953 for California (my parents, their five children aged nine to 18, and all our possessions in a 1947 Kaiser-Fraser), my resolve to become a physician of solid or even extravagant means was stronger than ever.

Following the John Steinbeck script with precision, we arrived penniless in Los Angeles to discover my father's promised employment was fictional. My education thus yielded to immediate concerns, and over the next two and a half years I worked at a number of menial occupations (and saw the non-academic side of worker exploitation). Most instructively I worked as a laborer, first in what would now be called a virology research group at Caltech and then later in the Naval Ordnance Test Station at China Lake in the Mojave Desert. In these settings, I saw for the first time scientific research being done; and in an awakening that actually had a quite physical shudder of recognition associated with it, I began to feel the powerful attractive forces of pure science as a way of life.

As an Appalachian in California, I was a foreigner and could thus examine the culture of that exotic paradise with the calculating eye of the Other. By January 1956, I knew Berkeley was better than UCLA, I had saved a little money, and I had got myself admitted to the study of chemistry at Berkeley. I took a not quite French leave of the Navy and on the overnight train from Los Angeles (the "Lark"), I read J. Robert Oppenheimer's little book *The Open Mind*. The next morning I moved into the cheapest room in

Berkeley, on Dwight Way. The following couple of years were a marvelous approximation to what Heaven is likely to be.

Berkeley was electric with the excitement of science at the outer edge (probably other scholarship too but I was not paying attention). I loved everything about the university, particularly the anonymity—basically the privacy—of the large classes, then considered by advocates of smaller institutions to be gigantic and unmanageable. But for me, the opportunity to sit without being recognized or even noticed in the presence of those who were creating the fabric of 20th-century science, to take in the ideas and experiences and attitudes of these paragons, without a second thought as to whether my shirt was ironed or my shoes shined or whether I had read some assignment or other, was deeply miraculous. My sensation of intellectual waking must have been similar to Jim Seaver's in his first year at Stanford, described in the first article of this series.

With the exception of one semester of philosophy and one of French, my Berkeley experience was math, physics, and much, much chemistry. Gilbert Newton Lewis, imported from Columbia to Berkeley to make it truly great in chemistry, had insisted on his own college of which he was dean. In his day, according to his rules, only German was studied by his chemists outside of math, physics, and the college of chemistry. By the Fifties the system had loosened, perceptibly but not greatly. At the time, I felt no need of further general education than I had. And I have to say that in the succeeding 45 years I have never yearned for any of the survey courses I missed.

Almost uniformly, my Berkeley teachers were marvelously good and some were quite ingenious teachers. Even those semesters in philosophy and French, taught by TAs, were very fine: Both TAs were war veterans, the philosopher still in his khakis, and the French teacher mustachioed and elegant in a three-piece suit. The man in khakis put me onto Bertrand Russell and the *History of Western Philosophy*, and the French teacher recalled that his fellow GIs used to shout, *Qu'est-ce que c'est, Nescafé?* as he put it, "under the impression that it rhymed." This was a major secret of Berkeley teaching: It was assumed that all Berkeley students would automatically fall for Bertrand Russell once we heard of him, and that with a solid three weeks of French under our belts we would be able to chuckle collegially over a bad French rhyme.

The simple term for this attitude is respect. In my experience, nearly every teacher I had at Berkeley, from Nobel laureates to TAs, exhibited a collegial respect toward students that conveyed this message: We are engaged here together on an important task, and I would like to be helpful to you. There was no admonition but a great deal of unspoken expectation. The respect our teachers showed us was not earned by us. Rather like the grace of God, it seemed to come free and unearned, or at least for nothing more than the 50 dollars or so a semester that at Berkeley took the place of tuition and fees. The respect was returned by the students, spontaneously and also I think free and unearned.

The experience was so glorious that I had no intention of ending it, but one of my chemistry teachers eventually noted it was time for me to graduate. The faculty had the seniors to tea—the only personal attention that afflicted my Berkeley education—to vet our choices of graduate school. The faculty approved of my choice of MIT, with Gardner Swain as mentor. My teacher and fellow Appalachian James Cason's evaluation of Swain: "Some people think he's Jesus Christ on a peppermint stick, and others think he's full of wet hay."

If I had not been living from hand to mouth in my first semester at MIT, I would have quit and gone back to California. The academic atmosphere in the MIT chemistry department was often pathological, with more than a few faculty members working out personal problems through their lives as teachers and mentors. There were bright spots, among them my mentor Gardner Swain and his research group and the joint group seminar under Swain and the gentle, brilliant Fred Greene. Other good parts were that MIT reinforced something I had learned in the laboring world, that you can learn from people without liking them, while its repressive regime inspired me to get a degree and get out as quickly as possible.

While at MIT, I absorbed from Gardner Swain ways of interpreting scientific experiments upon which I rely today and the "hands off" method of working with graduate and postdoctoral students. Following his example as a research director, I have tried to be available and helpful when wanted and out of the way when not wanted. I took a year off from research to conduct a courtship of monumental energy and intensity and finally persuaded my fellow student Barbara Jetter to marry me just before we left Cambridge to come to Kansas.

KU had 9,000 students in 1963 when Barbara and I arrived. I taught a graduate course that dealt with my research specialty and the undergraduate laboratory course in organic chemistry. I had thoroughly disliked my duties as a laboratory TA at MIT. I expected not to enjoy teaching the laboratory course at KU, an expectation fully confirmed in the event. In succeeding decades I taught the course only rarely and never well. Fortunately for KU students, the chemistry faculty also included such model laboratory instructors as Albert Burgstahler, Bob Carlson, and Jack Landgrebe (whose laboratory text became world-famous). I regard my own dislike of teaching the course as a moral defect, but as with my many other moral defects, I have lived easily and often enjoyably with it.

To my surprise, I quite enjoyed the graduate course. My choice of a career in academic science had been motivated entirely by the scientific opportunities and, when I had thought at all about teaching, I had classified it as merely the price one paid for choosing one's own research objectives instead of having them dictated by corporate managers—although freedom came with a lower salary. I had of course realized that if I could not make my specialty attractive and interesting to graduate students, then none would join my research group and my dearly purchased freedom would be pretty useless.

But I found I actively liked trying to make my arcane subject comprehensible. I packaged the product and tried hard to sell it. In the process, I found I was deepening my understanding of the subject and my ability to deploy its methods in scientific work to a degree that astonished me. I was having enormous fun, and students seemed to like it.

The same was not true for the general organic chemistry course, much of which has always dealt with material I never mastered, never used in research, and never felt made much sense. When I dutifully taught it, I had to swot it up the night before, along the lines of the bones at Morris Harvey College. My heart was certainly not in it.

My colleagues in organic chemistry (at that time Earl Huyser, Rich Givens, Tom Engler, and Barbara Schowen in addition to those named above) were uniformly grand masters of the inner secrets of organic chemistry, in love with teaching it, and merciful enough to commute my sentence for the most part. I did with some frequency and considerable pleasure teach a one-semester undergraduate course in organic chemistry for non-chemists. I left out the

parts I do not like or understand (chiefly technical matters of interest only to a minority of practicing chemists) and felt I did a good job.

Later I taught in biochemistry and pharmaceutical chemistry. In both areas, I was a member of several teams that taught graduate courses. In my view, team teaching should be the normal approach in nearly all courses at all levels, at least in research universities. It neatly solves the problem of those of us who never learned enough to teach all of our subject, but most importantly it brings before students those best prepared to discuss each topic at the outer limit of its current development.

In all of my teaching, but most particularly in teaching undergraduates, I found, as Grover Everett wrote last year, that my own children's growing up gave me levels of patience (and respect!) with young people that have been invaluable. As our KU student body has come to include more and more mature students, people often sacrificing severely for their educations and under numerous forms of stress, I have found their presence to elicit more respectful behavior from me and to produce a generally more serious and collegial tone in the classroom.

So what can I claim to have learned that is useful to others? Perhaps these points:

- John Brushwood has explained that research and teaching so-called are simply different faces of the enterprise of learning. It is the special opportunity and duty of the research university faculty member to make learning as seamless as possible and as enjoyable as possible for all concerned.
- Team teaching means engaging students in topics you know, love, and appreciate the value of, while recruiting others with complementary interests and passions to do the rest. It gives students the best that a research university can give.
- We owe our students collegial respect and should exhibit it from the beginning without requiring any sort of quid pro quo.
- If you hated being a graduate teaching assistant, you may be perfectly suited for university teaching.
- Your students don't have to like you, but it's useful if you like them.

Dick Schowen was Summerfield professor of chemistry, molecular biosciences and pharmaceutical chemistry at his retirement in May 2000. He taught as the Kurt Mothes visiting professor in the Institute of Biochemistry and Biotechnology at the University of Halle in Germany in the fall of 2000.

Nurturing Osler's Gift

William H. Peery

By his own admission, Sir William Osler's greatest achievement—certainly a gift to medical students then and now—was to extend formal medical education beyond the laboratory and classroom to include clinical experience in patient care. Now medical students, beginning in 1893 with the first class at Johns Hopkins University School of Medicine, could closely observe patients and their disorders, receive clinical instruction at the bedside, and even play a role in the management of patients assigned to them. So logical and obviously essential is the clinical clerkship it seems almost inconceivable that, before Osler's innovation in the late 19th century, physicians such as Henry M. Thomas, recalling his days at the University of Maryland in the 1880's, noted that medical students "had almost no opportunity for close observation at the bedside of sick individuals." Thomas "was graduated without ever having been instructed in the physical examination of patients, and received the prize in obstetrics without ever having seen a woman in labor." Osler's organization of medical training at the Johns Hopkins Hospital was one of the classic contributions to medical education, and he considered the student clinical experience so crucial to the process of becoming a physician that he once remarked, "I hope my gravestone will bear only the statement: 'He brought medical students into the ward for bedside teaching.'"

In the century after the innovative example at the Johns Hopkins medical school, we find in the United States long-established required student clerkships in both the hospital and ambulatory settings. At KU, the departments of internal medicine and family practice have collaborated on a joint clerkship in ambulatory medicine/geriatrics where students not only participate in office practice but also visit nursing home and hospice patients. The didactic curriculum of clinical years three and four has been reformed to guarantee students exposure to a broader range of practical topics before graduation, including the systematic methodology for assessing the validity of medical research literature known as Evidence-Based

Medicine. Medical schools are also nowadays focusing on more reliable, uniform, and valid ways of assuring that medical students have acquired specified competencies sufficient for graduation. One method increasingly employed to this end is the Standardized Patient (SP).

A Standardized Patient is essentially an actor (even if an actual patient) recruited and trained to portray a patient scenario which tests certain student skills, i.e. interviewing, counseling, problem assessment, to name a few. The characteristics and complexity of hospital and clinic patients that students encounter as clerks are highly variable. One advantage of the SP is all students are measured against the same bar, and the teacher can control the knowledge, skills, or behaviors to be assessed or taught.

While students can learn effectively in the ambulatory setting, and while Standardized Patients can be useful teaching and evaluation tools, the bedrock clinical experience in internal medicine during which students acquire and demonstrate requisite skills and behaviors is the hospital Junior Obligatory Clerkship. It is in the hospital where students have the opportunity to observe and learn about patients and their illnesses in depth and intensity not possible elsewhere.

On the general medical ward service, medical students learn the basic skills they will need on day one of their internships after graduation: to perform and record a comprehensive history and physical examination, problem list, and differential diagnosis on all assigned patients; to write timely and meaningful progress notes and present their patients orally at the bedside; to be accountable for knowing all about their patients on a daily basis. Accountability—as demonstrated in reliable, punctual daily patient visits and being responsible for every item in the patient's chart—cannot be overstated as a mandatory behavior and attitude for all those who would care for the sick. No medical student, regardless of intellectual gifts and academic achievement, is satisfactory when deficient in this attribute. Medical students are typically eager to broaden their fund of knowledge and grow

impatient when ward duties encroach upon time for reading. I paraphrase Dr. Osler who counseled as follows: Medical knowledge is acquired by reading about diseases, but clinical acumen is acquired by learning about this patient with this disease. I find this example useful: Your detailed knowledge of infectious diseases is useless if you fail to notice your patient's fever. Finally, the mentoring, camaraderie, and teamwork students derive from their residents on the ward service is, when all mesh well, an enjoyable experience no student should miss.

In closing, perhaps some personal observations are appropriate.

First, there's an item on the academic menu that should be a staple but which historically has all too often been a rare delicacy—timely feedback on performance. Most medical students are highly desirous of success which means pleasing their teachers; given clear and straightforward critique and direction for improvement, they will make, in my experience, every effort to respond.

Second, students need time for safe sessions with their teachers when they can ask "dumb" questions and give "dumb" answers without fear of ridicule. Of course, as my mentors taught me, there really are no dumb questions or answers, just opportunities to clarify concepts and encourage students in the habit of searching the literature for answers. Medical students enter clinics acutely aware that most everyone knows more than they do by virtue of experience rather than intelligence, and this fact can inherently intimidate some. Seeking occasions for teaching, explication, and learning in an intimidation-free environment is especially appropriate for the student years. Consider the following statement about one who may deserve our emulation. Dr. Alice Hamilton, an authority on industrial medicine and professor at the Harvard School of Public Health, made the following observation in her autobiography: "... sometimes I would drop work for an afternoon and attend Dr. Osler's clinic, just for the pleasure of seeing how admirably he conducted it. He was freer from what the English call swank than almost any other great man I have known. His manner with the students was that of an equal ..."

Third, a policy of remediation for struggling students should not signify nor invite the inference of relaxed academic standards. Some capable students grasp knowledge, skills, and behaviors more slowly than others. Again, clear expectations for performance come into play in conjunction with extra

individual attention and mentoring to enable students to correct deficiencies. I have learned such additional time and remedial experience will more often than not have the gratifying result of legitimate student success in meeting performance standards. But if satisfactory performance improvement is not possible, due process review by the appropriate academic committee and dismissal are meet and right.

In 1975, the Kansas University School of Medicine-Wichita campus was established for the purpose of providing the two years of clinical clerkships for a portion of the class completing the basic sciences in Kansas City. By the year 2000, 1136 students who graduated from KUSM had completed their clinical clerkships on the KU campus in Wichita. A good many of these former students serve in Wichita and other communities as volunteer faculty and preceptors. The success of the KU campus in Wichita owes much to the good will and stewardship of the deans, department chairs, and volunteer faculty, as well as the support of community hospitals and preceptors in their offices where the students go to learn. As I have spent my entire working life at KUSM in Wichita, my views are perhaps somewhat parochial. But in reflecting on what life was like in Osler's day, I cannot be other than amazed at the staggering academic wealth we take for granted—abundant access to patients in modern hospitals, teaching devices such as electronic mannequins which simulate heart sounds, and virtually instantaneous computer access to current information about any medical topic. As for my 20 years on the KUSM-W faculty, no one enjoyed the privilege more than I.

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The Tao of Teaching

R. S. Musser

My troops were not impressed with my medal. Reading through my end-of-semester student evaluations after I had banked the Kemper Teaching Fellows award was humbling. It was embarrassing. Okay, it was humiliating. These evaluations weren't award winning. These evaluations weren't even good. These were the worst comments I had seen in 25 years of teaching.

I felt like an impostor. I was not worthy.

I was, of course, gripped in the disgrace of a man with a tiny bit of fame and a tiny bit of fortune. Yet, I was lucky. I had a piece of paper, some testimonials from former students, and a grip-and-grin photo with the chancellor. They assured me that somewhere, sometime, somehow I must have done something right. It made me think. How many of my colleagues each semester go through this personal, quiet shame without the props—and without the check? How many of us, who believe that winning the respect of our students is the noblest of pursuits, must face this bubble-sheeted terror alone and uncelebrated?

The experience, like cod liver oil, has been good for me. Now I do know better what I do not know about teaching. What's left, what I do know, seems simplistic.

First of all, understand that my teaching career has not unfolded so much as it has rewound. I've always assumed that other young professors started out toiling in large classes, honed their skills on freshmen and sophomores, then, after a decade or two, moved up to more advanced classes with more dedicated students. Finally, they taught seminars to students committed to the values and the goals of their profession. But within two semesters of going to work at KU, I was teaching the most advanced students my school produced, students who have gone on to media jobs in Washington and New York and Los Angeles. Students with whom only a fool could have failed. Yes, we worked hard together, and I cared about them, and I held them to a high standard, and I dared to point out what they could have done to be better. All those things most teachers do.

And the students succeeded.

This I now know: The one sure thing that makes a good teacher is good students.

Do not write off this insight as mere self-effacement. Ever watch an administrator cherry pick the best students for his, or her, own class? Hey, they've learned something while rising through the ranks. Teaching is easier, more personally rewarding, and produces the best results when you start with the best students you can get. Recruit good students to your side. Corral them. Covet them.

Me? I lucked into it. But once I had good students, I did do some teaching I was proud of.

Over the years, my continuing source of pride has been the national award-winning work my students have produced. They have written investigative stories and touching features that, years later, still make me proud to read. To make them win year after year, contest after contest, I'm convinced the most important thing I ever did was to tell them I expected them to write nationally competitive work. My expectation became their expectation. And to meet that expectation they reached down for the best they could do. My job was to accept nothing less. That can be hard work for both student and teacher. They didn't always like to hear that the story wasn't good enough. They re-wrote and re-reported. Not all succeeded. But remember, I was working with the best and the brightest. Quite a few did succeed. And the ones who didn't? I'm sure they learned something about quality writing and hard work and good journalism, too.

While those stories may have fueled my pride, there's an irony to that tiny bit of fame and fortune, too. When the award letters and the checks arrived, rarely did those students toss off more than a passing "Thanks." I once got a appreciative cheeseburger and beer at Quinton's Bar and Deli, but mushy displays of gratitude for putting these prize-winning journalists through their paces have been rare. And that is the way it should be. Their work won; not mine. It was their idea, their all-nighter. What I did was pull it out of them.

The best teaching we think we do goes largely unnoticed by students. Conversely, I'd say, we never notice the best teaching the students think we've done.

I have been in the business long enough that I occasionally get very real, very touching notes of thanks from students who passed through my classes years ago. They weren't the star students and they usually don't work for the Coastal media glamour publications, but something about the school had caught their attention. They had seen my face on a web site, or read my byline in some publication, and were moved to write me. The details of their messages vary, but substance is always the same. They recall being in my class. They recount, often vividly, some remark I made or some moment of mortification we went through together. Then they will say something like: "I still use that every day," or "I still think of that when..."

To be honest, I rarely remember the moment. Sometimes I have to work hard even to remember the student. But those e-mails out of the ozone mean more to me than any other reward for teaching I've ever won or ever will win. And I can't even tell you what I did.

But back to those embarrassing course evaluations. The teaching fates, and curriculum revision, have recently launched me into new and very different teaching venues. It is not the world of 16 students to a classroom and lessons to advanced reporters and writers. More and more, I seem to find myself looking out into one of the biggest auditoriums on the campus. In that sea of faces float students who don't much want to be there. Some don't much care whether they learn or not. Some aren't even awake. From the sidelines I watch my team teachers and realize some of them can do this kind of teaching just as well (maybe, I whisper to myself, even better). It makes me wonder if I know much at all about teaching.

It's a different game, a different war down here in the trenches than it is with the flying circus above. There aren't many medals to be passed out down here, either.

What I am finding is that the lessons I myself must learn to teach massed classes turn out to be the very lessons I have been teaching others for years. The scales fall from my eyes. I slap my forehead like Joe, Curly, or Moe. It's mass communication, stupid: Get their attention early. Make them want to hear and see and read more. Keep your language simple and your

points limited to two or three main topics. Use graphics and hold their attention with interactive breaks. Keep the messages short. Plan for commercial breaks. Be sensitive to the diverse audience you have. Don't offend. Humor helps. Good writing makes for clear communication.

In yet another turnabout, I'm now forced to learn new things to teach, to work in new media and to find new connections while doing all this. I'm hoping that what I learn are connections others haven't seen—or haven't found yet. I'm hoping that my students will soak up some of these new connections. Frankly, I'm not sure how well I'm doing any of this, yet. And if I am doing it well, I certainly don't think I will be around to receive those wonderful, unsolicited e-mails 20 years from now. But it's still worth the effort.

To put a finer point on all this, the synecdoche of my plight ought to have resonance for the University and those who walk its halls. Small classes with bright students are nice; but, with more and more regularity, we will be asked to teach more and more stuff to greater numbers of students in less and less time. We'd better get on with getting better at doing just that.

The new teaching lessons that I've had to learn invert the Zen paradigm I'd used for years. I had been content in my knowledge that, when the student was ready, the teacher would come. Now, I think I may have been wrong. When the teacher is ready, the students will come.

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Hang In There, George

Arlene L. Barry

Writing for a publication titled *Reflections from the Classroom*, I decided I should honestly reflect on what I teach, why I teach it, and whether it is useful. One of the undergraduate courses for which I have primary responsibility is Teaching Reading in the Content Area. It is the only literacy course middle and secondary preservice teachers are required to take. Required courses are not always easy to teach, and the content specialists (social studies, science, English, mathematics, foreign language) who take my course would rather focus on their content area. To maintain student interest, I must frequently re-examine my curriculum and my personal motivation for teaching this course. Do I choose the elements of my curriculum because I am fortunate enough to have the academic freedom to make that choice? Do I teach what I do because it is part of my job description and I am required to do so? Do I teach what I do because I truly believe it is important and relevant? Fortunately I am able to say yes to all of these reasons.

The reason I am most passionate about, however, is the latter. I am imbued with this particular passion because I have a son who has a learning disability. George is bright, athletic, and social, but for all of his 13 years, reading has been a struggle and the thought of reading out loud in class painful. "My heart starts to pound," he says, "and my hands get all sweaty when I have to read." When I told one of his teachers recently that he had a learning disability she said, "I never noticed. What does that mean exactly?" I wasn't sure where to begin. According to the National Joint Committee on Learning Disabilities (1988), the term "refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are ... presumed to be due to central nervous system dysfunction" (p. 2). More specifically, it means that he can read the word "binocular" on one page without hesitation, yet come to a dead stop when "binocular" appears two pages later. He has no clue what the word is or that he just read it. It means that when he reads "interstate highway" in his social studies text, it comes

out "interhighstayway." It means that when he tries to use idiomatic expressions like "Go with the flow" and "Play it by ear," he tells his class he will "Go with the ear." Of course they are perplexed. The teacher is irritated. Because of these kinds of errors, it takes George two and three times as long as his peers to process text. It means he and I slog through hours of homework night after night. It means reading problems do not disappear with the passage to middle school; they intensify. Finally, it means that I want preservice teachers to be knowledgeable about a range of reading difficulties and a host of strategies they can use to help all students in their content classes.

I look at each one of my students as George's future teacher, the person with the power to help or humiliate, and it is easy for me to teach with passion. Does my earnestness transfer and stay with them, or do they learn the strategies to pass my course but forget them when faced with the demands of their own classroom? I decided to ask. It was time to find out if the material I taught was being applied. If so, I wondered, which strategies and methods were being used most frequently? (Strategy here is defined as "a systematic plan, consciously adapted and monitored to improve one's performance in learning," *The Literacy Dictionary*, 1995, p. 244.) If students did not remember my course or anything I taught, I needed to change. If I was really going to help prepare teachers to help children like my son, it was time for me to reflect.

Background

In my content area reading class, we examine a variety of literacy strategies and supporting research. Students then apply these strategies to their content areas as appropriate. Pressley (1998) found that teachers in effective instructional programs were aware of the comprehension strategies in research literature and selected strategies and methods that made the most sense to them. Teachers explained the strategies to their students, showed them how to use them, and helped students apply these strategies as part of in-school practice. Studies of a number of these strategies have been conducted and their use validated;

e.g., Brown, Pressley, Van Meter, and Schuder, 1996; Anderson, 1992; Collins, 1991. We follow a similar process. We talk about the research, I model the strategies, and students try them out. According to Pressley (1998), cognitive strategies like thinking aloud, constructing images, summarizing, predicting, prior knowledge activation, questioning, clarifying, and text structure analysis "can promote reading instruction beginning in grade two and continuing into high school" (p. 216). These are comprehension strategies used by excellent readers. One problem in trying to determine the strategies and methods used by my former students via a survey is that comprehension changes from a process to a checklist. However, in trying to contact and question 550 former students, the checklist served as a screening device from which future research can grow.

To begin my assessment, then, letters were sent to all students who completed T&L 351. I explained that I was trying to do the best job I could with the course and wanted to determine what information they were able to apply. I requested the following:

1. Please indicate the grade level and content area you currently teach, as well as the total number of years taught.
 2. Examine the list included and check off any of the content reading techniques or strategies you have used thus far.
 3. Rate the strategies used: 1=not effective, 2=effective, 3=very effective.
 4. Check the techniques or strategies you would recommend others use.
 5. Include comments or remarks if you desire.
- Brief descriptions of the 24 literacy techniques were included on a separate page. Stamped, addressed envelopes were included for their convenience.

Information Gathering

While I assumed that the most difficult part of this survey would be facing honest feedback from former students, the real frustration actually occurred in trying to track down 550 School of Education graduates. The Alumni Center and Nancy Peine were wonderful about sharing student address information once ACHE approval was received. Even though 76% of the letters mailed came back to me, only a small percentage of them were usable. Unfortunately, 286 of the 550 mailings, or 52% could not be delivered to the addressee. For another small group, 2%, the Alumni Center had insufficient information or deemed them

lost. Only 123 of the letters returned contained the information I sought.

There were many positive comments about the class and its practical nature. One science teacher, for example, said "I have found your class most helpful. I use the information and strategies on a daily basis!" Another responded, "I'm glad this survey arrived. It gives me the opportunity to tell you how useful the information was and is as I teach Spanish. ... I've shared many ideas with older teachers in my department and they love them too!" A few (6%) said they were not teaching.

All of those currently teaching who returned the surveys said they used at least some of the methods and strategies. Of course, it is the quality of the strategy used that's more important than the quantity, but the fact that teachers are applying what we did in class and providing reflective comments is a start. Evidence of transfer and durability (some who returned surveys have been teaching over ten years) will allow me to move to the next step of classroom observations. Also, I realize that I am not the only KU professor who demonstrates the use of instructional strategies. It is with these caveats noted that I discuss survey results.

Results

Individuals listed primary teaching responsibilities in 11 different content areas. These included social studies, English/language arts, mathematics, science, foreign language, geography, gifted, special education, theater, music, and elementary education. The number of years teaching ranged from less than one to 12 years. About 26 teachers responded in each of the three content areas of social studies, English, and science and about 15 each in foreign language and math. English and social studies teachers used the greatest number of strategies (average 13), with science, foreign language, and teachers of the gifted averaging 12. The 16 mathematics teachers used an average of nine instructional strategies. The fewest number used was two, by a social studies teacher teaching for seven years. The greatest number reported was 22 by a language arts teacher teaching for 12 years. The modal number of strategies used was 11 and the mean 12. Again, these strategies are not disjointed activities separate from the larger comprehension process in which students and teachers read, write, analyze, monitor, and discuss. They are vehicles for helping students use the kinds of cognitive strategies implemented by excellent readers.

In descending order of use, teachers noted application of the following:

Visual aids (Images, photos, slides, videos, charts, diagrams)	84%
Analogy (Comparisons between the new and known)	77%
Graphic organizer (Content vocabulary chart that establishes relationships among concepts)	77%
Note taking	74%
Writing to learn (Journals, exploratory writing, research, etc.)	73%
Study guide	70%
Vocabulary activities (Morphemic analysis, context clues, semantic feature analysis, etc.)	62%
Anticipation guide (Taps into prior knowledge and helps dispel misconceptions)	53%
K-W-L (What I Know, what I Want to know, what I Learned)	52%
Summarizing	50%
Previewing (Use of text aids to tap into prior knowledge)	45%
Preview (Book talk)	43%
QARs (Question-answer relationships)	41%
Problematic situation (Problem established to set purpose for reading)	40%
Student-developed questions	40%
Think-aloud (Teacher models thinking through difficult text)	38%
Reciprocal teaching (Uses questions clarification, summarization and prediction)	36%
Directed reading-thinking activity (Uses prediction, verification, judgment, and extension)	34%
Guided imagery (Concepts explored through mental images)	30%
Gloss (Marginal notes clarify and extend text)	28%

Discussion web (Question/discussion technique)	26%
Story impression (Writing activity based on key elements of a story)	9%
Intra-act (Framework for discussion that uses summary, prediction, and valuation)	8%

Respondents included remarks for all strategies listed. There were clear favorites. Regarding the use of visuals, for example, teachers said things like, "An absolute must," "Indispensable," "Always! Always! Always! I challenge myself to bring in aids that use all the senses." For a related visual process, guided imagery, a biology teacher said, "Kids think it's cheesy but they love it." Teachers felt that analogies could be used to help relate content concepts to students' lives and that students often produced very good analogies of their own. Graphic organizers were praised as "great organizational tools," and a good way to allow students themselves to organize chapters and review for tests. These conclusions are in line with those found by Alvermann (1981) two decades earlier in her work with tenth graders on expository text. Teachers found that writing helped students "make some of the strongest connections" and that students loved a variety of vocabulary activities. Another tool that students were said to love was the anticipation guide. Since the anticipation guide consists of text related statements that students respond to before reading, a Spanish teacher commented that her students "like to see how well they did after reading" and that "they also search for the correct answers." A language arts teacher found it to be an "excellent lead in for a debate." While overall use was less frequent, individual teachers also gave supportive comments for question-answer relationships, reciprocal teaching, and directed reading-thinking activities.

Criticisms of strategies were actually infrequent and generally more related to the process and the time required for implementation. For example, referring to writing strategies, one chemistry teacher said, "With 110 kids, I only do [writing] when I have lots of time." Question-answer relationships were also noted as time consuming. Referring to summary writing, another chemistry teacher said, "Students tend to simply rewrite text, must be carefully monitored." A second-year biology teacher did say he found use of mapping, specifically concept mapping, negative for both students and himself. While he

rated it effective he said, "Kids hate them. I find them difficult to assess." He added, though, "Love the theory behind them." Some other strategies students disliked but teachers found useful were vocabulary ("Kids hate it, but they need to learn it") and study guides ("Boring, but helpful"). Surprisingly, if a teacher rated a strategy not effective like one second-year French teacher, s/he concluded it was "due to my use of the strategies, not inherent problems with the strategies." Also, many teachers noted interest in trying strategies they had not gotten to yet, i.e., "No, haven't tried it yet, but I should. I will."

Sensibly, teachers noted that they adjust procedures to suit their needs and the needs of their students. For example, one teacher incorporated a variety of different questioning approaches in her Socratic seminar. Another said, "I may use this a little differently but it's a great teaching technique." Also, I agree with the world history teacher who summarized, "No one strategy, in my opinion, is very effective alone. I feel it is important to use a variety."

Conclusion

Historically, adolescents who struggled with reading have been "discourage[d] continuously by low grades and criticisms" (Trabue, 1934, p. 9) until they dropped out. Living with my own son's current educational experiences, I sometimes feel things have not changed all that much. As a former middle/high school teacher myself, I know a teacher's load is heavy. I also know that most middle/secondary teachers are themselves expert learners, enamored of their content, who have difficulty putting themselves in the shoes of one who struggles. Content reading courses have, in my opinion, been a godsend for teachers of the adolescents who fall into the National Assessment of Educational Progress' Basic achievement level. Unfortunately, they have been slow to take hold (only nine of 50 states in the U.S. required one reading course for secondary certification prior to 1980, Mangieri & Kemper, 1979; 12 states in 1980, Maxworthy, 1984; 25 states in 1993, Barry, 1994). However, with information on reading processes, methods, and strategies that such courses provide, middle/secondary teachers now have the awareness and tools available to help all of their students read. It is an ongoing process, though, because as one social studies teacher confided, "As an undergrad you have no idea how important reading is in EVERY classroom. Perhaps I should have paid much better

attention in class!" She continued on a note that made me feel that some of my instruction was being applied: "I have referred to my content area reading text many times. I'd like an inservice to refresh these techniques."

Hang in there, George, there is hope!

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Reflections on Teaching

Carl Strikwerda

Teaching is an act of preservation and creativity. As Edmund Burke once said, society is an unbroken contract of the dead, the living, and the unborn. Almost everything we teach was once taught to others. Only because we value what was handed down to us, do we give what we teach to our students. By valuing what we have learned, we make a double commitment: to preserve what is good from the past and to instill in future generations what we have learned. Teaching—of knowledge, of values, and of the beauty of discovery—knits one generation together with generations past and generations still to come. Society lives and breathes through teaching.

In this sense, teaching is a conservative act, in the classic sense of the term. Because we care enough about society, about other people, and about what others have done, we take the time to instill in our students an appreciation for a larger enterprise, the past, society, and the wider world. We give them an appreciation for what has been done by people most of whom neither we nor our students can ever hope to meet. This appreciation for the larger world in which we live and for what others have done gives students a perspective of themselves and their place in the world. For all the revolutionary changes of the present, our language, our values, our forms of government, our rules of evidence, and our fundamental rules of inquiry are for the most part handed down to us from the past. Much of this we cannot hope to change. Instead, we can hope only to build upon it. Teaching is often thus an act of respect to the generations before us who took the time to nurture and pass on the best that they had been given.

Teaching is conservative in another sense, as well; we teach to conserve, build up, protect, foster, and nurture our students. We pass on the best of the past in order that our students need not exhaust themselves in re-inventing, rediscovering, and relearning the basics and the best that is already known. Instead, we give them both the basics and the best that is known so that they can spend their energies on growing, on using their creative impulses to go beyond us.

The past is not simply a treasure to be passed on. We pass on to our students the best that has come down to us, but we teach them about much more. Much of the past is a troubling legacy of dangers to be avoided, of human tragedy, and of failures. If our students should learn about the theories of Einstein, the philosophy of Aristotle, or the literature of Buddhism, they must learn about the long history of oppression against women, the appalling persistence of war, and the crimes of slavery and the Holocaust. Society at its best is an unbroken contract, but it is a contract that has often been shattered. The best from the past cannot be given and cannot even be understood in isolation. Much of the greatest thinking of the past was born in fighting against ignorance, indifference, and injustice. We truly respect the best of the past when our students learn about the full complexity of the human experience.

True teaching preserves and conserves much more than information. What we give our students must be more than knowledge. What we really must be passing on are the ideas which give coherence to knowledge, the techniques of discovering and understanding information, the ability to synthesize what it is that we know, and the need to ask questions. The most important gifts we can give are the values that the past has given us and that we believe are truly worth living by. These are communicated best as the answers to questions. Truth and justice can remain abstractions. Demonstrating how discoveries replaced ignorance and what the consequences of injustice have been can make students see why generations have cared about rigorous inquiry and created bulwarks against injustice. We pass on the best from the past so that the best is not lost, and we teach to inspire our students to form another, still better link into the future.

At the same time, teaching, even of the oldest and most cherished of traditions, is always a creative act. We pass on the best from the past because we make a judgment about what is best out of all that has come down to us. That judgment is always a decision based both on what we perceive as having stood the test of

time and on what we perceive as most important for our generation and for the future. Deciding what we should teach and what we will discard is one of the greatest responsibilities of teaching. And, even as we decide what it is we wish to teach from the past, we, like all generations of teachers before us, inevitably change, adapt, and add to what it is we have learned. There are always new discoveries, new ideas, new insights clamoring to be added to the fund of what we teach. We complete a creative act each time we decide what is worthy of being taught from the present, just as when we decide what to teach and what to discard out of the storehouse of what was once handed down to us.

Teaching, in this sense, also reaffirms the value of something that is too often set in opposition by critics to teaching, that is, research. Critics frequently argue that colleges and universities emphasize research to the detriment of teaching. Research is supposedly esoteric, far from the concerns or needs of students, and done by faculty members for the benefit of the researchers themselves or the benefit of some outside agency. Yet those pioneers in the nineteenth century who created the modern research university had a powerful insight. They argued that colleges—places that teach students—and institutes or academies—places that do research—should best be joined together. Just as it is true that almost everything we teach was once taught to us by others, so it is also true that almost everything we teach was once someone's research. The body of accepted teaching in a given discipline frequently is the best test of the state of the discipline. If the teaching in a discipline is vital and interdisciplinary, producing students who go on to do great things, it is because the research and the teaching in that discipline are closely intertwined.

Along these lines, it is unfortunate that textbooks have evolved in American education and academic publishing as almost solely devoted to entry-level, undergraduate education. I remember vividly a newly-hired colleague writing on a research application within the university that the book he was working on would be a major work in the field, one that he hoped would be accepted as a textbook. Although he was given the award he applied for, the internal reviewers of his application warned him that in the future he should not argue that his projected book would become a textbook. A textbook was a book for freshmen or sophomore students, one that publishers agreed to publish—and faculty authors agreed to

write—in order to make money. Such a publication really did not deserve to be supported by university research funds.

My colleague, however, had just come to the university from the British academic system, where textbooks were those books judged to be the most influential and best books in a field, the 100 or so books at any one time that one would reasonably expect graduates of a university to have read in their discipline. Now, it is true that in Britain undergraduates, as in most countries outside the United States, study only their major and do not take mass general education courses as freshmen and sophomores that most undergraduates do in this country. Thus, a textbook in the British system is typically a monograph or synthetic work that undergraduates in the United States might read in only the best upper division undergraduate or beginning graduate courses. Nonetheless, the standard that the most important works in the field are those that we choose as works which students must read is a good one. The dream of every professional researcher and scholar should be that he or she has produced a work that colleagues judge important enough that they assign it to their students.

Teaching in this sense can be both conservative and creative. Teaching has often helped ratify many of the most interesting intellectual changes within the academy. Scientists know that claims of a new discovery can be truly accepted only when they have been replicated by other researchers under similar conditions. Similarly, and more broadly, what ratifies and validates new approaches and new theories in a wide variety of disciplines is what is taught in the classroom. We may forget that psychology as a discipline grew out of philosophy and biology departments, and political science and government as a discipline emerged usually from history departments, because researchers wanted to teach their research. Fellow members of academia realized that students deserved to be introduced to these fields in their own right, not only as branches of other fields. More recently, environmental studies, women's and gender studies, computer science, criminology, linguistics, and biochemistry have evolved into separate departments or degree programs. This evolution occurred, first of all, because important research was being done in these fields. But this evolution also occurred because academia recognized these new fields of inquiry by saying that they were important enough to be taught.

It is what we as a community of scholars decide deserves to be taught that is the final arbiter of what we believe is valuable.

Finally, teaching is a commitment to kindle creativity in our students, to make them use imaginatively what they have been taught and to empower them to discover new things to add to the traditions that we were taught. Teaching not only connects our students to the past, to society, and to a world larger than us and them, but it gives our students a mission. Our students will take what we give them and, if we are truly as good at teaching as we hope, our students will go far beyond what we have done. Our aim is to foster students who will never be tied only to what we gave them. We are genuinely honored by students of ours who are independent, in a sense, unpredictable, empowered by our teaching, but never bound by it. Teaching is an act of faith. We can never control what our students do with our teaching, but we would not want to. We give them our best, and that means we give them the chance to take risks with what we were given just as we took risks. We pay our best homage to those who discovered things before us by inspiring the next generation to go beyond us in their ideas, their discoveries, and their teaching. And through them, we shape all the generations that are to come.

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