

# The National Teaching & Learning FORUM

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## Radical Course Revision: A Case Study

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Like many of my faculty colleagues, I continually revise my courses and try new schemes to move students up the ladder toward greater self-motivation and more complex thinking. The results, however, have always been uneven. Even when I felt that a class went well, it still seemed as though student performance on exams fell short of my expectations, and their sometimes indifferent comments on course evaluations were discouraging.

This past year I decided to adopt a new strategy. Instead of working through trial-and-error, tinkering with the edges of my teaching, I determined to overhaul it. The time had come for rigorous, critical reflection on my teaching, the same kind of systematic critical reflection that I apply to my research.

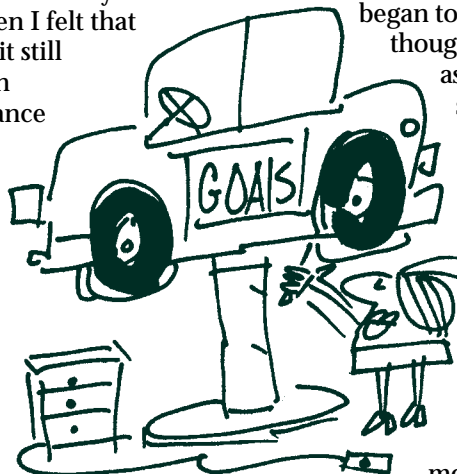
### Getting a Different Perspective

Just as I show my research to colleagues for review, suggestion,

and comment, I wanted to get outside myself in this review. After all, I'd been reflecting and tinkering alone for a long time. It seemed time to seek other perspectives on what I was doing. To that end, I made an appointment with a consultant at the Teaching Resources Center (TRC) who helped me interpret my course evaluations. For the first time I

began to realize that, although many of my assignments (case studies, discussions, projects, group assignments) were already based on "active learning" principles, they were, nevertheless, ineffective because they did not connect to the students' views of what mattered

most. It was clear that the students did not perceive how the activities of the course were supposed to help them learn the material and prepare for exams. No wonder, then, that student performance on tests and other graded assignments was disappointing. For them, class discussions and projects were disconnected from their idea of what was important, and consequently, from their study strategies and test preparation as well.



## Rebuilding from the Ground Up

The TRC consultant guided the early stages of the process by asking me the obvious question: *What do you want students to learn?* This was easy: neuropsychology, of course—how brain organization serves as a footprint for behavior, how brain damage is reflected in behavior, how . . . well, you get the idea.

The next question puzzled me: *What should students be able to do with that information when they finish the course?* At first I thought this was really the same as the first question. Doesn't learning the information include using it? But as I began to talk about what students might do with the information, it became clear to me that, in fact, I had been wanting students to develop a lot of specific skills along with their knowledge, but I had not been making these aims explicit.

This was a key part of the overhauling process. In order to better connect the course content with the course activities and student concerns, I had to articulate clearly for myself and for my students exactly what neuropsychologists do—even those things that occur so habitually that they are unconscious, such as:

- observing behavior closely and reporting it accurately;
- distinguishing between behavioral data and inferences or interpretations;
- developing hypotheses as to the causes of certain behavior in an individual;
- testing hypotheses by doing relevant research, data collection, and analysis; and
- responding critically to how clinical neuroscience is used and represented in the popular media.

In short, I wanted my students to begin building some of the skills and strategies used by professionals who depended on neuropsychology in their everyday work.

## Rethinking Course Design

In the past I had often lectured on neuropsychological concepts

and research findings and then asked students to apply them to cases and data. The unintended result was that the students often saw the cases and data as just more content to memorize, not as an opportunity to think for themselves.

My TRC consultant insisted on this point: If my students were to develop the skills I wanted them to learn, I would have to create *experiences* for them where the targeted skills had real value as tools, not just as academic abstractions. This meant staging opportunities for students to

- observe and “discover” something (even though it might not be new to me);
- construct concepts from their own observations (even though these have already been constructed by neuropsychologists); and
- analyze data as though their interpretations and conclusions led to real clinical consequences.

To do this, I adapted an approach from basic learning theory and its application in behavior therapies.

## Adapting Principles from Behavioral Psychology

This experiential approach follows these steps: (1) modeling of the desired behavior or skill; (2) allowing the student to try to perform the task while providing constructive feedback; and finally, (3) providing varied opportunities for rehearsal of the newly formed skill. Rehearsal of the new skill not only solidifies the newly acquired knowledge, but provides opportunities for substantiating the knowledge by gradually increasing the difficulty of a task demand and widening the scope of the demands to analogous situations. Usually, accuracy requirements are also gradually increased throughout the process.

I told the students I would show them how to do the task by doing it myself first, and then give them opportunities to try it. In practice, my modeling of the process was usually followed by a group effort to perform the process on an analo-

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## Editor's Note:

Every spring the University of Wisconsin System sponsors a conference on teaching and learning. Faculty from all over the state gather to compare notes and talk with invited guests about their common calling. Organized by the Office of Professional and Instructional Development (OPID), it's always a good conference. This year it was especially good. This year OPID invited ten faculty from all over the country who've participated in the Carnegie Scholars program, as well as Pat Hutchings, senior scholar at Carnegie, for the keynote. What made the conference excellent had little to do with name recognition or any aura of prestige; rather, it derived from a solid recognition of common ground and the real possibilities of progress in the endless challenge of teaching better. Uniformly, the Carnegie Scholars were humble and enthusiastic about what they'd been doing and what they'd learned about themselves and teaching. Uniformly, it was the value and interest of the questions about teaching and learning that held center stage.

Pat Hutchings' keynote, "From Seat of the Pants to the Shoulders of Giants: Advancing the Practice and Profession of Teaching," foreshadowed this focus. In it she quickly spelled out what the endlessly debated "scholarship of teaching" is not—not new, not just to improve one's own teaching, not dependent on a single method, not a publications engine, and not all figured out. The scholarship of teaching begins with questions, and (modeling good pedagogy) Hutchings tossed them to the audience and suggested they talk with their neighbors about them. The first questions were, "What aspect of your students' learning do you puzzle over, wish you knew more about, worry about?" and "Why is your question important?" After pausing for us to think and talk about those, she offered two more: "What kinds of evidence would you need to answer your questions?" and "What strategies could you use to get that evidence?" From that point on, this was a working conference, a conversation, a forum.

Good questions form the theme of this issue of the *Forum*. From **Linc. Fisch's** AD REM . . . column which bears the name, to **Julie Stout's** report on how she completely overhauled her course in neuropsychology, questions well asked form the spine of this issue. "How can I get students to come to class prepared so that we can have good discussions?" **Nancy Barrineau** asks. And for her an answer lies in summary note cards. "How ought we to look at ourselves as teachers today?" asks **Virginia Lee**. "How has the shifting conceptualization of the teacher reflected our deepening understanding of teaching and learning?"

"What is the core issue, the big stumbling block between enthusiasm, passion, mastery of one's subject and great teaching?" is the question **Craig Nelson** takes up in his CARNEGIE CHRONICLE.

All these good questions compel me to pose one of my own: "Why are good questions almost always more interesting than eloquent or correct answers?" My answer is that they leave a place for me; they welcome me into the journey. They assure me that I am not left out, that my interest in the question, my recognition of it as a good question, already proves me worthy and makes me part of the inquiry. I am not carrying someone else's shoes. I am a colleague in an enterprise that's much bigger and more important than all of us. Good questions humble and exalt simultaneously. In the best possible way, they help us know our place.

And so, for the summer and the year to come, I wish us all "good questions."

—James Rhem

gous problem, then by my feedback, and finally by an evaluation component in which they received a new problem to work on independently. This latter step required students to adapt the new skills and apply them effectively to solve the new problem. I applied this pedagogical sequence to several skill goals for the course, including analyzing patient data in terms of two opposing theories, reading and understanding media reports containing neuropsychological studies (e.g., the Einstein brain reports in the summer of 1999), and making "real life" treatment decisions, both from the professional and the patient viewpoints.

In general, this gave students opportunities for obtaining personal experience in taking the lead in observing initially unstructured information such as a patient videotape, in applying analytical methods to the raw data, and in thinking through possible hypotheses *before* moving toward judgment, interpretations, and formal theorizing.

## My Steps toward Success

### 1. Building a New Syllabus

Having altered my approach in order to connect theory and skills into habits of mind (which I hoped would lead to what we think of as mastery of the material), I needed to build a syllabus that could target skill development and still cover "the content." In my new syllabus, I laid out not only the content goals of the course, but also the "professional skills" the course would target. I planned on four major units, and came up with the essential information in each with which I wanted students to leave the course. I then worked backward from "knowledge goals" to formulate day-to-day plans for the class meetings. I matched each goal with specific professional skills and related activities and assignments that would allow students to put the content to use. In any given content unit therefore, students might be making clinical observations, analyzing data, developing hypoth-



eses, reading background information from the text, and developing questions and plans that guided further research and inquiry.

## 2. Connecting Evaluation and Grading to the Course Goals

In this new course I wanted the evaluation and grading of student work to serve as useful feedback for students who were motivated to improve, rather than as final (perhaps demoralizing) declarations of how far short they might have fallen—as is often the case in traditional testing and grading. This meant that evaluation of student performance and mastery would have to be frequent and varied, so that students could get enough feedback to reflect, rethink, and improve as the course went along.

I settled on short, focused quizzes to check comprehension of essential content and a few larger tests to check broader comprehension. These accounted for roughly half the grade. For the other half I used numerous writing assignments—in the form of clinical reports, data interpretations, and formal arguments—for measuring development of the professional skills.

## 3. Setting the Tone

Now that I was clear to myself about the goals for the course, I wanted to get the students to buy into my scheme. I began on the first day of class by giving them a few frightening statistics about Alzheimer's disease, the aging population, the high incidence of brain injury, and its devastating consequences. I explained that they (my students) were the first generation that would be trained intensively from the start to be at the junction between behavioral and neural sciences; it would be their generation that would make a difference for these problems of enormous social consequence. I

told them I wanted them to rise to the occasion and take this on, and that I had every confidence in their ability to do so. In this course, I explained, they would be building professional skills in the field of neuropsychology in order to meet the challenge. We worked through the list of skills outlined on the syllabus to clarify for them what they would need to do.

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There was one difference—every student in this section could articulate the difficult questions in more rational and thoughtful ways.

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## 4. Providing a Safety Net Observations on outcomes

I've taught the course only once since its transformation, so the data are limited. Perhaps this group of students was more gifted and dedicated than others that pass through my courses. They seemed pretty representative to me. Their response to my course, however, gave me a happy surprise. Here are six primary outcomes that signal a shift from my earlier courses:

**Attendance for the course was very high, and consistently so.** Most days either all students were present or only one was absent, and rarely the same one.

**Without exception, every student in the course performed at the top of the class for at least one assignment.** I interpreted this as an indication that every student was highly engaged for at least some of the class.

**Students consistently surpassed my expectations for what they could achieve.** While I have heard many hallway discussions of how disappointing the academic performance of our students is, I rarely hear about the ones that excel beyond our goals. In this class the high

quality of the student work kept me amazed throughout the semester.

**The coverage of material was high, and at least comparable to my earlier version of the course, which was almost all coverage.** There was one difference, however: Every student in this section could articulate the more difficult questions and controversies in more rational and thoughtful ways. Some of the details were lost, but this must be a trade-off for the progress made on other fronts. It's a question I will try to address in future versions of the course.

**Student evaluations were strikingly more positive than in the past.** As I read the student evaluations for this section, I saw not only improvement in student attitudes about my teaching, but consistent high marks in areas that were sometimes weak before. I am particularly pleased that all the students found the course interesting, that they thought they "learned a lot," and that they were able to say that they were now "able to solve actual problems in this field." One of my students wrote on her course evaluation: "This course met every expectation I had and more. I cannot recall another class where I learned as much and actually enjoyed the material as much."

**I had fun.** This was probably the first time in my teaching career where I looked forward to every class. Each meeting was exciting because students were genuinely and actively solving problems in the world of neuropsychology, and I became a valuable resource for them as they struggled to learn. Our conversations were real because we were dealing with real professional questions and situations.

## The Future

Teaching this way was not easier than the lecture-test approach, but given the many benefits, it was worth it. It does take more time, but not a lot more. In any case, I would now find it very difficult to go back to what I was doing before, because the experience has given me optimism about what I can accomplish in the classroom. Most

importantly, it has caused me to raise my expectations for our undergraduates.

I now face a twofold personal challenge: 1) to begin adopting these same principles of teaching and learning in all my classes, for students at all levels; and 2) to carefully document what happens, so that I can build scholarship out of my classroom research. But for now, the most important outcome is the feeling I have that I know how to direct my efforts in teaching. Unlike earlier semesters, the cost of teaching, both in terms of time and energy, is well-balanced with the benefits to me and to my students. ■■■

*Thanks to William Roberson, now at University of Texas, El Paso, for help in rethinking my course and reporting on the experience.*

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## LOW TECH

### Class Preparation and Summary Note Cards

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A familiar story: My students don't always come to class prepared. Every semester I wonder how I can encourage them to read assigned material and come prepared—that is, to take an active role in their own learning. It's a pressing question for those of us who seldom lecture, but instead rely heavily on student participation. However much we may nag, many

students resist preparing for class. They assume they can learn the material by being present and writing down everything we say (or, worse yet, skipping class and borrowing the notes of students who did attend).

#### What Didn't Work

For years I have attacked the problem, especially in my freshman composition and sophomore literature courses, by giving in-class quizzes or short writing prompts based on the day's assigned reading at the beginning of class once or twice a week. This method has worked relatively well, but it has drawbacks. First, I can't always spare class time for a quiz or writing assignment. Second, if the reading is particularly difficult, students who have genuinely grappled with it score no better than those who have done nothing. Third, students rarely see these assignments helping them achieve any other goal than getting a grade.

#### New Strategy

Recently I changed strategies, thanks to a suggestion that Beth Benoit sent to TIPS, the Teaching in the Psychological Sciences listserv. Professor Benoit's strategy is to require that students make index cards with either a summary of or a reaction to the reading for certain upcoming class meetings. She announces on the syllabus the ten dates the cards will be due and counts them as ten percent of the final grade. Armed with her suggestion, on the first day of English 221, a survey of American authors, I asked my students to choose how their daily grade, which amounts to 20% of their course average, would be determined. As I had anticipated, they overwhelmingly chose note cards over unannounced quizzes.

Rather than assign the cards ten times, I decided to use them to facilitate preparation and discussion for every day. For each reading

assignment, I asked students to bring to class a 5x7 index card with notes on the literary text we would be discussing. At the top, they recorded specified objective information: title, author, genre, and publication date. They filled the rest of the card's front with an objective summary of the reading. On the back, they recorded a reaction to the reading or a question it raised that they would like addressed in class. They knew they

were to prepare these for every class, but they did not know in advance which ones I would collect. I evaluated these 22 times—still only slightly more than once a week—so that I could drop two grades and have an easily calculated twenty percent for the class average.

#### Measures of Success

This system worked very successfully both for me and for the students. The cards did prod better student preparation for class. Except in the cases of a few very difficult writers (such as T.S. Eliot), they arrived already knowing what the work says, and they had taken "think time" to formulate a response and questions. They also learned to write objective summaries and to distinguish summary from reaction—a skill I find far too few students can demonstrate early in the semester. The daily grades of all but a few chronically unprepared (or absent) students were much higher than they typically are when I give quizzes. These daily grades are an important concern to me in general education courses, not because I inflate grades, but because I construct difficult tests and read papers very critically. The note cards gave all the students a chance to earn credit for hard work done throughout the semester under minimal pressure and compensate for another area of assessment—papers, exams—in which they might appear weak. And, as an added incentive, I allowed students to use their cards during



the essay portion of each test and the final exam.

The system benefited me as well. I was rewarded with a class in which the preparation level was extremely high and students who arrived eager to discuss ideas they had thought and written about before trying to articulate them in front of other students or me. The note cards were very easy to grade. I read quickly, underlining any inaccurate information, but leaving it to the students to revise so that the cards would serve them well on the tests. On the back, I sometimes asked a brief question to encourage deeper, more critical thinking. Usually I had addressed the questions by the end of the class period, so I did not need to answer them again. Instead, I often wrote, "Do you know the answer to your question now? If not, ask again." I sometimes made suggestions for improvement and very occasionally asked for a revised card or assigned no credit at all. I gave a checkmark, equal to one point, to any card that followed my instructions.

### Unexpected Benefits

I designed the assignment hoping for these benefits, but there were others I had not anticipated. For instance, on the days when I did not collect the cards to assign credit, the students could refer to them during class or small group discussion. Occasionally I asked them all to address the same issue. For example, on the last of four class days devoted to discussing *Huckleberry Finn* (the course's only novel), we skipped the summary step. Instead, everyone responded to this question: "Is Huck static or dynamic? Support your argument with evidence from the beginning, middle, and end of the novel." They knew in advance that they were to form their standing groups and

exchange responses in preparation for the larger group discussion. Much to my amazement, however, small group debate was well underway by the time I arrived, effectively expanding the available learning time.

On a few occasions, I collected the cards, quickly scanned only their backs, and used the best student questions to focus the class discussion. And, of course, after reading the cards I could take back to the next day's class any questions that still

seemed to need addressing (although often I answered these on an E-mail distribution list, another way I expanded the available learning time).

### A Problem I Can See

I have identified one major drawback that I plan to address in future classes. It took much of the semester for the majority of students to see for themselves the connections between the information on the cards and the test essays they were writing. The links seemed obvious to me, but their recurring question was "If you don't ask us on the test whether Huck is static or dynamic, what good is the card?" By the end of the semester, the problem was beginning to resolve itself. But the lag time indicates to me that I need to find new strategies to help students make the leap between summary/reaction and more critical thinking and analytical writing. Next time I will connect a sample card to a sample essay question early in the semester to model the process.

By and large, however, I was pleased with the results of my experiment. And so were the students, judging from the question I asked them on my informal course evaluation, processed and held until after grades are posted along with the formal departmental evaluation. Almost all of them—

including the students who produced cards only sporadically—wrote that the system prodded them to be more responsible for their own learning and to read more carefully. In teaching, that's more than half the battle. ■■■

*Professor Benoit teaches at Middlesex Community College of the University of Massachusetts-Lowell. I am indebted to Patrick Cabe, who teaches psychology at my institution, for passing the original tip along to all of us via our faculty distribution list.*

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## BOOKS

### The New Millennium Teacher: Teaching in Community

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Teaching has always had a "special, but shadowed" status in American culture. Teachers have commanded respect from students, and many of us remember fondly teachers "who made a difference" and were important influences on our lives. On the other hand, in K-12 settings particularly, teaching—perhaps because of its early feminization and associations with caring and nurturing—has never attained the professional standing of medicine or law, for example. And in post-secondary settings, teaching—often coupled with the word "load"—has held a subordinate status to traditional research.

Over the past forty years, in response to the shadowed status of

**"Students arrived eager to discuss ideas."**



teaching, a strand of educational research literature has emerged specifically aimed at elevating the status of teaching. This strand of research literature sets forth characterizations of the teacher that represent her competence in different, but always compelling, ways. Together these depictions emphasize the complexity and specialization of her knowledge base and the peculiar origin and quality of her influence. But with the increasing democratization of higher education in the United States, even these characterizations, however compelling, may be insufficient to address the challenges of teaching in the new millennium.

## Characterizations of the Teacher

### Elevating the Status of Teaching

The first of these characterizations, *The Great Teacher*, belongs to a long, predominantly humanistic tradition that has sprung up in the popular literature and film on teachers. Great teachers exercise a deep, personal influence on students through force of character and critical sensibility rather than through a deliberate instrumentality. The effect on students is profound, bringing about dramatic, personal transformations in the ways they view themselves and the world. Teaching in this tradition represents an exalted and noble function and still shapes strongly the expectations of many who enter the teaching profession.

*The Effective Teacher* grew out of efforts in the late 1950s and 1960s to develop a scientific basis for teaching as a way of legitimizing education in the academic community. Using quasi-experimental research techniques, educational researchers tried to identify generic teaching behaviors that showed a clear, statistical relationship with higher levels of academic achievement. Once identified, these behaviors comprised a set of effective teaching practices that all teachers would emulate in pursuit of higher levels of student achieve-

ment. Out of this so-called "process-product research" emerged an industrial and mechanical image of the teacher as an accomplished technician, skilled and efficient in the execution of precise behaviors known to produce desirable effects on students.

Introduced in the 1980s, *The Teacher as Professional* and *The Teacher as Reflective Practitioner* both emerge from the literature on the professions but from two very different and opposing strands. Emphasizing the importance and efficacy of specialized, technical expertise, the former characterization emulates professions like medicine and law by defining for teaching an elaborate and distinctive knowledge base acquired through specialized education. The sources of this knowledge include academic scholarship in content disciplines, educational material and structures, and formal educational scholarship. Consequently, the teacher as professional is competent, rational, and well trained, and influences her students through the skillful application of a complex knowledge base.

In contrast, the teacher as reflective practitioner recalled Donald Schon's *The Reflective Practitioner*, published in 1983. Schon acknowledged the obvious failure of professional expertise to resolve all types of problems arising in practice. He suggested that, particularly in highly ill-defined and uncertain situations, professionals display a way of knowing in their everyday practice that differs from the rational and technical knowledge sanctioned by the academy and science. The "epistemology of practice" is context-specific and incorporates an eclectic mix of impromptu experimentation, generative metaphors, virtual worlds, and other techniques



of practice. As a reflective practitioner, the teacher acquires expert intuition and judgment, a quasi-analytical, practice-based competence that he continually refines through focused reflection and intentional improvement.

*The Teacher as Transformative Intellectual* argues that teachers are not simply dispensers of instruction but rather brokers of vital forces that shape society and history. Within the framework of critical theory, schools are less importantly places where instruction takes place than sites where a continual struggle for meaning and power ensues. In this context teachers have an obligation to make the pedagogical more political and the political more pedagogic. Above all they are advocates for students and use forms of pedagogy that treat students as historical agents with an active voice in learning. Through their teaching, they try to bring to the consciousness of students and others in the educational community the implicit assumptions regarding social class, race, gender and other social constructions that oppress us all, and in doing so, liberate students and others from these constructions.

Finally, *The Teacher Scholar* emerged from Ernest Boyer's classic monograph *Scholarship Reconsidered: Priorities of the Professoriate*. There Boyer urged that we move beyond "the tired old 'teaching versus scholarship' debate to a broader, more capacious meaning, one that brings legitimacy to the full scope of academic work." He introduced four scholarships including the scholarship of teaching through which teachers "... create a common ground of intellectual commitment. They stimulate active, not passive, learning and encourage students to be critical, creative thinkers, with the capacity to go on learning after their college days are over." Over the past ten years, continued debate has led to a fuller description of the teacher as scholar. He is someone versed in

the knowledge base and methods of inquiry of his discipline, to be sure, but also skilled at facilitating student learning. Moreover, he is comfortable “making his teaching public” in a variety of ways: by opening his classroom to his colleagues, by engaging in scholarly discourse about teaching, and by presenting the results of his teaching and its effects on student learning and publishing in appropriate journals.

### Necessary but Not Sufficient

Collectively, these characterizations have served a vital role in promoting a fuller awareness of the complexity of teaching that has had practical implications for the preparation of teachers, the growing status of teaching, the improvement of educational practice, and enhanced student learning. But however compelling and important these characterizations have been, their exclusive focus on the individual teacher in the isolated classroom is becoming increasingly obsolete. Instead, with the democratization of higher education and the influx of more and more students with varying levels of academic preparation, learning requires—and really has always required—the orchestrated and sustained efforts of entire educational communities over the entire four-year period of the undergraduate curriculum. For most students, any outcome of real interest (e.g., critical thinking, communication, student responsibility for their own learning) requires more than a single course and more than the efforts of a single instructor to develop. What this requires of instructors and other educators is the development of a variety of new skills, capacities, and attitudes towards their work as academics and professionals.

### The Social Context for Learning

Traditional psychological theories of learning emphasize individual learners: how they

process stimuli from the environment and how their development occurs according to an invariable stage-like progression. In contrast, according to social constructionist and contextualist views, development and learning represent a gradual patterning that occurs over time in a particular context as a result of interaction with others. The social context can be as broad as an entire culture or as narrow as a small, nuclear family unit.

In education there has been more and more discussion of the importance of groups and communities in learning. Many alternative pedagogies such as collaborative and cooperative learning, problem-based learning, and service learning stress group interaction. Broader than isolated pedagogies, learning communities refer to a restructured curricula in which courses and/or coursework are linked together so that students find greater coherence in what they are learning as well as greater interaction among faculty and students. And broader still is the concept of the learning organization, a term popularized by Peter Senge in his landmark book, *The Fifth Discipline: The Art and Practice of the Learning Organization*. In learning organizations “people continually expand their capacities to create the results they truly desire, . . . new and expansive patterns of thinking are nurtured, . . . collective aspiration is set free, . . . and people are continually learning how to learn together.”

As we progress gradually from traditional notions of teaching to the use of alternative pedagogies that involve increasingly more student interaction in groups, to learning communities, and finally

to learning organizations, the demands on instructors and other members of the educational community begin to change as well. The first fundamental shift—from organizing and delivering content to facilitating student learning—is well documented (Barr & Tagg, 1995). Certainly in making this shift instructors must add to their repertoire a new battery of teaching skills related to facilitation, listening, conflict management, improvisation, negotiation, and the like. But as instructors move into modes of learning and development facilitated by intentional communi-

ties, they require an even broader array of skills as well as a profound shift in their views of themselves, their relationships to other instructors and the educational community as a whole, and their role in the facilitation of student learning.

### Teaching in Community

More and more institutions have put learning communities in place (e.g., Portland State University,

Evergreen State University, George Mason University), but the number of real learning organizations is very small. One conspicuous exemplar of the learning organization in higher education, however, is Alverno College, a small liberal arts college in Milwaukee, Wisconsin. Over the past twenty years, Alverno has created a highly integrated curriculum comprising eight interconnected abilities (e.g., social interaction, problem solving, communication). The curriculum provides a metacognitive scaffolding that students learn, internalize and ultimately use with increasing

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**However important these characterizations have been, their focus on the individual teacher is becoming increasingly obsolete.**

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ease in a variety of personal, profession and civic contexts after graduation. While the Alverno curriculum is extraordinary enough, even more extraordinary is the educational and organizational practice, habits of mind, and institutional discipline that support it. In their newest book (*Learning That Lasts: Integrating Learning, Development, and Performance in College and Beyond*), Marcia Mentkowski and her colleagues at Alverno offer a partial window on these practices to an external audience, and some insight about what these practices require of the faculty who work there.

Over the years, the community has built a process of collaborative inquiry directly into the fabric of its educational practice and organizational structure that is essential to the continual development and execution of its curriculum. In Alverno's highly structured curriculum, instructors pick up where other instructors leave off, building on established competencies and intentionally guiding students to the next level of performance. As a result teachers need to speak to one another more and differently than in less well-integrated curricula. As a community, they need to create a common understanding of teaching and learning that transcends individual courses and disciplines. They need to reinterpret notions of academic freedom, curbing idiosyncratic classroom practices at times, as part of a community with shared responsibility for student learning. Further, each instructor needs to monitor the progress of students in her classes, note discrepancies between actual and anticipated levels of performance, share these observations with other instructors, and together probe more deeply the underlying causes for emerging patterns of student performance. Probing student performance in



Illustrations: Michael David Brown

this way may lead to institutional data gathering, the use of existing theoretical frameworks to frame emerging problems in practice, and the examination of relevant research literatures before develop-

ing alternative practices, planning, and implementation.

### New Millennium Teacher

While the various depictions of teachers noted above are not inconsistent with the demands of teaching in community, they are simply insufficient to describe the even broader set of professional and human capacities required to teach beyond the individual classroom and into a community with shared responsibility for student learning. These additional capacities include:

- A willingness to entertain new understandings of our disciplines and to seek greater clarity about what it means to teach critical thinking, problem solving, or communication in history as opposed to biology or in philosophy as opposed to mathematics, for example, but also to consider what these disciplines have in common.
- The specialized communication skills necessary to participate fully in a communal conversation that advances an increasingly refined understanding of the kind of learning the community is trying to encourage and how it goes about doing so.
- An openness to alternative notions of academic freedom, and a willingness to exercise partial restraint of ourselves and our

idiosyncrasies in the interests of students and their learning.

- The adaptation of the skills of competition (e.g., critique, argumentation, persuasion) to the demands of collaboration (e.g., compromise, accommodation, restraint, listening).

- A capacity to live fully in the community and to practice the skills of patience, tolerance, generosity, and humility.

Teaching in the new millennium requires far more than we ever imagined. The democratization of higher education has changed the demographics of post-secondary students. Increasing numbers of students are nontraditional, speak English as a second language, are first generation college students, and are inadequately prepared for college-level work. At the same time our society has become more and more complex, requiring strong academic and decision-making skills of its citizens. The challenge of teaching now is learning for all students, and learning for all students requires teaching in community and all that that implies. |||

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## What Is the Most Difficult Step We Must Take to Become Great Teachers?

Craig Nelson  
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Although I have known many quite good teachers, I would only regard a couple of them as truly great. One of these, Tracy Sonneborn, once said of research that it was the closest thing he knew to prolonged orgasm and that as soon as he found anything that was more fun, he was going to switch. Tracy's guest presentations in my classes brought such a gripping intensity and evocation of insight to the classroom that it seemed as if the students were suspended a few inches above their seats.

Tracy's comment is core to what has been for me the greatest paradox in learning to teach better. I regard the content I choose to teach as mostly quite fascinating, very exciting and fundamentally important. And it seems to me that this sense of fascination, excitement and importance is the core of much of what students respond to most positively in my teaching. But they are also the core of the biggest problem I have had to struggle with in my teaching—the tendency to try to teach much more than can be learned and, thereby, to also lose the students so deeply among the details that they fail to grasp the larger picture. In much of academia, a tendency to try to cover too much is encapsulated in traditional curricula and courses—in the academic cultures we are inducted into as part of our undergraduate and graduate training.

### Bulimic Learning

Because we find the material so fascinating and important we often

learn it ourselves almost instantaneously and may have trouble recognizing the extent to which we "cover" too much content. However, I suspect that most faculty can remember courses where they were forced to learn so much content that they retained almost nothing. For me the paradigm example remains a cell biology course I took in graduate school—one taught in triplets of a name, a year, and a fact. I learned these with mnemonic matrices—matrices that I had no

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**Because we find the material so fascinating and important we often learn it ourselves almost instantaneously and may have trouble recognizing the extent to which we "cover" too much content.**

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intention of remembering long enough to exit the examination room. Nor did I! It is often clear that many of our own students are engaged in similar "bulimic learning"—they memorize the material, "regurgitate" it on the exams, and forget it so promptly and completely that no mental nourishment remains.

### Less Is More

A conclusion that many of us are presenting substantially more than the optimal amount of content is also supported by some of the scholarship on teaching and learning. From their comparison of content intensive major courses with more concept focused nonmajors courses, Sundberg and Dini concluded: "The most surpris-

ing, in fact shocking, result . . . was that the majors completing their course did not perform significantly better than the corresponding cohort of nonmajors" (M.D. Sundberg and M.L. Dini. 1993. "Science Majors v Nonmajors: Is There a Difference?" *Journal of College Science Teaching*. Mar/Apr 1993: 299-304). They suggest that we should reduce the information density in majors courses so that it matches that which we have usually regarded as appropriate only for nonmajors. Similarly, Russell, et al., compared lectures in which 90% v 70% v 50% of the sentences disseminated new information (remaining time in each case was used for restating,

highlighting significance, giving more examples, and relating the material to the student's prior experience).

Students given the lower level of new content learned and retained the lecture information better (I.J. Russell, W.D. Hendricson & R.J. Herbert. 1984. "Effects of Lecture Information Density on Medical Student Achievement." *Journal of Medical*

*Education* 59: 881-889).

I have found it hard to fully implement the obvious conclusion because that means letting go of much of the content that I love so dearly.

However, a similar conclusion, "less is more," follows from much of the other scholarship of teaching and learning. For example, if students learn more when we incorporate active learning into our lecture periods or replace the lectures with active learning classes, then we obviously must cover less material in order to teach more (I summarized key pieces of this literature here earlier, *NTLF* 10(1): 7-8). Similarly, if we are to concentrate on higher order critical thinking, as I advocated here

previously (*NTLF*9(5): 7-8), we have to reduce coverage to allow time for thinking. And to get effective commitment, we may have to use cases or even service learning—an approach well exemplified by Jane Harris Aiken's "Striving to Teach 'Justice, Fairness and Morality'" (1997, *Clinical Law Review* 4: 1-64; see my summary here earlier, *NTLF*10(2): 10-11).

### Tools to Help Restrain Coverage

I have developed a few tools that help me do this. One is to use reading study guides. When I assign a chapter or article, I usually write out the key questions I would like the students to be able to answer as a result of doing the reading. This is helpful in several ways. First, chapters in texts often cover much more material than students can meaningfully learn—I didn't realize this clearly until I found that I could write as many as 150 short essay questions from some single chapters I was assigning. This caused me to ask what, exactly, I wanted the students to get.



The typical way to constrain the scope of the content in many fields is to limit exams to the material that the teacher can articulate in lectures. This leads to rapid delivery, to high densities of sentences that disseminate new information (compare above) and to a tendency to allow little or no time for processing or questions. Giving the students a selective set of questions over the readings and telling them that the relevant questions on the exam will be drawn from among those questions means that I only need to treat in class those aspects of that material that are difficult for the students to learn directly from the reading. The study questions also facilitate effective small-group studying outside of class.

A second powerful technique is to explicitly designate one of the class periods each week for extended, structured, small-group work. This requires me to select particular material, readings, exercises, problems or cases for deeper processing.

I also have found it very useful to explain to other faculty what I am trying to do and the extent to which I do or do not have any evidence of how it is working. This is often most useful with faculty from other areas, as they are more likely to ask questions that reveal my tacit assumptions.

### Focusing on Process

My encounters with my colleague Tracy Sonneborn's teaching arose from a case where I was presenting the results of one of his elegant studies of multiple sexes in protozoa (where mating type A can mate with B, or C, or . . . but not with other As). I asked him if he could come to my class to present his own work for as little time as he wanted to give. He said that he was too busy, as it would take him a whole day to prepare. I emphasized that I didn't need a literature review, just a quick summary of one nice study.

He said that I didn't understand, that it would take him a day to prepare, but that (to get me out of his way) he would do it next year. I remembered and, although he protested again about the day of preparation, he came to class. Rather than presenting the final elegant experiment and its results (which usually had taken me about 10-15 minutes in class), he started with what they had known initially and asked the students what they would have hypothesized and what experiment they would have designed.

He then agreed and presented the results of that experiment. He noted that the results did not

support the hypothesis but did provide new information and asked what they would now hypothesize and how they would test the new hypothesis. This continued for several rounds until a hypothesis emerged that was supported by the data (and eventually published). In 75 minutes he interactively taught about 15 minutes worth of conclusion and more than 75 minutes on the process of science! Funny thing—the process was much more exciting than the conclusion. Another funny thing—Tracy's course for nonmajors had a reputation for stealing the best majors from other departments and converting them to biology majors. Maybe there is another way to use our enthusiasm than to dump vast quantities of conclusions on the students? ■■■

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## AD REM . . .

### Good Questions?

Linc. Fisch  
Lexington, Kentucky

#### Just what is a good question?

A few months ago, a Supreme Court justice asked an attorney what standard he would suggest for counting undervotes consistently. There was a long pause; finally the attorney replied, "That's a good question." A titter of laughter rippled over the solemn chamber.

Why might that question be considered "good"? Perhaps the attorney viewed it as rhetorical, admitting that the justice had succeeded in making a telling point. Perhaps it was a good question because it sought an answer truly not known, yet highly germane to the hearing. Perhaps it was good because it momentarily relieved the tension in the room.

The "goodness" of questions may be assessed by disparate criteria, as well as from a variety of viewpoints. In examinations, some students might consider questions good if they can answer them "correctly." Some teachers may consider exam questions good if they assess whether students attained designated learning goals. Other

teachers may consider them good if they discriminate among students; that is, they distribute scores appropriately over a presumed range of knowledge, thereby allowing sorting students into "grades."

In classrooms, carefully framed teacher questions can guide the direction and flow of discussions. Questions that make students think often are good questions. Questions that elicit extended responses from students (rather than a simple Yes/No) can lead them to understandings they previously may not have recognized.

Madeleine Engle has said, "Questions are more important to me than answers. I am more interested in opening than in closing." Indeed, some teachers argue that the best questions are those for which neither students nor teacher know the answers, thereby enhancing their discovering truth together. John Ciardi surely must have had that in mind when he said, "A good question is not a bolt to be tightened into place, but a seed to be planted and to bear more seed toward the hope of greening the landscape of ideas." This supports many inquiry-based teaching strategies. A well-stated question often implicitly channels possible responses for students. For example, rather than fishing vaguely with "Is there anything else we should consider in this case?" one might better ask, "What ethical

aspects might we have overlooked?" After posing a question and allowing sufficient "wait" time, Mel Silverman wisely counsels that asking "How many of you think you have a response?" offers opportunity to select from among many who raise hands, rather than asking "What is the answer?" which may draw response only from the quick-witted few whose hands usually pop up early.

Strive to avoid ambiguity. Don't fall into the "guess-what's-in-my-head" trap. Eschew any questions that may serve ulterior motives, such as setting up students, precluding valid lines of inquiry, or preening feathers of a teacher's ego.

Further, we should be careful not to endorse the concept that each question will have a single, simple answer. A lot of questions have multiple answers, some of them quite complex. Others may have no answer. Often an answer begins with "It all depends . . ."

So it is with "Just what is a good question?" The answer must take into account many factors, including the nature of the subject or task at hand, the intent of the query, and whose perspective is considered. And I hope it has helped us all think about asking better questions. ■■■

Linc. Fisch is a retired college teacher, administrator, and program developer. He will be glad to field your questions and comments via [lincfisch@aol.com](mailto:lincfisch@aol.com).

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