

Essays on Teaching Excellence

Toward the Best in the Academy

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Forward to Aristotle: Teaching as the highest form of understanding*

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*** This piece is based on a keynote address given at the 1989 POD Network annual meeting.**

Why isn't teaching more intellectually respectable? Is there something intrinsically dull about it? Or are the concepts we use to talk and think about it inadequate, flawed or demeaning when compared to the real complexity of the task that is teaching? It seems to me we have been operating on too hollow a conception of what teaching is all about; that there is a richer and deeper conception of teaching which could lift our attitudes about it to a higher level of development.

At AAHE two years ago we organized the whole conference around a celebration of teaching. I invited every provost in the country to identify one faculty member on campus who was doing an incredibly effective job of succeeding against the odds, of teaching hard-to-reach students, and to send that person to the conference to be saluted and meet others like them. We hoped to learn from them what exemplary teaching involved. Their first task was merely to sit in small groups and tell a story about what made their teaching so terrific. In about ten minutes the room had exploded with intense energy, excitement and vitality. One participant said that no one had

ever asked her to tell the stories about her teaching before. In fact, to talk publicly about one's teaching as if it were meaningful was to embarrass oneself. Nevertheless, there was a hunger in that room for a forum in which it was legitimate to share issues in teaching. Then we rearranged those small groups into three larger clusters representing Humanities, Social Sciences and Natural Sciences, in an attempt to come up with generalizations about what made for good teaching. It was a complete failure. They talked in platitudes, saying things like, "You can't generalize; you've got to come and see it happening." We were astounded. Why was it that we could generate so much energy asking faculty members to share the excitement of their teaching, but failed so miserably when we tried to take the next step and generalize?

Teaching as Transformation It seems to me that the answer lies in the ideas of another speaker at that conference, Lee Shulman. He would argue that good teaching is a highly complex, context-specific activity. If you ask the question "What makes a good teacher?" you will get one set of answers. But if you ask "What makes a good English professor?" you get a little bit different and a little bit better set of answers. And if you move to an even more specific context, "What explains the capacity of a teacher to get students interested in Julius Caesar?" you get a third, deeper and richer set of answers. Exemplary teachers have a whole repertoire of metaphors, demonstrations, strategems, and examples to transform their understanding of the subject into terms that their students can grasp. The exemplary teacher doesn't simply say to the class, "Tomorrow read the first chapter of Julius Caesar and come to class prepared to discuss the theme." Instead, she transforms her understanding of the theme into something that is meaningful to the students by saying "Suppose you're a member of the Starship Enterprise, and Captain Kirk is beginning to act a little strangely." She develops the plot a bit further and challenges the class to struggle in small groups with the question of what a commander looks like when he's going off his rocker, and what to do about it. Then she says, "Now, go read 'Julius Caesar'."

The metaphor for exemplary teaching changes from teaching as transmission to teaching as transformation. It is teaching as the representation of the ideas of a field in ways which are

comprehensible to and which will touch the souls as well as the minds of the students. What Shulman would argue is that Jaime Escalante of *Stand and Deliver* is brilliant as a teacher because he can take the difficult concepts of calculus and find ways to transform them into language and terms that kids from the East Barrio of Los Angeles understand.

In their heart of hearts, faculty know this; it is what they are about: their subjects. But what we haven't done is to connect the language of teaching to that core of faculty existence, the subject. There is more to teaching than simply knowing the subject and talking about it; that's the easy part. The difficult part is finding the words, the metaphors to represent the ideas of the discipline to those who don't already understand it. How do you represent the idea of electricity to a freshman? Is it like water flowing through pipes, cars on a highway, an assembly line? Is there a better analogy? Viewed this way, effective teaching becomes the highest form of understanding. Aristotle's strictest measure of whether or not someone really knew something was whether they could turn around and teach it. Does the teacher know the subject so well that he or she has an incredibly rich repertoire of ways in which to explain each concept? And if none of those ways works, can he or she devise a new one on the spot? What if we take this notion of teaching as the highest form of understanding seriously? Would it change the way we feel about teaching, the way we talk about it? What would we do differently and what would become important in our academic lives?

Perspectives on the Discipline One thing which would become important is how we view our disciplines and see ourselves as members of that discipline. Do we see the discipline as an accumulated body of knowledge and teach it as, in Joseph Schwab's terms, "a rhetoric of conclusions?" Or do we see it as a dynamic framework of inquiry, a movie that has a beginning and an end and is evolving and we are a contributing part of it? Do we introduce our students to a dynamic set of questions of the professional discourse that has been going on since the beginning of the discipline and make each class a microcosm of that great conversation? It would also become important that we see our discipline not only as a discipline but as a teachable subject. We would care about the purpose of teaching the discipline, not just as the Canon, but from

the perspective of the student. We would be more aware of what the students bring to the class, not just in general, but in terms of the specific understandings and misunderstandings about the subject. For example, there is the story of a teacher who spent two and a half days talking about the Reformation and Martin Luther, the 95 theses and so on. And almost at the end of the unit a student raised his hand and said, "Why haven't you talked about what Martin Luther did for black people?" It turned out that half the class thought that she had been talking about Martin Luther King. One wonders how many times college students bring to the classroom experience a mental picture of the subject under discussion which is at odds with what we are trying to teach. The exemplary teacher knows this is a possibility and how to bring those misconceptions to the surface to replace them with more adequate pictures and metaphors.

How Would We Change? If we accept teaching as the highest form of understanding, it becomes highly integrated with our scholarship. Teaching becomes a dimension and expression of one's scholarship and thus an integral part of departmental life. Prospective faculty are scrutinized for their conceptions of the field and how they would convey them to students. They would be asked to work up a draft syllabus for a course they might teach and discuss it with the members of the department, because it would be in the selection of books and materials, topics and procedures that they would reveal their true understanding of the discipline. Within the department, occasions like preparing syllabi for courses would be major opportunities for reflection and discussion. I know many faculty who wouldn't dream of starting a grant project or writing a book without doing a prospectus and sending it to colleagues for comment. But I don't know too many who follow the same procedure with a course. There would be planned occasions for reflection, department retreats, divisional retreats, organized around an analogy to what doctors do on grand rounds. Colleagues would present interesting cases about their teaching, unusual experiments in fostering student understanding, sticky problems of conveying difficult concepts, all to highlight the lessons that have been learned from their work on a particular case. In fact, reflections on such problem solving opportunities could be worked into portfolios in which faculty would be challenged to display samples of effective performance in the area of teaching for purposes of evaluation. I can imagine a portfolio in

which a faculty member puts samples of how a syllabus has evolved over several semesters along with a reflective essay documenting his or her own growth and understanding about the vision of the course. If we come to accept that teaching is not just a legitimate form of scholarship, but one of its highest forms, the questions posed at the beginning of this essay might disappear. Teaching would no longer be a dull, intellectual stepchild of the academy. It would instead exemplify the true meaning of scholarship and be heir to the intellectual excitement now reserved for research.

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Countering Common Misbeliefs about Student Evaluation of Teaching

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What can be said in response to wide-spread beliefs that student evaluations of teaching (SETs) merit little credibility? I encourage colleagues to reconsider such attitudes toward SETs via four simple steps. The first consists of recognizing myths about SETs in their common forms. The second entails challenging SETs in light of the research literature. The third consists of inducing faculty to try SETs in formative and painless fashion to experience the value of feedback from students. The fourth helps show faculty how to educate students to give more constructive feedback in SETs.

First and Second steps: Recognizing and challenging myths. The following myths about SETs appear most commonly in my experience. (Each myth is followed, parenthetically, with rebuttals from the research literature.)

1) *SETs reflect little more than a teacher's personality and popularity.* Some of us employ this belief to help salve the pain of evaluations. Statements often take this form: "If I were an entertainer, my SETs would improve dramatically." (In fact, the gist of research is that measures of personality and popularity correlate at low, usually insignificant, levels with SETs.)

2) *SETs mirror course difficulty and expected grades.* Here again, we can devalue SETs by assuming that they decrease as we make courses tougher. The common statement: "Highly-rated colleagues pander for good evaluations by giving easy assignments and generous grades." (Research makes a strong case to the contrary. Anticipated grading and SETs tend to be uncorrelated; heavy work loads correlate positively with SETs.)

3) *SETs of tough teachers improve when students are resurveyed years later.* All of us, as teachers or parents, like to believe that our "charges" will appreciate us more later, once they have seen the wisdom of our discipline. Some professors cite anecdotes to this effect to excuse their currently low SETs. (Research, sadly, shows that SETs remain remarkably stable over periods of many years. In other words, demanding and misunderstood teachers generally do not get higher ratings in retrospect.)

4) *Teaching is idiosyncratic and cannot be measured meaningfully.* This misbelief, that teaching defies analysis, is used to reject SETs because they supposedly miss the unique qualities of professors' styles. (In fact, research shows that effective teaching consists of rather ordinary and measurable factors like clear communication and rapport. Moreover, as we shall see anon, SETs lend themselves nicely to added measures that tap dimensions not covered in standardized forms.)

5) *Students are quick to complain and criticize.* If faced with low SETs we may suppose that students expect too much and disapprove too readily. (Studies of SETs, in contrast, suggest that students evaluate us generously; sometimes at rates of 80% for combined categories of good and excellent.)

6) *SETs reflect little more than classroom performance.* Some professors faced with disappointing SETs dismiss them because they cannot identify what they need to do differently. (When observations extend beyond the classroom, however, the problems may become apparent. A common example: acting in ways before and after class that students see as abrupt and impersonal.)

Third step: Remediating another myth, that SETs must be

painful. As we begin to recognize that SETs may be credible, we may worry even more about the pain of getting poor evaluations from instruments that we now know are valid. One way of involving faculty in SETs that will be carefully considered and acted upon is to make the instrument painless. The first sample SET at the end of this article offers just such a format. By asking student simply to indicate desired directions of change along continua with no good or bad endpoints, faculty can get painless feedback about ways in which they might consider change. At its best, the painless SET becomes the topic of discussion with classes (e.g., "why do you suppose that as many of the indications for change face in one direction as the other on this item?")

In my experience, once previously reluctant faculty try painless SETs, they are far more likely to volunteer for greater investment in conventional SETs.

Items on the painless SET can, of course, be changed to suit the tastes and needs of those who administer it.

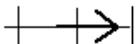
Fourth step: Countering a final myth, that SETs must come at the end. The obvious problem in not giving SETs earlier than at semester's end is that faculty are unlikely to make changes that could help improve ongoing classes. The second sample of an SET format at the end of this article illustrates a simple means of getting early, informal feedback from classes.

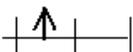
Early and informal evaluations like this one offer several advantages: a) They encourage faculty to rely on more than casual comments as the index of how they are doing. Instead, faculty can actively solicit anonymous opinions from all students - even those who ordinarily remain quiet during the semester. b) Early evaluations help get students involved. As the instructions attached to the early SET indicate, students can help collect, analyze, and even discuss the results. c) Discussions of the results of early SETs in class help educate students as evaluators. Faculty discussing early SETs can do more than indicate intended changes in teaching-related behaviors. They can also give students feedback on what kinds of evaluative comments are constructive and which are not. Experience with this strategy indicates that many students become more proficient as

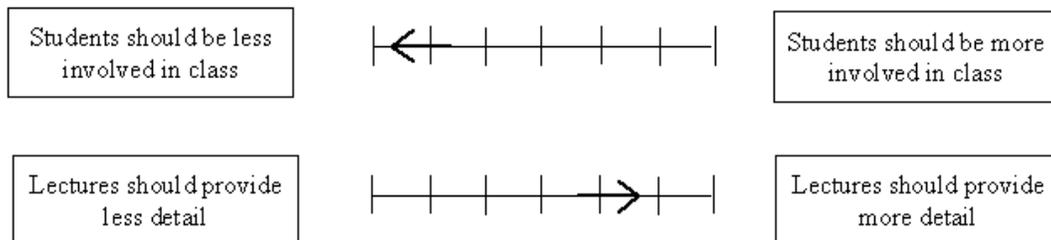
evaluators and more interested in the teaching process as a result of paying attention to specific categories of performance. d) Early SETs provide an opportunity to collect something usually left out of evaluations - compliments. This general plan for getting faculty to abandon the temptation to see SETs as capricious indices of pandering and vengeful students revolves around action. It stimulates us and our colleagues to supplant our usual passiveness with proactiveness. In actual practice, I find that the general sequence of steps outlined here works best to change attitudes and behaviors (not necessarily in that order). In essence, these steps involve educating ourselves about what SETs really mean and how they can help. One advantage of the sort of approach suggested here, according to my own research, is that it leads to three positive changes: 1) raised SETs, 2) alternative teaching behaviors, and 3) improved classroom comfort for both faculty and students.

Student Feedback for Instructors

Bob Boice and Lyle R. Creamer

Recommend changes by drawing a directional arrow on each line. For example 

Or use an up arrow for no change 



Suggestions for Using the "Informal Student Evaluation (ISE)"

1. Administer the ISE at least once before formal evaluations; the earlier the administration of the ISE, the more instructors generally benefit. Try to use by midterm at the latest.
2. Allow 5 minutes at the end of a class to administer the ISE. Simply say that you're interested in learning what you're doing well and what you could do better while there is still time for change.

3. Ask for student volunteers to collect and compile evaluation sheets. In fact, students do see this request as an imposition. In fact, students provide more useful feedback if they know that you will not see their handwriting (thus the reliance on students to collect and summarize the evaluation sheets.)
4. Ask the student volunteers to summarize the results on a copy of the ISE. Numerical ratings can be summarized as a sampling of the most common types (e.g., "the instructor treats students with respect"). Have the summarizers omit uncommon remarks.
5. Xerox copies of the summary sheet and distribute them to all students at the beginning of the next class. Plan to spend 5 minutes reflecting on the results and probing students about what some evaluative comments mean (and how you can address them in terms of changes in style, content, etc.)
6. Use the occasion to educate students about ways to provide useful feedback to you; about your assessment of the class on dimensions like involvement, preparedness, etc.; and about your rationales for teaching the way you do (i.e., you may want to defend some of your practices).
7. Choose a sample of items from the formal evaluation to be used later in the semester (as in the example ISE provided here). These can give you a preliminary sense of how students will rate you (and a chance, in your discussions with them, to determine the basis for their numerical ratings on formal items.)

Informal Student Evaluation (ISE)

1. What the instructor does well (please be specific):
2. What the instructor could do better (please be specific):
3. Please rate the instructor on the following scale, 1-7 (7 = maximum/excellent)
 - a. Objectives and procedures were made clear. ____
 - b. Instructor is well-prepared and organized. ____
 - c. The course stimulates my thinking. ____
 - d. Presentations are clear. ____

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Collaborative Learning: Reframing the Classroom

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There have always been social dimensions to the learning process, but only in recent decades have specially designed collaborative learning experiences been regarded as an innovative alternative to the lecture-centered and teacher-as-single-authority approaches typical to most college classrooms. With increasing frequency, students are working with each other, and alongside their teachers, to grasp subject matter or deepen their understanding of it. In the process, they are developing their social skills as well as their intellectual ones. Students and their teachers are involved in a common enterprise, that of mutual seeking of understanding. Because many minds are grappling with the material at once while working toward a common goal, collaborative learning unleashes a unique intellectual and social synergy.

Roots of Collaboration in Education. As the 1990's begin, interest in collaborative learning has never been greater. This expanding work, however, is not based on a single theoretical foundation or even a very clear history of practice. The work on collaboration in education is more like an arbor of vines growing in parallel, crossing or intertwining. Many of the vines are rooted in experiential learning and student-centered instruction, whose major proponents in this century have been philosopher John Dewey, and cognitive psychologists Jean Piaget and L.S. Vygotsky, each of whom

advocated the creating of active learning contexts where students could successively reconstruct their understanding of the world around them. Closely connected are the vines of cooperative learning. Its roots are in social psychology, especially in the small group theories of Kurt Lewin and Morton Deutsch. Different but related vines spring from undergraduate curriculum reform efforts, attempts to re-structure both course work and classroom practice for greater intellectual coherence and active student involvement. Early experiments led by Meiklejohn in the 1920's, and Tussman in the 1960's have numbers of recent new shoots, at The Evergreen State College and in dozens of "learning community" curriculum initiatives around the country. At the same time, problem-centered learning, case methods and peer feedback approaches have been appearing and expanding in various disciplines and professional degree programs, particularly in writing, mathematics and the sciences, and business and medical schools. And, all these efforts are finding growing philosophical confirmation in the pedagogical implications of social constructionism and feminist theory.

Designing Collaborative Work. Collaborative learning flourishes in so many contexts that it defies precise definition. During a lecture, students might be asked to turn to a neighbor to formulate responses, draw connections to other material, raise questions, or solve problems. Students might work in teams to conduct and write up a laboratory, field study or longer research project. Or, they might meet regularly to prepare homework, critique each other's writing, hold seminar discussions or prepare a presentation. What is essential to all these activities, though, is positive interdependence between students, an outcome to which everyone contributes, and a sense of commitment and responsibility of the group's preparation, process and product.

For the faculty member, designing collaborative learning experiences requires careful thought about what active (and interactive) learning might entail in the course or discipline. A first task is to examine the scope of a whole course: where and in how much of the course would student collaboration be appropriate? Second, framing the actual tasks or problems for collaborative work requires thinking through the particular kind of intellectual experiences or thinking tasks that students might undertake together. Most teachers realize

that unstructured, free-wheeling explorations do not sufficiently focus student energy, or challenge students to use what they know. Students are most stimulated when challenged with absorbing or puzzling tasks or questions, and when they have a clear sense of the expected product. It takes some practice, and repeated observation of students grappling with tasks, for teachers to find those points of access, or "zones of proximal development," as Vygotsky called them, where students are challenged to move from what they know into the realm of what they don't quite know yet.

A third facet in design work concerns feedback and accountability, critical elements in any collaborative enterprise. If multiple small groups are working on problems or exploring issues simultaneously in a classroom, what will the process be for sharing the results of work? When and how might the faculty member provide clarification, evaluation or extension of the work that has been accomplished? Will the students have an opportunity to evaluate the nature of their own work, as well as their effort as an interdependent group? Individual accountability is critical: how will the teacher carry out individual student evaluation when students are spending significant time working in teams?

The richest guides for teachers are their own experiments with teaching, the advice and experience of colleagues, and most importantly, formal and informal feedback from the students themselves. Indeed, the collaborative classroom, brimming with data about the content and quality of student learning, is an on going lab for "classroom research." The public learning taking place provides immediate feedback for the discerning teacher to use in improving collaborative designs.

Reframing the Student Role. While productive, engaged communities of collaborative learners are a worthwhile ideal, teaching and learning in this mode is not without significant demands. Because high expectations about participation and collaboration require substantial role shifts for students, it is not unusual to encounter student resistance to group work. Embedded in student expectations about classroom culture, and the inertia of their own ingrained habits, such resistance should be taken seriously. As they move into collaborative learning settings, students

grapple with such shifts as those:

- From listener, observer, and note-taker to active problem-solver, contributor and discussant;
- From low or moderate expectations of preparation for class to high ones;
- From a private presence in the classroom (and few no risks therein) to a public one, with many risks;
- From attendance dictated by personal choice to that having to do with community expectation;
- From competition with peers to collaborative work with them;
- From responsibilities and self-definition associated with learning independently to those associated with learning inter-dependently;
- From seeing teachers and texts as the sole sources of authority and knowledge, to seeing peers, oneself, and the thinking of the community as additional and important sources of authority and knowledge.

These shifts are especially problematic for younger college learners. To them, the adjective "cooperative" has unfortunate residual connotations from high school. Relative to authorities, being cooperative has to do with obedience; relative to peers, it means cheating. The idea of cooperation as helping and sharing for positive goals is both unfamiliar and intimidating. Many students have difficulty accepting that collaborative learning with peers is real learning, so acculturated are they to "teacher-as-source-of-knowledge." The faculty member, then, needs to set the context and norms for collaborative work, so that students can reflect on both its rationale, value, and immediate goals.

Reframing the Teacher Role. Whether novice or veteran at collaborative learning, faculty members engaged in this work have their own reframing to do, with regard to coverage, classroom roles, evaluation and numbers of other issues. Particularly challenging is the process of reconciling one's sense of responsibility about course coverage with one's commitment to enabling students to learn on their own. Too often, faculty members think of course coverage in zero-sum terms, neglecting to ask whether students are really

comprehending and integrating all that is being "covered." Teachers who build their courses around group work do not belittle or abandon coverage or skills; indeed they and their students are seriously and directly confronting matters of understanding and comprehension all the time. But the burden of "covering," (and explicating and relating), has shifted from resting almost entirely with the teacher to a shared enterprise which involves both teacher and students.

If this shift of responsibility helps to "dissolve the Atlas complex," i.e. teachers feeling endlessly responsible for the class's entire intellectual agenda (Finkel and Monk, 1983), it also poses interesting questions. Authority and expertise, power and control—highly intertwined matters for any teacher— all come up for examination and redefinition in the collaborative classroom. As students together begin assuming more responsibility for their learning, and as classroom time is more taken up with conversational inquiry, the teacher begins to sense subtle but powerful shifts in her role. As students begin to take up their part in the learning enterprise, the teacher begins to see that she is not relinquishing control so much as sharing it in new ways. She discovers that the lines of authority are not so much blurred as they are reshaped.

As teachers work in collaborative settings with students over time, they continuously revisit these tensions of the locus of control and authority, between collaboration and competition, and individual growth and community responsibility. In the process, teachers come to new understandings about the meaning and potential of student-centered learning, and about how students learn to think in their disciplines. They relish the ways students emerge as confident, competent learners, who in turn stimulate them to re-examine their own work and thinking.

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Impediments to Teaching a Culturally Diverse Undergraduate Population*

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* Adapted from a speech given at the Second National Conference on TA Training and Employment in Seattle, WA, 1989. An elaborated version will be presented in J. Nyquist, R. Abbott, D. Wulff and J. Sprague, *Preparing the Professoriate of Tomorrow to Teach: Selected Readings for TA Training*. Kendall-Hunt Publishers.

The recent calls for cultural diversity in the undergraduate population mean that, in the coming semesters, you probably will have ample opportunity to address in some depth various strategies, prophecies and programs designed to meet the special needs of students who differ in regard to ethnicity, gender, socio-economic status, country of origin and so on. This suggests that we do indeed have great diversity in the student population. But such a suggestion is misleading.

It is true that before 1900 American universities were quiet enclaves having little impact on the outside world. At that time less than 5% of the nation's youth attended college, most of those from the privileged class. Apprenticeship, the ultimate strategy for ensuring limited access, was the main route to the professions. So, it is legitimate for us to identify the current diversity as dramatically different. Yet for many groups whose representation in colleges and universities is far below their representation in the general population, "more" diversity falls far short of "sufficient" or "acceptable" diversity. The reaction is the same as that of an airline

passenger, tired and frustrated over delays resulting in a nine hour trip from New York to Los Angeles, being reminded that the trip used to take three months by covered wagon.

It is exactly because of the fact that our colleges are not yet sufficiently diverse, that it is so imperative that we become more effective in teaching students who are not middle and upper class white males. There is considerable evidence that our ability to attract and retain students who are different depends on the extent to which faculty are sensitive to their needs and issues. The most effective way to accomplish this would be to have a critical mass of minority faculty who would serve not only as role models and bridges between minority students and the main stream cultural institution that is the university, but also would understand the unique stresses inherent in the status of minority students and how to reduce them.

But, candidly, the probability that we can have a critical mass of minority faculty in all, or even a substantial number of our more than 3,000 institutions of higher education in the near future is practically zero. Over the past ten years, the number of white Americans earning doctorates fell by 5%, while the number for black Americans fell by 22%. To drive home the point, in 1988 only four black Americans received a Ph.D. in mathematics. If every university in the country mandated that each of its academic units hire a minority faculty member within five years, there would be no way that it could be accomplished for even a small minority of our institutions.

These facts have two important implications. First, the ability to achieve some kind of parity in the future will depend upon increasing the number of minority undergraduates who remain in college and go on for advanced degrees. Second, for the foreseeable future these undergraduates are most likely to be taught by a white professoriate. Minority faculty to serve as mentors and role models simply will not be available in sufficient numbers for a while. Therefore, the white professoriate must be more effective in teaching and mentoring minority students. And yet this must be done in a context in which certain recent changes in practices and attitudes towards diversity can seriously affect our success.

What are these changes? The first is the decline of ethnic studies.

Ethnic studies programs proliferated during the sixties and seventies in response to demands by blacks and other minorities for equal time in the curriculum. But more relevant to our discussion, they met an urgent need for research which included the minority perspective and therefore provided more valid propositions about minority culture. Now when we ask ourselves the question, "How can we educate teachers to be more effective with diverse populations?" we begin to realize how deficient our knowledge base really is. How much research is available that illuminates cross-cultural comparisons of behaviors relevant to the teaching-learning process? Do we know enough about these to be able to understand the probabilities for misunderstanding in cross-cultural student-teacher relationships?

There is a vast amount that we do not know about the dynamics in cross-cultural teaching-learning relationships. We do know that they can be decidedly complex, since there are faculty who are domestic minority, domestic majority, or internationals teaching students who are domestic minority, domestic majority, or internationals. Further complicate this by the fact that domestic minority may include blacks, a variety of Hispanic groups, American Indians, and a variety of Asian American groups, whereas the domestic majority may include those from geographical areas that have their own regional cultures, like New England, the South, and the Mid-west. And, in my own institution, internationals include students from more than a hundred countries.

In the past we have dealt with such complexities by the assumption that main-stream middle class Anglo culture will be the culture to which all who want to be educated and who want to work in this country will be expected to conform. However, a society of diverse ethnic cultures is seen by many now as the ultimate goal of this society. The need for an understanding of how to deal with ethnic diversity is crucial, and yet the one area of study for which this is the main focus is on the decline.

Another change affecting our ability to teach the diverse student population is reflected in the increasing incidents of racial tension and conflict on our campuses. Shelby Steele, in a 1989 *Harper's* article, describes the situation and his visits to a number of colleges to interview students about the issue. Their responses were

illuminating. For example, he says "a black student told me that he felt defensive every time he walked into a class and saw mostly white faces. When I asked why, he said, 'Because I know they're all racists. They think blacks are stupid.'" Of course, it may be true that some whites feel this way, but the singular focus on white racism allowed this student to obscure his own racial anxiety. On the other hand, when Steele talked to some white students, one told him, "Blacks do nothing but complain and ask for sympathy when everyone really knows they don't do well because they don't try. If they worked harder, they could do as well as everyone else."

The point that Steele attempts to make is that when difference is emphasized instead of merely remarked, i.e. when we push to identify only the differences among people, people then think only in terms of difference. This emphasis on finding differences then leads to overgeneralizations and stereotyping. We find ourselves saying "most blacks do this..." or "most Hispanics feels this way" when in reality a lot of individuals within those groups don't. There is probably as much intragroup variability in attitude and behavior as there is intergroup variability. We have to remember that each of us is simultaneously: 1) like everybody else, because we are all human; 2) different from some but like others, because we share some experiences which are common for a given cultural group; and 3) totally unique, because nobody else has had exactly the same set of experiences that we have had. And so, it is necessary to understand whether in the present situation we are dealing with a characteristic of the individual which is: 1) something universal in the human condition; 2) something that is a consequence of some experiences that this person has had as part of a group; or 3) something which is their own personal idiosyncratic way of being in the world because of their unique life experiences. These alternative ways of viewing "difference" might help us in combating the racial tension and stereotyping which can so easily result from a model based only on group differences.

The end must be a celebration of the multi-racial, multi-ethnic nature of our country rather than a fear of difference. Most important must be the understanding of how to interact with each other to our mutual gratification. The demand of every group for fair play and justice must not only be heard but translated into specific strategies. The

psychiatrist, Comer, in his book, *Beyond Black and White* quotes the following nursery rhyme:

There were two cats of Kilkenny
Each thought there was one too many
So they fought and they fit
And they scratched and they bit
Until there wasn't any.

The message is clear: either we learn to make diversity work for all of us or we destroy our society for all of us.

Essays on Teaching Excellence

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Course Tests: Integral Features of Instruction

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The primary function of course tests (and grades) is to rank undergraduates so as to provide admission information to graduate and professional schools. The purpose of this piece is to implore faculty to improve their course tests since those tests are such powerful determinants of learning. Course testing is a very emotional and personal issue and is not much subject to thoughtful considerations.

Please examine the course tests being taken by your college children (or high schoolers) and those given by your colleagues; you will be astounded at the imperfections and limitations therein that inhibit significant learning. One does not have to be an expert in a highly technical discipline in order to recognize many gross deficiencies of course tests. The correct alternative being longer than the incorrect ones is common in m-c questions, and absolutes such as "always" and "never" are used in alternatives and in t-f items. Many students know these and other clues and tip-offs. Negatively worded m-c questions are legion; these tend to confuse the excellent students. Many essay questions are so broad as to demand "shooting the breeze." Students are not helped in learning to think and write clearly by "discuss the need for government with respect to the public good" (one of five in 50 minutes). Another limitation is that too many questions seek only isolated factual information. Do these questions really evaluate course learning?

Furthermore, to what extent is a student's learning distorted by the mad symbol scramble to obtain tenths, hundredths, or thousandths of points (e.g., 3.7, 3.74, 3.749) in order to surpass the arbitrary cut-off points for admission set by many graduate and professional schools? Is it any wonder that nearly 50 percent of undergraduates drop courses for fear of receiving anything other than an A? Some of those who drop will not learn from you or from your discipline. Kenneth Boulding has declared: "Our obsessiveness with arithmetic is the feeling that once a number has been arrived at by a recognized arithmetic ritual something has been accomplished." As the computer increasingly dominates our thinking about the presumed evaluation of undergraduate learning, we are rivaling comedians Bud Abbott and Lou Costello in proving $3 \times 7 = 28$.

Research evidence over a span of at least 50 years documents the notion that course tests are powerful influences over how students study and what they learn; yet very few faculty want to know the research- a strange attitude for scholars. The most compelling evidence for those who will listen and hear comes from students on all campuses. Students warn repeatedly about the effects of course tests upon their learning when they ask these two questions: "Will that be on the final?" and "Will the test be 'objective' or essay?" If the answer to the first question is NO, studying and learning cease for far too many undergraduates. The answer to the second question determines the ways of studying for that test (e.g. memorizing) and the sort of learning that results. Although the influences course tests have upon learning seem to be acknowledged, they are either ignored or denied. A current cartoon depicts a philosophy class beginning to take a test. A student asks, "This 'meaning of life' question-is that essay or true-false?" It is the mad symbol scramble that causes students to ask about the nature of course tests and to modify their studying and learning accordingly. In spite of these apparent relationships between testing and learning, a recent review of research of controllable influences over undergraduate learning (Sherman, 1985) does not even allude to course tests.

At least two explanations for faculty blindness come to mind. First, faculty want to believe otherwise. George Bernard Shaw put it this way: "There is no harder scientific fact in the world than the fact that

belief can be produced in practically unlimited quantity and intensity, without observation or reasoning, and even in defiance of both by the simple desire to believe. . . ." Second, the evaluation of significant learning is tricky, difficult, and inordinately complex, and most faculty have received no enlightenment in "how to." In one of our informal studies, we found that around 75 percent of a faculty sample had never even read about the preparation of course tests, and that nearly 30 percent relied heavily upon intuition when constructing tests.

Faculty committees tinker with grading systems periodically, but little or no attention is devoted to the tests upon which the letter symbols ABCDF are based. Such is an example of attending to peripheral issues rather than fundamental ones. When the tests upon which the symbols are based are faulty, then the symbols must be faulty. Even though a lone faculty member can do little or nothing to alter a grading system, that faculty member can improve his or her course tests.

A few comments about learning will help to put course tests into that broader, more important, and much neglected context. Course tests should be in the service of learning and not in the service of sorting students for society. The term "learning" generally refers to either a process or a product. Process refers to all the different mental activities students must go through as they attempt to learn: general concepts, to reason, to apply, to judge, and so on. Most of the time the term "learning" is used it refers to a product. For example, a high score on a properly prepared test means that learning has occurred. *But learning as a product is an inference.*

There are levels of learning processes ranging from the most simple, or lowest, or easiest (such as recognizing and remembering isolated factual information), to the inordinately complex. We can *infer* the level of learning only by knowing the substance of the test upon which a score or grade is based. And therein is the serious fallacy of relying on a letter symbol in judging the learning of a student. The fallacy is magnified when several symbols from diverse courses are combined into the GPA—that illusion of precision. This statistical ritual of illusion is executed in a variety of ways. But who cares? Some of the isolated factual information sought is trivia because even

trivia ostensibly help in sorting students. Faculty believe widely (but mistakenly) that factual information will be utilized appropriately and more or less automatically at later times. Actually, for most students, this transfer does not occur—a conclusion well supported by research evidence (see Smith, 1989). For personal verification about the limited nature of "transfer of learning" just listen carefully during a general faculty meeting to those characters from disciplines other than your own.

Institutional recognition of the need to assist faculty in their preparation of course tests will continue to be postponed by the burgeoning "assessment" rage—endeavors remote from the center of everyday teaching/learning. Already bureaucracies are being formed and at least one university system has created the position of vice president for assessment. It will be a long time, if ever, before any of the questionable results of the assessment movement will reach faculty members and assist them in influencing learning. Here is another instance, alas, of dealing only with the surface issues.

Suggestions: A cartoon of the early 1980's has one professor saying to another: "Hoo-boy! If we're really looking for better answers. . . maybe we should start asking better questions." Here are some suggestions individual faculty can take toward that end:

1) Exercise as much care in writing each test question as you do in other sorts of writing—statements of academic policy, for example. Many students read test questions more carefully than they do any other material; thus they spot the flaws and confusion results.

2) Cease using the term "objective." M-C questions are *not* objective. Those questions do not come from thin air—especially those in manuals accompanying textbooks. A person decides to question this rather than that and *then* writes - subjective processes. The term "objective" misleads both students and the public. Correct students when they use "objective."

3) When using m-c questions, design them to tap higher-order thinking processes. (For illustrative m-c items, see, for example, *Constructing Achievement Tests* by Norman E. Gronlund, Prentice

Hall, 3rd edition, 1982, chap. 4.)

4) Limit the scope of essay test questions, or else they become exercises in "shooting the breeze" that do not help in promoting clear thinking. (See Chapter 5 in Gronlund). Another way to limit the scope of a question is to use more specific words like "compare," "contrast," "criticize," and "explain." Avoid "discuss;" that word is used quite ambiguously.

5) Ask a colleague to review all questions prior to their use: "Are the questions clearly written?" "What level of learning does each question tap?" "Do the m-c question alternatives contain tip-offs?" "Are there unnecessary negatives in the m-c questions?"

6) Join forces with other faculty and push the administration to provide assistance with this time-consuming but powerful teaching/learning tool-testing. As a beginning, review the "Board of Examinations" program used at the University of Chicago during the 1930s and 1940s (Bloom, 1954).

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Essays on Teaching Excellence

Toward the Best in the Academy

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Teaching: Beliefs and Behaviors

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What do professors believe about students, teachers, and the instructional process? When these beliefs become conscious and explicit, does teaching change? If teaching behaviors change as a consequence of articulating beliefs, do beliefs change as a consequence of analyzing behaviors?

For many faculty, inquiring into these matters is quite exciting. We find that making beliefs explicit is more difficult than it seems at first, and analyzing teaching behaviors turns out to be both intellectually and emotionally challenging. In this essay, I suggest one approach to inquiring into beliefs about teaching and into the relationships between those beliefs and teaching behaviors.

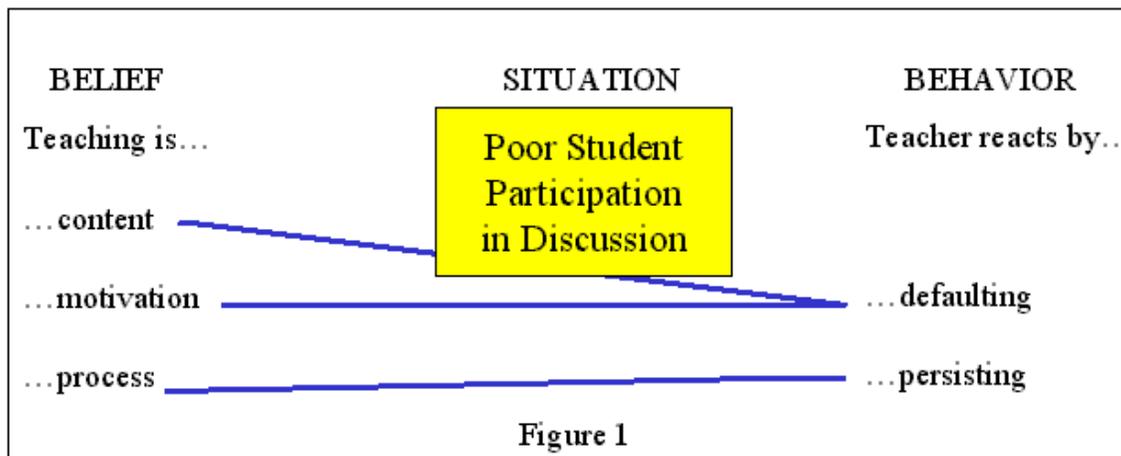
The approach has four steps:

- Articulate a belief about teaching.
- Identify a problematic teaching situation.
- Report the behavior taken to resolve the problem.
- Find a rationale that links the belief and the behavior.

A Thought Experiment

Before reading further, I invite you to conduct the following thought experiment. First, make your belief about teaching explicit by completing this sentence: "Teaching is. . . ." Second, think of a recent problem or dilemma in your teaching. (The example I use below is a situation when students fail to participate in class discussion, but you might select a more personally meaningful example.) Third, describe

what you did to resolve the problem. Fourth, look for a rationale that links the belief with the behavior.



As context for interpreting your experiment, consider this example of beliefs, behaviors, and relationships between them. Suppose one believes that what is central to teaching is mastery of course content. That person's teaching is likely to differ, I hypothesize, from one who believes that how students think about course content is central to teaching. For one thing, I expect that the former is likely to be less patient with a faltering class discussion than the latter teacher would be.

What Interviews Tell Us My hypothesis grows out of interviews we conducted with teaching assistants in several humanities and social science departments (Menges and Rando, 1989). We asked these TAs to tell us what they meant by "teaching." We also asked them to recall a situation in which their students did not participate in class discussion to the extent expected. For about one third of the TAs, beliefs were oriented toward mastery of course content. Most of them said that when discussion lagged they either switched to a nondiscussion activity or dismissed the class. We called that the "default" strategy.

By contrast, most of the TAs whose beliefs were oriented to how students process information (about one third) said that they continued to search for ways to start a discussion. This strategy we called "persistence."

A final third of the TAs held beliefs that were oriented toward motivation, emphasizing student interest and engagement. Most of them reported the default strategy.

These relationships, as shown in Figure 1, are intuitively plausible. Discussion by reluctant or unprepared students does not favor the goals of content-oriented instructors, and we can understand if they decide to default to a lecture or even dismiss class. For process-oriented instructors, on the other hand, discussion is less a means of transmitting information than it is a way of transforming information. Discussion encourages and demonstrates active processing, so persisting in trying to promote discussion is quite compatible with the instructor's goals. Motivation-oriented instructors fear that an unsuccessful discussion will make students dissatisfied, and that they will consequently become even less interested and engaged. Those instructors may reasonably decide to default rather than to risk lowered motivation, the negative consequences of persistence. Now return to your own thought experiment. What belief did you record? What behavior in the face of a problem did you report? Are they consistent with the patterns found in the TA interviews?

Surely It's More Complex Than That We do not know whether these findings from a small number of teaching assistants generalize to experienced professors and to teachers in other disciplines, but the scheme presented in Figure 1 probably oversimplifies a very common situation. To be comprehensive, a model of beliefs and behaviours should include additional variables. We might include a larger number of beliefs or focus on beliefs that have a more specific referent than "teaching." We might examine the intensity of each belief. We might ask about the costs and benefits of each belief, that is, about the perceived consequences of acting on the belief. Further, information about teaching behaviors should include direct observation rather than be based only on self-reports. A researcher could place all of these variables into an equation for predicting behaviors and beliefs (c.f., Fishbein & Ijzen, 1975).

Not only do beliefs influence the likelihood of particular behaviors. They also influence our perceptions, acting as filters that can distort otherwise objective data. For instance, some professors behave as if they believe that nearly all of their students are potential majors in

that department. These professors teach as though all students in introductory courses were beginning an intensive study of that discipline, when in fact the teacher knows that only two or three will enroll in advanced courses. Here behavior is consistent with belief, but the belief itself is indefensible.

There are also pragmatic reasons for articulating beliefs and comparing them with behavior. I am thinking of situations where beliefs that remain implicit lead to confusion and miscommunication, problems that might be avoided were beliefs made explicit. Consider a curriculum committee meeting that dissolves into argument. It may well be that lying at the core of the disagreement are divergent beliefs about what should be learned and about how learning occurs. Committee deliberations might be improved by taking time to survey members' beliefs. An inventory of teaching goals (e.g., Cross & Angelo, 1990) can be useful for this purpose.

Bringing Beliefs to the Surface for Discussion Discussing beliefs and behaviors in groups is a more stimulating way to examine beliefs and behaviors than individual thought experiments, particularly when an atmosphere of trust permits participants to disagree and to challenge one another. Christensen's (1981) collection of teaching cases includes one about a class where participation declined, prompting the professor to become angry and walk out. When faculty groups discuss that case, they usually reveal a variety of attributions (beliefs) about where responsibility for the situation lies. Some emphasize the students' responsibilities, saying that students were apathetic. Others place responsibility with the teacher, saying that students were bored by the authoritarian teacher. When participants are challenged to clarify the basis for their beliefs, it sometimes becomes evident that beliefs rest on incomplete data or faulty inferences. As they subsequently think about their own teaching, group members sometimes decide to gather more systematic information with videotape or by inviting a colleague to visit a class meeting.

Successful group discussions about beliefs and behaviors should meet four requirements:

- Beliefs about teaching and learning should be expressed as

- specifically as possible.
- The basis for the beliefs, whether empirical or intuitive, should be made explicit.
 - Participants should try to agree on instructional behaviors that are implied by the beliefs.
 - Data about classroom behavior should be available, perhaps from recordings or student questionnaires.

Group members then discuss the adequacy, appropriateness, and consistency of this information, paying particular attention to potential contradictions between beliefs and behaviors. For some faculty it may become apparent that beliefs are based less on rational analyses than on intuitive or emotional processes. For others, beliefs rest on stereotypes that cannot be convincingly supported.

Of course, behavioral change does not necessarily follow from awareness that beliefs and behaviors are contradictory. Sometimes we simply continue to live with the inconsistency. In part this is due to our natural resistance to change, as Smith (1983; 1990) discusses in connection with workshops where faculty compare their espoused theories (beliefs) with their theories-in-use (behaviors). Resistance to changing behaviors is also due in part to skill deficits. If change requires developing new skills or refining old ones, teachers may need to invest time in microteaching, roleplaying, and other techniques that provide feedback about the effects of their behaviors.

Thought experiments and group discussions are only the beginnings of what is likely to be rewarding exploration, but they are necessary beginnings. The exploration is rewarding because teaching and learning offer problems no less challenging than the problems we encounter in our disciplines.

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Spectators and Gladiators: Reconnecting the Students with the Problem

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In "Bike Riding and the Art of Learning," Robert Kraft (1978) recalls that his own mastery of the two-wheeled vehicle resulted from a very focused quest for quick transportation to the candy counter at his father's store three blocks from home. The learning was halting and painful, but it was also self-directed, tenacious, and successful. Reviewing his college studies, he says that what he retained from them was not what he was told in class, but the thought he put into writing his papers, the product of his own efforts to construct meaning. Kraft goes on to relate 1) how reflecting on the connection between self, problem, and learning led him to recognize its importance to - and its usual absence from - his college students' experience, and 2) how he set about introducing it into their work. A similar reorientation of one's own teaching is worth considering.

It is common to regard teaching as meaning simply to convey knowledge, or perhaps skill. It seems unexceptional to speak of teaching something. The proposition becomes more questionable when we start to talk about teaching someone. As teachers we face the psychological reality that we cannot actually teach anybody anything (Rogers, 1951). By our efforts alone, we cannot simply transfer knowledge constructed in our own experience, or relayed by others, to our students for their genuine use. Perhaps unsettled by

our inability to control the outcome of the learning process, however, we habitually act as if it were entirely the teacher's problem. We develop an Atlas complex, shouldering the entire burden of teaching and learning (Finkel and Monk, 1983). We concern ourselves with the limits of our own knowledge and focus attention on our own performance. We subordinate process to content and active engagement to coverage. We relegate students to a passive role, making them spectators when they need, and would actually prefer, to be gladiators.

But learning is not passive, something that another performs on one, like surgery. It is active; one operates on oneself. Learning is personal and purposeful: we do it to accomplish something meaningful and important to our individual selves (Cantor, 1953), anything from getting to the candy store to getting quantum mechanics. It is a natural outcome of encountering an obstacle to a goal. The desirability of achieving the goal and the possibility of overcoming the obstacle drive the learning that addresses the problem. The will to grow in ways we value continually brings us up against obstacles, and learning predictably results. In this dynamic of self-actualization, the question is not so much what stimulates learning, as we often ask in a school setting, but what constrains it.

That we cannot actually teach someone something does not, of course, mean that he or she will necessarily learn it alone. The learning may require exposure to possibilities, access to information and other resources, a structured path, guidance and encouragement, constructive criticism. Schools and teachers can provide them. Indeed, at their most effective they provide the very problems that generate learning when linked to the students' own needs and interests. The irony of schooling, though, is that it often separates students from the experience of striving to resolve a problem for an intrinsically meaningful purpose. By focusing on solutions and answers already known, it abstracts the process of learning from the individual drive to overcome obstacles.

The structures of formal education often divert the natural flow of learning from the interaction of self and problem. The problems that prescribed curricula, and even elective courses, ask students to work represent others' judgments of what they need to learn and lead them

to acquire received wisdom instead of earned knowledge. Besides that, teachers are tempted to take over working the problem and ask students simply to learn the result. Gifted lecturers can entertain their students by enacting the drama and passion invested in the knowledge. More ordinarily we just present the dry results of the scholarship. Either way, we relegate the students to the galleries. It's easier to put them there, orderly and quiet, but they belong in the arena. Excluded, students accumulate solutions to problems they haven't encountered, answers to questions they haven't asked. The problem they are actually working is passing the course, getting through school (Brown, et.al., 1989).

Having disconnected students from the primary experience of learning by working through their own problems, we may find that a lot of teaching feels like a daunting effort to make water flow uphill, and it may escape us that everything from rivulets to torrents wait to run naturally the other way. Students who are able and willing to be engaged can bring great energy and determination to the task of learning when they get access to central, constructive process. If they are asked mainly to hear and remember, it is not surprising that they either become restless and distracted, or they perform disappointingly when papers and exams require them to do higher order thinking. Without engagement in the problem, without some personal sense of investment in reaching a solution, the individual is poorly motivated to withstand the disturbance that accompanies genuine learning.

Students learn what they care about and remember what they understand. They may care because the material is personally relevant and interesting, because they encounter it in a challenging and intriguing way, because confronting it collaboratively with their peers is rewarding, because working out their own construction of it is real and satisfying. Whatever the reason, their caring re-establishes the connection between self, problem, and learning. Fortunately, sharing the problem with them, and engaging them in working it, can start with something as simple as framing a lecture with a question and interrupting it to hear interim answers. More productively, it can go on to supplanting some lectures with groups tasks. More elaboratively, it can extend to running case discussions or full-scale simulations.

Bringing students into the arena need not imply a total revision of one's teaching, but it does involve a shift of emphasis from the exposition of knowledge to the recasting of what we know into question to be resolved, issues to be grappled with, problems to be worked, mysteries to be unraveled. The shift involves recognizing the contrast between knowledge, a commodity that we can imagine being transferred or conveyed, and knowing, a living experience that we understand can only belong to the person having it. More important than the teacher's delivering the product of his or her own learning is the function of "creat[ing] and maintain[ing] an environment in which students will learn to work" (O'Hare, 1989).

Effective as this approach is, both students and faculty may resist it. They need to confront and conquer the collusion to avoid the effort and the risk that it entails. There is a bad bargain that teachers and students can, and often do, make to the effect of "I won't ask much of you if you don't ask much of me." This agreement to accept less learning for less work on both sides has several sources. To engage students more thoroughly requires teachers to become more personally involved, which produces a vulnerability they may find uncomfortable (Weimer, 1990). On their side, genuine learning implies change and requires students to withstand confusion and disturbance (Cantor, 1953). They may also resist the unfamiliar demand for greater involvement and higher order thinking when it counters the expectation that previous schooling has led them to develop.

Yet experience wears away resistance. The rewards of playing a more central and responsible role in working the problem are substantial and apparent in both the process and the outcome of learning (Jackson and Prosser, 1989). Active engagement in personally involving work that leads to genuine understanding creates its own demand, one that a teacher may sometimes find challenging to meet. Coming out of the spectator's seat may require overcoming some inertia, but being the gladiator, with all the exertion and risk it entails, compares with spectating as a three-dimensional reality with a two-dimensional representation. Learning is, after all, the students' problem, not because their progress and welfare don't concern us, but simply because they alone can actually solve it. The more centrally we can engage them in the learning

process, the more personally we can involve them in it, the more teaching we will be able to do. Recognizing that it is not our mastery of the material, but their struggle with it that is the issue, we can remember to keep their experience at the center of the process, not our own (Cantor, 1953). We can also remind ourselves that we are not simply trying to get them through school, or supply them with important knowledge, but to teach them to work the overarching problem, which is learning itself, for themselves. The farther they go, the more important it becomes to involve them in monitoring and directing their own learning. In the end, we are concerned not only about the knowledge they carry away, but even more about the capacity they take with them for learning on their own throughout life.

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So Much Content, So Little Time

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If there's one lament that I've heard over and over again from teachers it's the statement "I have too much content to cover!" It lies behind much of the resistance to change in teaching methods which I have encountered and has probably killed more innovations than any administrative dictates or situational constraints ever could. Surely with a little effort, we could think of a way of alleviating the problem rather than letting it dictate our instructional choices.

Let's begin by examining the assumptions which might lie behind our felt need to "cover" the content. If content must be "covered" in class in order to be learned, are we implying that mere exposure is both necessary and sufficient for learning?

In the first place, merely being exposed to content is not sufficient for learning. It is not the lecture which produces learning; it is the studying, summarizing and organizing of lecture notes on which learning depends. In the second place, it is equally inaccurate to assume that learning can only occur within the context of the class period or interaction with the instructor. In reality a great deal of learning occurs outside the classroom when students are grappling with the content by themselves. When instructors recognize that it is the struggle that produces learning, they design their classes so that some of the struggle will occur during classtime where they can intervene in the process and save the students some frustration and time.

An insistence on covering the content in class may also inadvertently communicate to the students that it is only what occurs during classtime that is worthwhile. What they do on their own is a pale reflection of truth, which is only revealed in class. Is it any wonder that students complain when something on the exam "was never covered in class?" Haven't we communicated to them, however subtly, that it is what occurs in class that matters?

One way to approach this problem is by viewing it as an exercise in time management: too much to do, not enough time to do it. Time management procedures seem to divide themselves into two categories: (1) making the quantity of work manageable and (2) streamlining the process of working. The analogous instructional categories might be viewed as: (1) making the amount of content manageable and (2) streamlining the learning process.

Making the amount of content manageable In time management one of the first things one is advised to do is set realistic goals and priorities. This seems like an obvious first step in content management as well. It will, however, necessitate abandoning the "pack rat" syndrome of content selection (that affliction in which we never abandon a bit of information because at one time it was useful and it may be again some day). As new information arises, it is simply poured into the course without any of the old stuff being drained out. That cannot continue forever; sooner or later, the cup runneth over. To avoid this spillage, the instructor must take a hard look at the content. How much is it realistic to expect students to grasp in the time allotted? If you want to add new information (and you should), something else must go, either in terms of breadth or depth of coverage. If you set firm limits on the amount of information which can be included, then you must also do some priority setting. You must decide which concepts are top priority, which are nice but secondary and which are superfluous, even to the point of sacrificing subtlety in the interest of initial understanding.

A second content management technique might be thought of as "cut to the chase." It is possible that for each concept or skill we are trying to get across to students there is a nugget of information or a component of the skill which is the critical. For example, in problem

solving in engineering, mathematics or computer programming, the critical skill is setting up the problem; the rest is mechanics. Of course the mechanics are important, but they need not be a component of every assignment or discussion once they have been mastered. One way of condensing content is to concentrate primarily on that critical skill of problem set up with only occasional prods to the support mechanics. Not every problem needs to be worked to completion.

A third content management suggestion has to do with the management of resources. Good time managers seek outside resources to help them solve their time problems. The analog in instruction would have us look beyond the bounds of the classroom and the single course for a possible solution to our content crunch. In the first case, if we can admit to the possibility that not all content need be learned by all students, we might save a little time by making some of the content available in alternative formats to those students interested in pursuing topics repeatedly or in more depth. For example, the use of videotaped lectures as supplements, either for remediation or enrichment, might make us feel less guilty about not packing every bit of content into the classtime itself.

In the second case a departmental, cross-course analysis of content might reveal areas in which content is being reviewed in several courses unnecessarily while other concepts are being neglected because of a perceived time crunch. By coordinating cross-course objectives more closely, all instructors might be freed to spend less time on content coverage and more on student learning.

Emphasizing the process A second area in which time management might help us with our coverage problem revolves around the process of learning itself. There are ways of making it more efficient in general and thus allowing more to be learned in a shorter period of time.

One helpful idea is the "routinization of the mundane." How much time is wasted in class carrying out mundane tasks, such as handing out materials or repeating instructions? If the class agenda followed a consistent pattern (assignments always written on the left end of the board, the first five minutes spent in review, the critical concepts

always written in outline form during the lecture, and so on), the routine would alleviate the need for repeated explanations of what's going on. The routine would become a shorthand way of communicating expectations and information and cut down on the need for time spent on spelling everything out.

At another level of pattern use, the pattern of the content itself can be used to facilitate its own acquisition. An instructor can speed up the learning of content in the latter part of a course by establishing patterns of understanding in the early parts of the course. For example, using the same sequence to analyze each new concept gets the students into a rhythm of analysis so that each concept need not be approached as an entirely new problem. The procedures and patterns already learned can be used to learn the new material, which should then be learned more quickly. This does require that the instructor search for patterns across concepts, but this is part of the fun of scholarship, a search for the bigger pattern behind microconcepts. A final process technique from time management which might be useful is the idea of using a more efficient storage medium to manage information. In the time management area this means that the individual stops trying to memorize every bit of information, all appointments, all responsibilities and instead works out a system for recording and accessing that information from a more permanent medium such as an appointment book. One way we can increase the efficiency of our students' learning is to help them learn about the use of such information resources. For example, instead of trying to memorize all the formulas and procedures, students would be far more efficient if they produced an individualized index to their notes and textbooks. The simple step of creating an information retrieval system forces students to organize the information, which is the first step toward learning. Some instructors have used this procedure when they allow students to prepare a study guide which can be brought into the test period and used as reference material, a sort of sanctioned crib sheet.

Work smarter, not harder The foregoing discussion is meant primarily as a stimulus to your thinking. It does not pretend to be a comprehensive guide to content management. Rather I hoped to use the concepts of time management as a prototype for problem solution. It is not a simple process nor is it painless, but we cannot

continue to "cover" everything nor use that plaintive cry as an excuse for continuing the status quo. We must try to solve the problem before it overwhelms us and our students.

Useful Readings in Time Management The following books are well-known in the area of time management. With a little imagination and inventiveness the ideas they contain might offer the busy instructor some additional ideas about ways to get control of course content and time.

References

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