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Contemplative Pedagogy
Part 2

James Rhem, Executive Editor

Advocates of contemplative pedagogy agree that, as with other dimensions of learning, the instrumentalities, the meditative and contemplative techniques, are only means to an end. These approaches reach toward the largest, most ambitious goals of education. As the new president of the Mind & Life Institute, Prof. Arthur Zajonc, wrote recently:

"When we take up the task of contemplative pedagogy as an essential, indeed as *the* essential feature of an integrative higher education, we are engaged in a revolutionary enterprise. We are not attempting a simple add-on, or an alternative. Instead, we are declaring that change, growth, and transformation of the human being are the hallmarks of genuine education."

But tools matter. They offer different means of undertaking the work at hand while offering insights into the nature of the work at the same time. So, this second part of our exploration of contemplative pedagogy focuses on some of the techniques various faculty employ. A list of techniques would start with "mindfulness," but quickly expands to include insight meditation, guided meditation, walking meditation, chanting, yoga, body scan, deep listening, silence, "lectio divina" or contemplative reading, contemplative writing, and pilgrimage. All of them have one common aim: opening the mind to larger and larger senses of its wholeness and full power through the cultivation of attention and emotional balance on the one hand and faculties of insight and creativity on the other.

To some extent the vocabulary—"meditation," "contemplation," "mindfulness"—overlaps in ordinary usage in ways that don't always allow access to perhaps important semantic distinctions. Generally speaking, the term "meditation" seems most associated with eastern traditions like Buddhism; "contemplation" more often emerges in western traditions like Christianity. "Mindfulness" may fall somewhere in between since there are both eastern and western understandings of it (cf. Ellen Langer on the power of mindful teaching, *NTLF* V20 N6, Oct 2011). "Mindfulness meditation" has become widely accepted as a means of stress reduction and general healing through the work of Jon Kabat-Zinn of the University of Massachusetts Medical School, and

is the practice most often embraced in higher education, especially in professional schools. But some faculty know their student populations well enough to employ meditation as a pedagogy without calling it that.

The labels matter less than the larger aim – the cultivation of a faculty of mind generally called "awareness," something different from "thinking" and not entirely given over to "feeling." It is a faculty embracing both aspects of consciousness without being burdened by the narrow, pointed pressures of thinking on the one hand or the potentially uncritical and diffuse qualities of feeling on the other.

Concentration and Open Awareness

Arthur Zajonc describes two kinds of awareness that contemplative practices seek to cultivate—Open Awareness and Focused Awareness. The "lemniscate" or open figure-eight exercise Zajonc uses (mentioned in Part One, in V21 N3) combines these sequentially. First, Zajonc directs his students' attention toward a specific object, perhaps a paperclip or the sound of a bell, and asks them to concentrate on it. Then, after a period of concentration, he invites them to open their awareness to the vanished sound of the bell or image of the paperclip. The practice of narrowing and then broadening the scope of attention harnesses mental powers often overlooked in traditional teaching. As Zajonc reports, Open Awareness is often associated with "the space of creativity, in contrast to concentration which is useful for making specific sense observations or performing extended discursive reasoning."

Listening and Reading

David Haskell teaches biology at the University of the South. In an ornithology course, he requires students to be able to identify 200 species of birds. Ninety of the identifications must be from the sound of their calls alone. It's a contemplative pedagogy, a meditation on sound as meaning. But at first

Haskell doesn't tell students it's a form of meditation. "I don't want to present it with a lot of baggage," he says, "but later in the course we get around to talking about the parallels between what we are doing and contemplation." Usually he introduces any contemplative pedagogy as an experiment in thinking differently, and he assures students that if they end up thinking it's nonsense, it won't keep them from getting a good grade.

In his course "Food and Hunger" he begins each class with a "sit" of five minutes or more and then often employs a form of contemplative reading. He provides a short, meaty text which he has students read aloud, each reading a sentence or two. A period of silence follows, the book is closed and class moves on without direct discussion of the passage.

"What happens," says Haskell, "is that the thought from the passage comes into later class activity." The power of the passage has been gestating in the students' minds and gives new and different life to their own thinking. Haskell, a long-time meditator, acknowledges that tapping deeper levels of student awareness may present faculty unfamiliar challenges. "Things come up that you have to know how to handle," he says. "In the Food and Hunger course, I have students brought to tears regularly."

Mixed Menu: Pictures, Drawing, Breathing

Renée Hill, who teaches history and philosophy at Virginia State University, also understands the importance of knowing how to package contemplative pedagogies for her students. In a special course devoted just to meditation, she "threw everything against the wall to see what would stick," she says. The menu included chanting, and one student told her she couldn't do that because it was of the devil. At this historically black institution, Hill finds students under tremendous stress. Many work several jobs, many are the first in their

Editor's Note:

"Engagement is the essence of mindfulness." — Ellen Langer

Working on part two of the *Forum*'s feature on "contemplative pedagogy," I became a bit perplexed about some overlap and seeming contradiction in some of the terms and ideas that kept cropping up. Longtime readers of the *Forum* know of my enthusiasm for the work of Ellen Langer on mindfulness (one of those terms and ideas that kept recurring); so I phoned her for clarification. "Engagement" has floated to the top of the current word cloud in teaching and learning circles and Langer's remark pulls it together with the traditions of mindfulness and contemplation explored in this issue and last. I've posted a wealth of supplementary materials on contemplative pedagogy at www.ntlf.com

Pulling things together has been one of the fundamental objectives of the *Forum* since it began over twenty years ago. Too often new insights into teaching and learning come at us in a fragmentary way as though they sliced through rather than resulted from all we've learned about teaching and learning over the centuries. The *Forum* has always sought the synthesis of a dynamic conversation, and that is why I am very happy to have it join the family of teaching and learning initiatives of Jossey-Bass/Wiley. Soon you'll see the *Forum* linking with the Wiley Online Library and other powerful online conversations and exchanges that will increase the reach and diversity of the efforts the *Forum* has been making in its more modest way for two decades. In short, you'll be getting a lot more for your money now as a subscriber, and perhaps it's time to think of joining the conversation, the team, not only as a reader but as a contributor.

I extend that invitation for a couple of reasons: I'm not very athletic myself, but I admire the power of teams. The development of Peer-Led Team Learning profiled in the book edited by **Pratibha Varma-Nelson** and Leo Gafney underscores what I mean. We unleash tremendous creative energy when we combine our insights and efforts. When we call upon each other to come forward with what we know and what we can do, we cannot help but learn from each other in deep ways that bind us more strongly as a community, a civilization. I see **Henry Etlinger's** piece on homework fitting in nicely here. Yes, there are aspects of learning that are lonely, that we must undertake by ourselves, but at some point we have to come back to each other to see how we've done, where we are, what we need to learn next, what the use is of what we've found. Etlinger's method for using homework fits nicely into this cycle and reaffirms the thing I was talking about earlier, that old ideas usually have a place alongside new ones in teaching more and more effectively. Contemplate that as the spring semester comes to a close.

Ed Nuhfer's DEVELOPER'S DIARY underscores the point as well. Metadisciplinary conversations, those that identify the common threads in the diversity of human inquiries and areas of knowledge, remind us that however dazzling we find the new, it means little in isolation. It finds meaning in community, in company with the older wisdom we all have a hand in building and maintaining.

Perhaps **Marilla Svinicki's** AD REM . . . fits in here too. Different disciplines take different approaches often, but just as often their strategies for learning overlap in ways we can all learn from. Always lively, Marilla points toward (dare I say it?) "new" ways in teaching.

—James Rhem

families to go to college. Relieving their stress so that their minds (and hearts) can open to learning figures strongly in Hill's reasons for employing contemplative pedagogies. She begins many of her regular classes with a "sit" in which students attend to their breath. It's been a successful technique, but Hill doesn't call it meditation. She calls it a "relaxation exercise," something she's asking them to do for their health.

"What I want most for my students is that they develop a sense of wonder," says Hill. "I want them to learn how to see the world as the wondrous place it is; to develop the capacity to wonder about it and the capacity to wonder at it. And to do that, they have to learn to stop and look and be full of mindfulness." She asks them to practice mindfulness in a variety of ways. One of her most successful exercises involves using vision and judgment in unfamiliar ways. When she's teaching metaphysics, for example, Hill brings in a leafy branch from her yard and asks the students to draw not the leaves but the space between the branches. "The point, of course, is to have them experience the fact that their way of seeing the world is not the *only* way of seeing the world, to say to them, 'You are living your life on assumptions you may not even see are there,'" she explains.

Mindful E-mail

David Levy teaches technology-related courses at the University of Washington. He's been very active in exploring the ways in which technologies that appear to be connecting us may actually be disconnecting us, perhaps from ourselves and perhaps from others. He's written and spoken widely on this and related ideas all connected with the need for greater mindfulness. Six years ago when he polled his students, 50% felt they were spending too much time online. "And these were technology students!" he emphasizes. Levy wanted to know if other students felt the same, so in visits to ten campuses across the

country, he polled other groups of undergraduates. "It used to be that 90% said they spent too much time online," he reports. "Now, it's almost 100%."

"Once the conversation starts [about this], the room really opens up. Students want to talk about this," Levy says.

Gaining mindful control of something as ubiquitous and at times mindless as e-mail presents a challenge. Levy approaches his mindful e-mail exercise with care. For several weeks prior to it, he has students do sitting and walking meditations to acquaint them with the idea and experience of mindfulness, "to develop the sense that we can use the products of the mind—'What am I feeling?', etc.—to examine the phenomenon of e-mail."

Levy has students examine their e-mail behavior without judgment. What impulses cause them to check e-mail? Boredom? Anxiety? "Can I be honest with myself about what's going on?" he charges them. After they've had a wide-ranging discussion, he sends them off to write up a set of personal guidelines for using e-mail. They bring these back and compare them with each other.

The result of using a contemplative pedagogical approach, says Levy, is that half way through the course a spirit of openness and engagement pervades the classroom community, a disposition toward awareness that revitalizes the approach to every new question.

Hands-on Meditation

Disciplines devoted to creative activity have eagerly embraced contemplative pedagogies, architecture especially. Peter Schneider

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of the University of Colorado in Denver has meditated for 45 years, pursuing different forms. He's been much influenced lately by Ellen Langer's work on mindfulness.

He has developed his own blend of meditative exercises aimed at having students develop new levels of awareness in taking action and the habit of learning from, one might say "within," their actions. Schneider uses five prompts, each aimed at awakening a different form of mindfulness. First he has students build something for themselves, then he has them take a walk, paying attention to all they see, then he has them sit for twenty minutes becoming aware of all that happens in their minds during this time. On a fourth occasion, he has them "behold" and meditate on a set of stairs and reflect on what that brings them, and finally he calls on them to dive into a memory practice by reflecting on a threshold real or imagined and what its meaning is for them. Schneider has students write 250-word journal entries following each exercise. "Some students don't have the ability yet to be reflective," says Schneider, but he helps them by showing them examples of good reflective writing from Rilke, Bonheoffer, and others, including some student work. "By the third exercise, they begin to get it and come up with some good ones," Schneider reports.

Don Hanlon, who teaches architecture at the University of Wisconsin–Milwaukee, says architectural study is quite stressful in part because there are no right or wrong answers. There are elegant and inelegant, efficient and inefficient solutions to problems and

it's all hard work. He begins classes with a fifteen-minute "sit" three times a week as a means of centering his students' minds and reducing their stress. But the deeper uses of meditation come later in the course when he introduces exercises in "direct perception" through the use of abstract floor plan designs which he describes as a kind of "mandala." "I want them to sense the pattern of the building both visually and viscerally," says Hanlon. "It works great," he says. "It leads to a shock of recognition so primal they begin to see the pattern everywhere. They see beyond the superficial appearances into 'the occult of architecture.'"

"The whole aim is to break them out of conventional habits of thinking," he says.

STOP and STOCK

Leonard Riskin, who teaches law at the University of Florida, has also created his own blend of meditative techniques aimed at developing a deeper contemplative understanding of conflict and action among his students. His STOP and "taking STOCK" exercises seek to evoke mindfulness quickly. S is for stress reduction, T for taking a beat to reflect, O for opening present awareness of the body and emotion, and P for proceeding in action. "Taking STOCK" begins with STOP and adds C to mark the consideration or reconsideration of one's intention and the decision about what one's next action should be, and finally a K for "keep going." These mnemonics help students develop the skills to study how conflict arises and develops within themselves as an important step in understanding how it develops in the outside world and how the law might be used to help resolve or avoid it.

Koans of Sorts

David Sable's classes in religious studies at St. Mary's University in Halifax call upon contempla-

tive practices and combine them with active learning techniques like "think-pair-share." "Half of the class is filled with interactive exercises," says Sable. Class begins with a five-minute "sit" followed by the presentation of a question. The question has the quality of a *koan*, a form of paradox intended to undermine dependence on reason alone and direct the mind toward intuitive enlightenment. "Are you something other than your ego?" Sable might ask. "Students begin to learn many things here. They learn that they don't have to answer a question immediately, that is to say, they learn the importance of 'wait time' or reflection," Sable explains. "And in confronting such open-ended questions, they will begin to notice that they have habitual patterns of response—impatience, uncertainty, irritation, and so on. At this point they are encouraged to pay attention to what they know at a deeper level, their 'felt sense' of what the heart of the question might mean. The question has a different impact now, and I ask them to write down their response in a short paragraph."
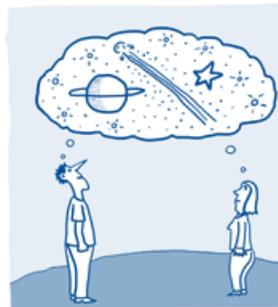
After they've written, students turn to a partner and exchange views in a period of active listening without argumentation. "In this they learn a lot about themselves and how others form an alternative view," says Sable. Finally, the class opens up to a full discussion. "At this point," Sable continues, "community has been formed, the atmosphere has shifted, and you get much wider participation from those who normally seldom speak. They've come to understand that the point is not to get agreement, but to look at divergence, to get to levels of kindness and compassion and acceptance of the other. Students are now actually paying attention to what other students are saying and the unexpected result often is that students end up feeling more connected to people they had strong disagreement with at first than with those whose views they'd shared. They've experienced what

dialogue means: generating new meaning together."

Far from offering a softening of effort or relaxation of critical energy, following the breath, focusing attention, listening for the felt sense, and other contemplative pedagogical approaches emerge as a sharpening of and recommitment to the highest aims of education. In that light it seems no surprise that more and more faculty have begun to turn to these practices in their teaching. ▌▌▌

PRAXIS

Don't Overlook Homework Assignments— They're Simple, but Powerful

Henry A. Etlinger
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These days we spend a great deal of time focused on new technologies—wireless internet or classroom response systems—or new approaches to teaching—active learning, for example. While both new technologies and new approaches to teaching have obvious benefits, we should not lose sight of simple, low-tech approaches that still offer both instructors and students many benefits, especially when combined with newer approaches. Homework has been a staple of the educational world for decades. This essay outlines how homework assignments have been used effectively in two different courses in combination with a form of continuing group work I call "coalitions," and how the use of homework in each course has influenced the evolution of its use in the other course.

Starting Out

The first course is a course in technical communications required of all Computer Science majors. While the focus of this

course revolves around a series of writing and speaking assignments, students have also historically been assigned readings that complement each assignment. It's instructive, for example, for students to see that different authors may have different opinions about resumes or presentations or even aspects of grammar.

In the course an early approach to this assignment made readings available to students and asked them to come to class ready to discuss what they had read. These homework assignments did not contribute to a student's grade, and the results, perhaps predictably, were often disappointing.

First attempts at improving this scenario involved informally announcing some questions in class for later discussion when the readings were first distributed, but again predictably, students often forgot the questions. Eventually, I created a homework template and distributed it when readings were distributed. Students were asked to print summaries of their responses and turn in a copy at the start of class, as well as bring along a second copy.

Hashing It Out

Over the course of the term, the instructor kept count of how many submissions were made by a student and used that count as the basis for a small contribution to a student's grade. My rubric avoids using the word "grade" and simply says I will "score" the assignment. In this two-copy model, it now became feasible for small groups of students to first discuss their various reactions to the readings, write down their group's consensus, and then share their thoughts with the class as a whole. These groups or "coalitions" of students continue with the same membership throughout the ten-week quarter and are given time in almost every class meeting to consider their responses to the homework assignments. Having reviewed their responses, I summarize how

the class has responded overall, pointing out strong answers, common mistakes and so on. This procedure meshes well with the fact that groups previously have shared and compared their individual responses.

The second course where old-fashioned homework assignments have been freshly helpful is an introductory database course. Here we use a standard textbook, and students often need practice in applying concepts. Homework assignments, again not graded, were initially introduced informally as a means of providing practice opportunities. Unfortunately, with no grade attached to the homework assignments, many students would neglect doing them and suffer the consequences on exams. Indeed, those who complete the homework assignments do significantly better on the exams.

Symbiosis

Borrowing from the experience in the technical communications course, I created a homework template and homework assignments for the database course with the expectation that students would bring to class two copies of their proposed solutions to problems, one to turn in and one to have available as they discussed their proposed solutions in small groups. Again, it's useful to have students discuss and review alternative solutions and then to share different approaches with others in the class; in this model, students also received a small contribution to their grade based on the number of homework assignments they turned in.

While there can be a variety of subjective opinions, all valid, on many communications matters, database problems tend to have one or perhaps only a small number of correct answers. Even though problems and solutions were discussed in class, since homework assignments were not graded, some students still felt uncomfortable about their efforts (or perhaps they simply weren't in class when solutions were reviewed). To counter this problem and to offer a bit of insight for students, I created a homework model solutions template. My use of the word template is not formal, but rather refers to the way I have come to craft the homeworks and the so-called model solutions. I start with a Word document that includes a standard set of directions followed by a specific homework identifier and title and the specific homework itself (which might be to read several excerpts or solve a set of problems or something else), as well as the expected date of submission. The model solution template is another Word document that includes the text of the original homework as well as the due date followed by my suggested problems answers or other matters. The model solutions will typically be posted online for students right after the date the homework is due. Late submissions are not accepted.

What the Teacher Learns

After I quickly looked over all student submissions, common

misperceptions could be noted and discussed. For example, "normalization" is a difficult technique for many students to master and homework assignments provide an excellent vehicle for expounding on often subtle points.

Since students in the database course seemed to benefit from having model solutions and expanded discussion posted, I developed a homework model solutions template back in the technical communications course as well. In this case, however, it proved more useful to provide counts of the most frequently selected items. For example, a homework assignment might ask students to read three excerpts related to presentations and to identify three points in each that caught their eye as particularly interesting, relevant, or surprising. Having a summary of responses from the class sometimes revealed clear consensus across the class and sometimes showed a wide range of answers. In any event, posting summaries helped students see that often there can be more than one correct answer and that different points of view are valid. It was easy then also to follow up in class with additional discussion prompted by the summaries.

In essence, this mechanism has provided me with a means to prod both the instructor and the students to keep up with the course content, as the pace of a course in our ten-week quarter environment is quite swift. I like the fact that in order to produce what I call model solutions, I scan what every student turns in, and once I post the solutions, all students can see what I chose to focus on or what I felt might be important or relevant.

As educators, we constantly try to improve the educational experience for our students. We know that students often learn by

> "My rubric avoids using the word "grade" and simply says I will "score" the assignment."

discussing ideas with other students and we know that students need to spend some time reading and digesting ideas presented by others. Homework assignments, even those we don't specifically grade, can be powerful tools that can be used to motivate students to come to class prepared. As a result, we enrich time in the classroom and help our students master ideas and grow intellectually. It's worth noting, especially for newer instructors, that your ideas regarding how you teach will grow over time and that it's quite reasonable to add new elements incrementally to assignments or activities. ▮▮▮

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INNOVATIONS

Getting To Know PLTL

Faculty in the STEM disciplines who've been concerned with high dropout rates and poor student performance have probably already heard of "Peer-Led Team Learning" (PLTL). But despite the fact that this approach to instruction is now over 15 years old and has proven its effectiveness wherever it has been fully implemented, many faculty may still have shied away from moving toward trying it on their campus. Their reasons are familiar: They question the relative advantage of this approach over others, they wonder about its compatibility with their current situation, they worry that it may be too complex to implement on their campus, and they wonder if it's something they can try out without making a full-fledged commitment.

Happily, unlike some pedagogical innovations presented to faculty in a uniformly uncritical light, those who've designed and fostered the application and growth of PLTL have carefully documented every aspect of its implementation. They have assessed its successes and probed carefully into those efforts that have not gone well. They know what it takes to have the approach work and they have shared their careful study of their efforts in a brief and oddly elegant book, *Peer-Led Team Learning: Evaluation, Dissemination, and Institutionalization of a College Level Initiative*, by Leo Gafney and Pratibha Varma-Nelson (Springer, 2008). While many such studies compile data but make dull reading, the willingness of this study to engage and explore objections and problems associated with PLTL as well as its habit of using relevant research and theory from the social sciences to frame and deepen understanding of the issues involved, make the book engaging reading.

The energy and commitment to student learning one feels in speaking with one of the book's authors, Pratibha Varma-Nelson, a professor of chemistry at Indiana University-Purdue University informs the entire study. Faculty worried that PLTL might not work on their campus will find a complete look at the kind of institutional support needed for success, and if they are worried about how much work it might be to implement, the book pulls no punches about that. "The first year of implementation does present a lot of work for faculty," says Varma-Nelson, "because they have to create all new materials." And these materials are in addition to, but deeply connected with the spine of lectures they have in place. The core idea of PLTL is a workshop. It differs from sessions with a TA or graduate assistant or even a traditional lab. In PLTL workshop sessions, which typically and most successfully run from 90 to 120 minutes, students work on a series of problems with the guidance and support of a fellow student who has previously done well, but not necessarily too well in the course. Successful peer leaders (PLs), says Varma-Nelson aren't necessarily those with A+ records; ideally they're not seniors but students who may have taken the course the year before. They're A and B students who have good people skills, who know how to communicate and enjoy working on problems with others. Enjoying working on problems, enjoying the process of finding one's way through the challenge proves essential because in PLTL workshops the leaders don't help by giving out the correct answers. This is what happens in many non-workshop situations, says Varma-Nelson, and "it's not effective. They [the PLs] need to do the problems themselves."

The training PLs go through focuses on teaching challenges, not correct answers. "So, for example, we give them specific problems, break them up into small groups to work on them as if they were the students in the sessions they'll be leading. Then when they encounter problems, we ask 'What are you going to do if students have this problem?' and we stop and develop the questions needed to guide students to the answers because we do not want PLs to give answers," says Varma-Nelson. "It's very hard to get away from the impulse to give answers," she continues. "We spend half the time in training talking about this. We want PLs to come to understand the concepts being taught rather than the answers; we stress the importance of thinking conceptually."

Extensive study of PLTL implementations has found that success depends on six key elements:

1. Making the workshops an integral rather than optional part of the course;
2. Having faculty involvement in the selection of materials, training, and supervision of peer leaders, and in continual review of progress in the workshops;
3. Well-selected and well-trained peer leaders;
4. Constructing appropriate materials (i.e., problems of sufficient difficulty and relevance);
5. Appropriate organizational arrangement (i.e., 6–8 students meeting for 90–120 minutes weekly); and
6. Genuine administrative support from department and institution (usually some funding).

When any of these elements has been short-changed, the study shows success has been compromised.

While the PLTL model reflects the shift from the older paradigm of teaching in which the student was often seen as a vessel to be filled with knowledge to a newer one where students are viewed as active constructors and discoverers of knowledge, some faculty bridle at the thought of taking students as partners in teaching. Where they have done so, however, the PLTL approach has commonly seen the number of students obtaining grades of A, B, or C improve by 10-20 points. And the approach has proven especially helpful to women and members of ethnic groups previously not well-served by traditional modes of instruction in STEM disciplines.

When PLTL began proving itself in 1995 most instruction involved face-to-face meetings; today lots of instruction has moved online and so has PLTL. Varma-Nelson speaks with enthusiasm of both the challenges and the positive results of working with peer leaders in a cyber environment. "We're going to have to change some of what we do online," she says. "We're going to have to 'drill down' because students are talking more online. They are showing their work in a way they don't face to face. They are really talking more: It's an unexpected but welcome outcome."

Varma-Nelson explains that online meetings seem to offer a unique combination of privacy and community. Shy students who never talked in class become active participants online. In the privacy of their rooms, students are searching the Internet for information at the same time they are participating in class, she says. "Kids in class could do this too since they usually have Internet access, but they don't in that setting. So we are going to have to construct much better problems for the cyber environment, problems that require more thinking, more steps."

And has PLTL proven as effective online as face-to-face? The cyber version has been used for four semesters now, Varma-Nelson reports, and has had the same positive effect on student grades, a 10–15% increase. ▮▮

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See also:

Gosser, D., M. Cracolice, J. Kampmeier, V. Roth, V. Strozak, and P. Varma-Nelson. 2001. *Peer-led team learning: A guidebook*. Upper Saddle River, NJ: Prentice Hall. (http://www.pearsonhighered.com/product?ISBN=0130288055)

Roth, V., E. Goldstein, and G. Marcus. 2001. *Peer-led team learning: A handbook for team leaders*. Upper Saddle River, NJ: Prentice Hall. (http://www.pearsonhighered.com/product?ISBN=0130408115)

Mauser, K., J. Sours, J. V. Banks, R. Newbrough, T. Janke, L. Shuck, L. Zhu, G. Ammerman, and P. Varma-Nelson. 2011. Cyber peer-led team learning (cPLTL): Development and implementation, http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/CyberPeerLedTeamLearningcPLTLD/242669, *Educause Quarterly* 34(4).

Triggering Essential Conversations for Promoting Metadisciplinary Education in the Social Sciences and Humanities:

Educating in Fractal Patterns XXXV

Ed Nuhfer, California State University–Channel Islands
with Melody Bowdon, University of Central Florida; Dakin Burdick, Endicott College; Joshua Eyler, George Mason University; Jay Fox, Brigham Young University; Wayne Hall, University of Cincinnati; Elizabeth Hartung, CSU–Channel Islands; Mike Reynolds, Hamline University; and Dan Wakelee, CSU–Channel Islands

For new readers, let us summarize the two preceding diaries (V20 N5 and V21 N2). The sciences, humanities, arts, and social sciences are the metadisciplines most represented in general requirements. Signature ways of knowing, reasoning, and contributing permeate all disciplines that lie within each. Understanding these ways of knowing constitutes *metadisciplinary* education. Through general and liberal education requirements, most institutions have long sought to impart conceptual reasoning abilities that are metadisciplinary in nature. However, decades of departmentalization and a long-standing emphasis on courses rather than curricula have erased an awareness of metadisciplinarity from general education.

First Steps: The Group of Ten

The term *essential conversations* (V21 N1) describes conversations held by faculty from the disciplines within a metadiscipline for the purpose of regaining essential metadisciplinary perspectives, articulating essential concepts, and delivering these to students as an essential aspect of general education. To our benefit through such conversations, our group of ten from disparate science disciplines (V20 N5) refocused our awareness on the overarching metadiscipline of science. These conversations clarified what students needed to understand and to experience to become science literate. Following our conversations, we constructed a Science Literacy Concept Inventory, assessed its reliability and validity, and began testing it nationally to see whether students were achieving science literacy in general education courses. This latter work required essential conversations across institutions.

Our results showed that current general/liberal education courses impart little metadisciplinary awareness and reasoning about science. This disappointing finding seems traceable to teaching done under a widespread assumption that metadisciplinary awareness occurs as a result of learning disciplinary content. Results from the inventory show that such learning does not happen.

Next Steps?

A statement by Randy Bass provides inspiration for any professor's developing of metadisciplinary awareness:

"Teachers need to know more than just their subject. They need to know the ways it can come to be understood, the ways it can be misunderstood, what counts as understanding: they need to know how individuals experience the subject."

(from "The Scholarship of Teaching: What's the Problem?" see http://doit.gmu .edu/archives/feb98/randybass.htm)

If students experience a discipline without understanding its metadisciplinary way of knowing, they are surely experiencing it superficially.

Don't Go This Way

Some confuse interdisciplinarity and integrated studies with metadisciplinarity. Metadisciplinarity is itself a form of content. Effective understanding of it at the student's level involves acquiring an ability to recognize a framework of reasoning developed during the establishment of broad divisions of knowledge—the sciences, the humanities, et al., and apply that framework to real life situations. It is not a pedagogy, a way of organizing content, integrating it, or presenting it. Unless metadisciplinary concepts are articulated and taught well, students don't learn them. Thus, assumptions that interdisciplinary courses or integrated studies curricula will produce metadisciplinary literacy are on shaky ground. Even "high-impact practices" (writing-intensive courses, internships, capstone seminars, etc.—cf. http://www.aacu.org/leap/hip.cfm) cannot deliver on any learning outcome when teaching the outcome isn't part of the design.

Are There Any Metadisciplinary Conversations Out There?

Having held and followed these essential conversations to a productive end in the sciences, the next questions are naturally, to what extent might metadisciplinary learning be happening by design in the social sciences and humanities? What do experts in these fields anticipate that such conversations might look like?

The existing research literature doesn't offer much about metadisciplinary education. My exploration of AACU's Project LEAP rubrics showed only marginal identification with metadisciplinary frameworks of reasoning. To gain some understanding of the potential for additional essential conversations to share in this diary, I started some conversations by interviewing expert practitioners from the social sciences and humanities. My purpose in sharing their ideas collectively here is to stimulate faculty developers and other readers to organize *essential conversations* within metadisciplines at their own campuses. A few references listed at the end of this column offer additional help.

Prior to the interviews, I conveyed to each participant some information about our metadisciplinary work in the sciences and shared the twelve concepts that we had deduced as essential for a science-literate graduate. Thereafter, I sought to promote discussions that provided parallels to our prior work in science in order to build this diary in parallel with our two recent diaries.

Essential Conversation Starters for the Social Sciences

Dr. Beth Hartung, chair of Sociology at Cal State–Channel Islands, provided an excellent connection with science by first noting that sociology emerged in the 19th century through *a transfer of the ways of knowing developed by science into social analysis.* Beth is one of the few social scientists I've known who articulates how transferring the method of understanding established for explaining the physical world and applying that to human behavior can produce both possible problems and new possibilities. A number of social science professors have taken the Science Literacy Concept Inventory, and as a group they score just as well on it as do professors in the physical and life sciences. Because of their connection to science, the metadisciplinary outcomes and concepts they arrive at from essential conversations likely will include some of those articulated from the essential conversations in the sciences.

Beth laughingly proclaims herself as "not a very good social scientist" by noting her preference for working and thinking as a generalist—crossing lines between disciplines

and metadisciplines. Two of her suggestions for entries as concepts inherent to the metadiscipline of social science are understanding its information systems, locating information and thereafter using frameworks of reasoning to assess the quality of it.

Beth provided additional insights into the social sciences' commonality with science by underscoring the influential role of technology on both. She noted the importance of technology to social science in producing paradigmatic shifts after which actions and values that served one well before a technological change no longer worked well afterwards. She pointed to a paired diorama in the British Museum that is a useful visualization of such shifts. One depicts an English village of around 1730; the second diorama depicts that same village as a dramatically different place 40-50 years later. Beth likes using paradigmatic shifts as a way to make "theory" more interesting and comprehensible to students. Her description reminded me both of the power of visualization as an aid to deep learning that we noted in a past diary (V19 N1, p. 11) and the punctuated events that characterize fractal patterns of change through time (V14 N6 and V15 N1).

Dan Wakelee, Associate Provost and professor in political science at the same Channel Islands campus, shares Beth's love of interdisciplinary connections. An avid outdoorsman, Dan teaches and works across disciplines in sustainability, parks and recreation, and environmental issues. One of the concepts he named as critical to social sciences involves understanding the process of performing and writing research. Therein Dan broaches a good path for articulating the ways of knowing of any metadiscipline. Dan emphasized particularly an understanding of whether qualitative or quantitative methods are called for to produce best understanding, and he believes that the social sciences currently undervalue qualitative investigations.

The qualitative-quantitative dilemma provides a rough counterpart to science's ways of understanding through controlled experiments or multiple working hypotheses (V15 N4 and V15 N6). In both metadisciplines, it is important to understand whether one has actually tested the intended hypothesis and, if so, whether one employed the appropriate method for testing it. In both Dan's and Beth's classes, students do primary research that involves information gathering, deriving meaning, and distilling this into explanations of social phenomena. Dan also stressed simulations as a powerful instructional tool, which provides an equivalent to science's way of understanding through modeling.

Essential Conversation Starters for the Humanities

Perspectives on the metadisciplinary qualities of the humanities were furnished by university professors with several years' experience as full-time developers. All responded voluntarily to a request that I made to the POD listserv. As a whole, humanities professors also score high on the Science Literacy Concept Inventory—not as high as social scientists and scientists—but far above students and most graduate students. This lends credibility to the fact that their framework of reasoning and their way of knowing emphasizes some concepts that differ from those of their counterparts in science and social science.

Melody Bowdon, professor of Writing and Rhetoric at the University of Central Florida, notes that the humanities can seem like "an annexing of all things." As I assimilated the interviews into this diary, I began to appreciate this statement and also that the metadisciplinary ways of knowing in the humanities supply some essentials for all of critical thinking

that are not developed in other metadisciplines.

A central concept of the metadiscipline of humanities may be the power of language, its ways to create argument through logic, deliver that argument through rhetoric, and the ways we use language to persuade, to argue, and to convey understanding. Today, evidence-based reasoning pervades all the metadisciplines, and the ability to use evidence is the main thing examined when we determine adult learners' progress in intellectual and ethical development. However, evidence-based reasoning acquires its power to contribute through language.

George Mason University's Joshua Eyler noted concisely, "The metadiscipline of the humanities is based on how we seek answers to the questions that we pose and how we use a variety of textual evidence to construct arguments to articulate our positions." All of the humanities scholars interviewed similarly noted the degree to which written and visual texts serve as sources of evidence in ways that extend beyond functioning as receptacles of content. All emphasized *close reading* (also called "critical reading," "deep reading," or "slow reading") by engaging in the use of language in contemplative ways. Only such reading can permit one to read text and make informed interpretive statements in ways that engage content and audience point of view, and which develop understanding from multiple perspectives. Patricia Kain's resource on Harvard's web site discloses the essence of close reading for students. It is worth sharing in any college course (http://www.fas.harvard. edu/~wricntr/documents /CloseReading.html).

Wolf and Barzillai (2009—"The importance of deep reading: What will it take for the next generation to read thoughtfully—both in print and online?" *Educational Leadership* 66/6, pp. 32-37) understand what is at stake

should a society lose this ability in its transition through a digital revolution: "*A culture can be judged, in Aristotle's view, according to how it pursues three lives: the life of activity and productivity, the life of enjoyment, and the life of contemplation.*" To lose the last is to lose capacity for deep understanding itself.

Wolf and Barzillai's concerns about losing the capacity for reflection, focus, and contemplative learning seem similar to those of Nicholas Carr in *The Shallows: What the Internet Is Doing to Our Brains* (New York: W. W. Norton, 2011). Wayne Hall, Professor of English and Comparative Literature at the University of Cincinnati, stresses the high-stakes of such understanding when he noted during our interviews, "If you are not able to understand another person's point of view, you will not survive in any endeavor."

Endicott College's Dakin Burdick referenced Mortimer Adler's classic, *How to Read a Book,* in the first moments of our interview. He fields a "high impact practice" writing-intensive United States History course by building language skills through reading coupled with reflective writing. Dakin emphasized something too often omitted in discussions of writing intensive courses: the importance of developing reading skills together with writing. As noted in earlier diaries (V19 N1 and N3), the two are inseparable.

Hamline University's Mike Reynolds echoes this by noting that engaging syntax, semantics, and context are necessary for understanding before we can write and build on our text resources. It took me a good part of synthesizing others' contributions in this column before I grasped the meaning of Mike's astute observation: "Books are better doorways than they are windows."

Brigham Young University's professor of English Jay Fox is a former dean and academic vice president at BYU Hawaii who currently teaches a literature and film course and is a former department chair at BYU in Utah. "Art as a Way of Knowing," an address that he provided in 1979 in Hawaii (http://davidomckay.byuh.edu/mckaylectures/1979_Fox), reveals his long interest in metadisciplinary awareness. As an administrator dean, Jay worked at an institutional scale at both institutions in promoting an approach to general education. He strove to promote and participate in for several years a General Education Academy, a cross-disciplinary forum that met in fruitful three-day intensives. He encouraged my visiting BYU's general education outcomes site at http://ge.byu.edu/ge/content/ge-learning-outcomes and noted that the ten outcomes that support the six-part Mission Statement might arise from asking three questions: "What do I want my students to know? What do I want my students to be able to do? What do I want my students to be able to feel?"

The last question has special implications for any essential conversations that would articulate central unifying concepts of the metadiscipline of humanities. We have emphasized affect and the affective domain many times in these diaries. The affective domain describes a fundamental functioning of the human brain that generates many of the qualities that distinguish us as human. While no cognitive learning is divorced from affect, the humanities seem suited to developing understanding of the importance of affect in unique ways that differ from the perspectives on affect usually provided by the sciences, arts, and social sciences.

Melody Bowden shared her 2011 paper, coauthored with Colorado State University's Lisa Langstraat, "Service-learning and critical emotion studies: On the perils of empathy and the politics of compassion" from the *Michigan Journal of Community Service Learning.* The title carries several words with obvious ties to the affective domain. It also draws on a high-impact practice of service learning that enables students to learn by doing something that forces them to draw on varied intellectual skills and capacities.

By not teaching metadisciplinary reasoning, we may be impoverishing good learning experiences in unanticipated ways. Students with metadisciplinary awareness can bring it to service learning or to nearly any high impact learning experience to enrich both that experience and their own metacognitive reflections about it.

Metadisciplines for Megachallenges

When faculty have huge disciplinary burdens in keeping up with the explosion of information just in their fields, why should they further burden themselves with questions of metadisciplinarity? Perhaps pursuit of that ancient trio of the good, the true, and the beautiful offers the best answer. When evidence-based reason accompanies the power of rhetoric, it enriches understanding and uplifts civilization. Unguided by such reason, the power of language can deliver a great deal of mischief by fostering misconceptions upon which people may try to act. History—especially the history of the last century—shows that civilization needs all its ways of knowing and that its rhetoric needs both evidence and reason behind it. Thus, a widespread metadisciplinary awareness is essential. Here's one example: It seems certain that the human population will soon reach the capacity of the planet's resources to support it. This makes sustainability

> "Decades of departmentalization and a long-standing emphasis on courses rather than curricula have erased an awareness of metadisciplinarity from general education."

a concern for any informed civilization. Environmental sustainability, restoration, and reclamation have been overt emphases of the sciences and social sciences for decades. Sustainability might seem to be only a very recent emphasis for the humanities (http://ihr.asu.edu/humanities-environment-film), but from a metadisciplinary perspective it seems that the humanities are what made environmentalism and sustainability possible.

Both arise from ethics. Ethics, at its root, like all cognitive endeavors, arises from the affective capacity of the human brain. We have ethics and codes of ethics simply because we have the capability to value what they provide. Without awareness of the need to live by justice, beneficence, nonmaleficence, autonomy, and responsibility, societies provide life experiences characterized by poverty, fear, violence, lack of opportunity, ignorance, and abuses of power.

The prospect of a planet that lacks the capacity to sustain human civilization offers the blueprint for a controlled, global scale nightmarish society that would make *Brave New World* or *1984* seem like refreshing power naps by comparison. However, concern for future generations and the planet as a whole is characteristic of a mindful, healthy society that can avert this nightmare. "Sustainability" is an unavoidable challenge. It may inspire big-picture awareness afforded by metadisciplinary ways of knowing, ways of knowing which may hold the only basis through which to resolve such megachallenges effectively. ▌▌

Useful Resources on Metadisciplinarity

Carp, R. M. 1996. Toward an investigation of metadisciplinarity: A provocation in the humanities. Paper presented at the Annual Conference of the Association of Integrative Studies, Ipsilanti, MI.

Fairlamb, H. 2011. Philosophy and the logic of meta-disciplinary study. Unpublished paper available at www.csid.unt.edu/field/NPP2011/fairlamb.pdf.

Werth, A. J. 2003. Unity in diversity: The virtues of a metadisciplinary perspective in liberal arts education. *Journal of the National Collegiate Honors Council* Fall/Winter 2003: 35-52.

GAMES—Your Way

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Last weekend I went up into the Texas Hill Country on a teaching retreat with faculty from Texas A&M and other colleges and universities in the central Texas area. It was a beautiful spot, bluebonnets in full bloom, bright stars at night, out in the middle of nowhere, and we all enjoyed it a lot (especially since you could still get a cell signal). As usual at teaching events like this, I was reminded of all the things that I know I should do in teaching and don't. But despite that, I also came away with some insight into a learning survey I've been using for a long time called the GAMES survey. GAMES is a mnemonic that represents five important categories of learning strategies that students can use when they sit down to study: setting **G**oals, being **A**ctive, making **M**eaningful connections, **E**xplaining to understand and **S**elf-monitoring. The survey asks them to indicate how often they use an array of study strategies that represent those categories, like "Before I begin, I make sure I know what is expected of me in the assignment" or "I write down questions that I have as I go so I don't forget them later" or "I work with a partner to trade questions before a test." When they compute their five scale scores, they can see where they are doing a good job and where they could improve.

Getting the students to fill out the survey at the beginning of the semester is one way to open their eyes to possibly more effective study. And my own students take to it really well. But at the retreat, I was showing the GAMES survey to a group of diverse faculty in a session on self-regulated learning when it suddenly occurred to me that the strategies that work in my survey wouldn't necessarily be optimal for other types of courses. I

based GAMES on a pretty generic set of strategies, but I thought to myself, while the GAMES *categories* would fit any subject because they are basic learning principles, the *strategies* in each of the categories might be different. For example, the goals of doing a homework assignment in engineering might be very different from those of a literature assignment.

On the spur of the moment I invited the participants to list some strategies under each of the letters of GAMES that would be specific to their discipline. Brilliant! It took a while to get the idea going, but folks really got into it and made some good distinction between assignments and disciplines, especially in the goals, active learning, and meaningful connections categories. Not every idea was unique, which only shows that there is a lot of common ground in learning across disciplines, but many times I could see the general principle behind the specific instance. I asked everyone to send me a copy of their unique GAMES survey if they actually went home and did it and tried it out on their own students.

I don't know if I'll get any from the participants, but the accidental exercise did open my own eyes to possibilities in my class. I think that each assignment I make could be analyzed into strategies that fit the GAMES framework and a checklist created to encourage students to follow the procedure before they sit down to work. Hopefully, it will be productive enough that it becomes a way they approach their work, rather than an assignment I make.

My sincere thanks to all those retreat participants who were willing to play along and consider the possibility of modifying this simple five-category self-regulated learning protocol to fit the complexities of their own field. I hope I get to see the results! ▌▌

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