THREE-DIMENSIONAL STORY TELLING: AN EXPLORATION OF TEACHING READING, WRITING, AND BEYOND

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The process of endlessly telling and revising stories, in the attempt to take account of new observations generated by the stories of older ones, is the central concept and driving motivation of a first-semester writing seminar we offer at Bryn Mawr College. "Story," as we use the term here, is a way of knowing that can be revised over time, a theory for which there is no final proof (Grobstein, 2003, 2005a). Writing a story structures knowledge well enough so one can learn from it but not so tightly that one stops exploring. This essay is itself a story, of the development of our course and of some more general lessons we believe we have learned from it so far.

We assert that three features are essential to the story telling process:

- Within each of us is an important, internal, personal, tacit, unconscious source of knowledge.

- The task before us is to become conscious of that resource, as the explicit framework we use for making sense and as the basis for explicit knowledge formulations, both for others and ourselves.

- Through writing (among other activities), we can learn to work with—perhaps even eventually to alter— formulations of knowledge that are both explicit and implicit to interrogate the explanatory frameworks we usually rely on without awareness that we are doing so.
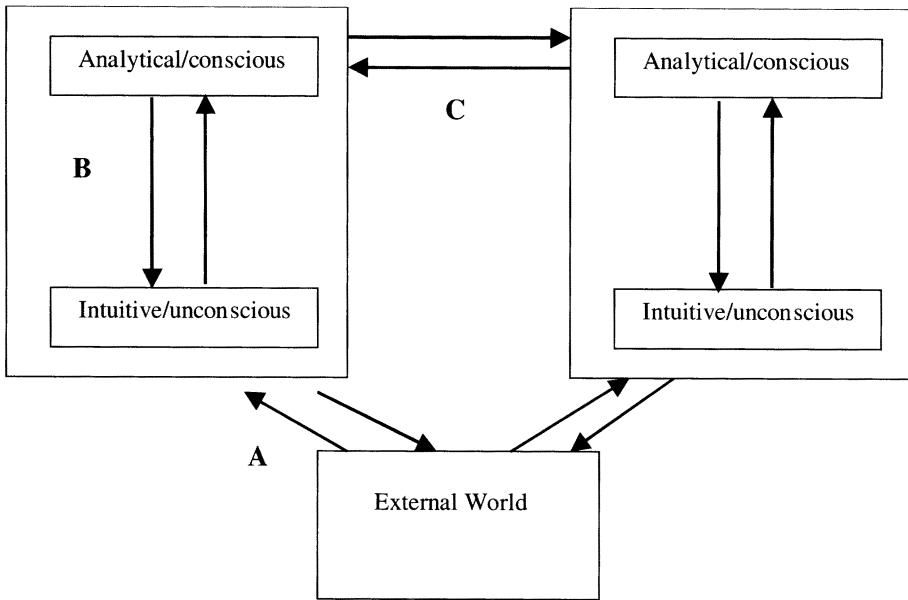
These features can be highlighted in the classroom by focusing on the operation of three interdependent but isolatable loops:

(A) a largely unconscious "inside-outside" exchange: the experiential process of learning by acting in the world and being altered by the consequences of doing so.

(B) an internal, self-reflective "intuitive-analytic" process that reciprocally links the tacit understandings of the first exchange with an explicit process of trying to make sense of them, and

(C) an interpersonal exchange in which explicit and tacit understandings are conveyed among individuals.

Many educators have talked about learning as a "looping" process (see Dewey on "continuities," Kolb on the experiential learning "loop," Flower and Hayes on cognitive loops, Elbow on the loop involved in *Writing with Power*, and Perl on writing as a recursive process). Our particular formulation, as illustrated in the figure below, is distinctive among these procedures in its emphasis on three intersecting loops and their somewhat unpredictable and generative potential:

The more or less self-conscious act of making intuitions explicit within oneself (B) continues with the testing of such formulations both privately, in one's interactions with the outside world (A), and publicly, in exchange with others (C). Essential to the successful function of such interacting cycles is the recognition that differing perspectives and approaches should be treated as complementary rather than oppositional. A complex and somewhat unpredictable set of feedback cycles is thus activated in which new intuitions arise, unconscious skills are revised by conscious reflection, and new experiences are generated.

An important additional aspect of our account is that—yes, especially in an culture obsessed with assessing outcomes in terms of preconceived learning goals—genuine exploration is not only possible but essential for effective education. Risk-taking is a necessary component of both curricular design and its enactment in the classroom. The story we have to tell here arose in part deliberately, in the context of Bryn Mawr College's

Analytical/conscious

C

Analytical/conscious

B

Intuitive/unconscious

Intuitive/unconscious

A

External World

interdisciplinary writing-intensive College Seminar program, but also much of it emerged serendipitously and unawares. In the course of developing and teaching this class, we found ourselves creating what seems to us now not only a "less wrong" way of teaching (cf. Grobstein 2006), but also a way of connecting the classroom, for ourselves and our students, to a wider set of social and cultural issues beginning with C.P. Snow's concerns about a "two culture" gap.

Because the processes we went through in developing the course seem to us as important as the conclusions we draw from it, this essay is itself a meta-narrative: we explain what we have learned in order to make it accessible and thereby re-structurable. Accordingly, we begin here with an account of the interpersonal exchange that ultimately led to our awareness of the significance of the other loops. We then add the experiential and internal dimensions, reflecting on the continuing and essential interactions that occur among them. We close with some thoughts on the

larger intellectual and social implications of what we are learning from teaching a first-semester writing seminar.

I. The Interpersonal Loop: Designing a Course Together

> The clashing point of two subjects, two disciplines, two cultures—of two galaxies, so far as that goes—ought to produce creative chances.

> C.P. Snow, *The Two Cultures and the Scientific Revolution* (1959)

> But it was from the difference between us, not from the affinities and likenesses, but from the difference, that [understanding] came: and it was itself the bridge, the only bridge, across what divided us.

> Ursula LeGuin, *Left Hand of Darkness* (1969)

While both of us are experienced teachers, and had each taught previously in the College Seminar program, we had not taught together and came to the enterprise from quite different directions. One of us is a woman and literary scholar with particular interests in Quakerism, feminism, and nineteenth-century American literature. The other is a man, a biologist and an atheist whose focus has been on neurobiology, human behavior, and philosophy of science. Our differences were such that colleagues doubted we could conceive together a common syllabus, much less collaborate successfully on a course.

We share, however, a common dissatisfaction with "things as they are" and an associated inclination to try out new approaches. Our productive collaboration is the result of our particular combination of differences and likenesses—including the shared conviction that the differences between us represent more promise than problem. Although we were unaware of it at the time, the back-and-forthing between us in first developing a

syllabus was an intimation of the importance of loopiness: an iterative, not linear, exchange of what lies inside and outside, of the intuitive and analytic, the experiential and academic.

The College Seminars at Bryn Mawr, twelve-year-old interdisciplinary experiments in reading-intensive and writing-intensive courses for first-year students, are classes that exceed the boundaries of any established discipline. A commitment to the generative potential of bringing together faculty with different backgrounds and investments is central to the program, and we regard our own experience as a testimonial to the appropriateness of that venture—while broadening the scope of its underlying logic. The generativity of our interactions suggests to us that an optimal educational environment should facilitate comparable exchange. Presuming that differences are productive, without knowing in advance exactly what will emerge from their interaction, is necessary not only among faculty in the conception of a course, but also between faculty and students as the course plays itself out. Risk-taking is essential, as is the structure of trust and community that supports it.

In discussions between us, as well as with colleagues from a range of disciplines, we discovered a set of concrete starting points for bridging our field-specific disparities:

- The concept of "two cultures" is most usefully understood as marking a division between two intellectual styles, which correspond roughly to a preference for, on the one hand, focus, precision and "objectivity," and, on the other, breadth, allusiveness and engagement. Such differences, with their associated preferences for different language usages, are differences in how we are inclined to go about using and telling stories.

- Language is used quite differently in different contexts, ranging from science, where it is intended to be quite precise; through day-to-day exchange, where it is used to communicate and elicit information; to literature, where

it is intentionally ambiguous, playful, and inviting of engaged interpretation.

- While most of the work we do in college classrooms both originates in and is evaluated in terms of deliberative language use, most of the ongoing acquisition of new understanding draws rather on tacit understanding and is not readily (perhaps never completely) describable in language (see "The Two Cultures").

Both of us value experiential learning (although for different reasons: she draws on her experiences as a Quaker, he on his as a scientist). Because both of us are also convinced that the academic enterprise generally emphasizes explicit, language-based, descriptive exploration at the cost of implicit, action-based engagement, we agree on the need to find ways of blending the two activities in an introductory level writing-and-thinking-for-college course. From this in turn followed our emerging understanding of the importance of a continual cyclic interaction between knowledge acquired largely unconsciously through action and critical synthetic processes that are mostly conscious, with those in turn tested with and modified by interpersonal exchange.

Our insistence on highlighting a fundamental interplay between consciousness and unconsciousness in individual under-standing is consistent with observations from neurobiology and cognitive science (cf. Damasio, Dennett, Nørretranders, Grobstein 2002, 2003, 2005b). That interplay and the signifi-cance of the interpersonal loop also accords with the recognition by feminist educators that interactive dialogic teaching modes are frequently the most effective ones (cf. Belenky, Dalke 2002, Goldberger). Valorizing understanding at the explicit, language-based level neglects the fundamental importance of the implicit, action part of the cycle, disadvantaging those having distinctive strengths in this area. Doing so may well also underlie the frustration of some faculty both with their own intellectual activities and in their experiences with students.

The backbone of the course is weekly web postings in response to a prompt. This casual writing is fleshed out in a

sequence of five more formal writing assignments. Each one is re-written several times, and each is intended to place what our students know experimentally into conversation with something they may not have known or encountered before. In the first of these, for instance, we ask the students to write an account of a moment of their own learning; to re-write that personal story, the following week, in the archetypal form of a fairy tale; to re-examine it, the week after, as the psychoanalyst Bruno Bettelheim might have done in *The Uses of Enchantment*; and finally, drawing on all these versions, to write an account which summarizes what they have learned in the process of three-fold revision. The writing is accompanied by a series of related readings: intellectual autobiographies, fairy tales, and Bettelheim's analysis of how fairy tales work and why they last.

Such a sequence is not easy for our students to complete, involving as it does a complicated push-and-pull of authority and humility: we ask them both to claim what they know and to acknowledge what they don't yet know, and to stretch to figure out the relation between the two. That stretch is facilitated by interpersonal loops, by our own willingness and commitment to "get it less wrong," and by our acknowledging that trust is essential in the process of continual stretching.

The four multi-part assignments which follow this first one focus, in turn, on the story science tells about the nature of the universe, the stories we tell about the nature of the unconscious, the stories we tell about the cultures to which we belong, and the stories we tell about Bryn Mawr. We come, at the end of this sequence, to shared understandings that the best stories, in science as in literature, are those which invite and enable further work: they are the stories which explain the most data, and which are also open-ended, productive both of change and further stories, both by oneself and by others. As the semesters move along, our definition of "story" becomes increasingly pointed, increasingly congruent with what might more familiarly be called "theory": that is, as a construction which is potentially disprovable and falsifiable. With that understanding comes the acknowledgement

that it is not just imaginable but essential that observations can show any story to be wrong, that no final proof is possible, in literature as in science.

A course that embodies continual inquiry rather than achievement of mastery in some area is, arguably, both a better representation of intellectual work and better preparation for participation in it. This story of "story" refuses the comfortable distinction with which many of our students begin the course: that there is an obvious difference between stories and reality. But many of them come to find the idea of continually and endlessly revisable story as empowering. It provides an experience of the academic enterprise in which they are already active participants. One has to learn sometime that there is no "right," but only the process of "getting it less wrong," and we see no reason why it should be later rather than sooner.

The "interpersonal loop" activated in this course accords, of course, with social construction and "distributed cognition" under-standings of education (cf. Bruffee). It emphasizes interactions among the students themselves, who understand, appreciate, and articulate the dynamic. As one of them, Marie-Laure Epaminondas, observed, "In the class everybody else was listening to what I had to say. . . . It was because of everybody's else's energy that I was able to bring new ideas to the table." Her classmate Zoe Anspacher elaborated:

> I use the group meeting as an extension of my mind. When I participate I am inside a bigger brain and my brain is just a neuron, sending and receiving signals from other neurons, the brains of my classmates . . . . One day [when] I try to speak about the reading . . . I am having trouble connecting the ideas I have jotted on the page with the ideas I am hearing and the new idea I have at the moment. The bigger brain helps me . . . .

To facilitate this process, we make extensive use of not only of on-line forums, but also of web-publication of student papers. We

assert that students are also teachers and that their written work, rather than exercises to be evaluated by teachers, are important contributions to the education of us all.

The interpersonal loop was essential to the creation of our course and is a central element of its practice, but it alone is not enough. One needs as well an experiential and an internal loop, and the interactions among all three.

II. "Original Seeking": Adding the Experiential Loop

> Why should not we also enjoy an original relation to the universe? Why should not we have a poetry and philosophy of insight and not of tradition, and a religion of revelation to us, and not to the history of theirs?
> Ralph Waldo Emerson, "Nature" (1836)

In the classroom, we find it valuable to use not only texts (understandings of others expressed in language), but also the kinds of direct, less mediated experiences that are provided by interactions with other kinds of material. Beginning with our first class gathering each semester, we invite our students to describe what they see when they look at an image. Students have immediate responses to visual images, and so find themselves more easily able to "read" them--a reading that the rest of the class can complicate and build on (another example of the interpersonal loop in action). We repeat this process throughout the semester, asking our students to be aware of how texts and images affect them—move them to engagement or detachment—and then, by recording those perceptions in writing, to examine and attempt to explain their sources—as well as open themselves up to enlarging their experiences, and to revising them.

The opening gesture of the course thus becomes a model for much of what follows. In addition to asking our students to respond to image, we send them out of the classroom to collect observations themselves. The creative tension between individual experience and collective stories (what James Berlin calls the

"social-epistemic approach" to writing) is an important one in a variety of realms beyond composition studies, including the scientific and the theological. Rather than come down on one side of the dichotomy, our intent—like Ann Bethoff's refusal of "killer dichotomies" and Peter Elbow's "embracing contraries"-- was to identify both components in a generative interaction. The texts in our course included several works demonstrating that interchange, such as Brecht's *Galileo* and Abbott's *Flatland*, in which an individual's new observations have profound implications for others.

Students also make observations in relation to questions and hypotheses of their own. They learn thereby how knowledge results not just from hearing, reading and interpreting written texts, but also from making personal observations—which they do casually and naturally anyway. Surprisingly and satisfyingly, this gives us a way to teach both "humanities" and "science" as the formalization of a process of inferring from direct experience. What we call "analytic thinking" is simply a more systematic engagement, which we insist our students repeat throughout each semester, as they learn to observe, read, and write with a sense of engagement and investment in the outcome of the process.

Such directions accord with the long-time recognition by educators that hands-on, exploratory, interactive teaching modes are effective in pre-college classrooms (cf. John Dewey's conception of education "as a continuing reconstruction of experience"). Our College Seminar students develop an improved awareness of what intellectual activity is (how to practice it, by collecting observations and organizing them into an account that makes sense of their relationship) and recognition that this process goes on naturally, inevitably, and continually within each of us all the time. This process of spontaneous, then increasingly reflective description becomes the guiding intellectual trajectory, and one of the primary motivators, of the work we are doing together: the reciprocal interplay between our own stories and the world surrounding us.

Every other week, as we ask our students to describe, in a paragraph-long web posting, what they see when they look at another image, we re-activate the experiential loop that is paradigmatic for their work in the course. We also continually harken back to the interpersonal loop: recording their stories on-line means that our students are listening to those of one another and revising them in the light of the stories of others.

Activating the experiential and interpersonal loops is not, however, the whole story. There is an important step between having experiences and the kind of creativity that depends on being aware of how one is making sense of them. This is the third loop, to which we now turn our attention: moving between intuitive and analytical aspects of thinking.

III. Telling Stories To Oneself: Recognizing the Internal Loop

We know more than we can tell and we can know nothing without relying upon those things which we may not be able to tell.

Michael Polanyi, *The Tacit Dimension* (1967)

Everyone in the class taught me things . . . I desperately needed to learn. For a few examples:

* Being quiet is not a bad thing.

* Organization is necessary for those not sharing a subconscious.

* All the ideas that come into your head do not need to be put into your paper.

* Having different viewpoints and sharing them benefits everyone; it doesn't mean you aren't still friends.

* Words can be more revealing and more powerful than anything else in the world--they can also be completely unnecessary.

Both the interpersonal and the experiential loops are familiar to most educators and have been attended to in pedagogical considerations in a variety of contexts. Key to our argument is the claim they work best not only in interaction with one another, but with a third loop that deserves more explicit attention: an internal exchange between tacit (unconscious) and explicit (conscious) understandings (cf. Vygotskii on inner speech, Nienkamp on internal rhetorics). That many students find it easier to respond to images than to text is, we suspect, one indication of the importance and function of this exchange between intuitive and analytic knowledge.

It is by now well accepted in Composition Studies that the process of writing is recursive, rebounding back and forth between spontaneous brainstorming, and organizing and editing what one has to say (cf. Berthoff, "Teaching," Bizzell, Flower and Hayes, Lindemann). The loop we describe relates to this recognition of a distinction between brainstorming and editing, but we want to emphasize that the underlying phenomena are not specific to the act of writing, but instances of a much more general two-component loop within the brain. The intuitive and the analytic each draw from and feed one another in a continuing cyclic pattern, which parallels both the interactions between inside and outside, and between individual and social.

The writing assignments in our course refuse the hierarchy which privileges editing over brainstorming, as well as the linearity of that sequence. In line with current practice in teaching composition, but with a fuller understanding of why and how this process works, we insist on a continuously running feedback loop, moving back and forth between the expansive generativity of unconscious work and the focused precision of conscious reflection. The process of "squeezing down" what one experiences into the form of a story is the analytic part. It in turn means the creation of something new, which invites further

elaboration. The process inevitably creates the desire to "fill in the gaps," the invention of new accounts to say what the story does not say, from points of view it has failed to represent. From both those impulses, further expansion and further compression—in the form of new stories—always emerges.

We include in our course several texts that explicitly address the ways in which what we know unconsciously affects both our story telling and our interpretation of stories. Exploring together our own funds of implicit knowledge and the possibility of making them explicit, we trace the interacting loop of internal understanding: defining the concept of tacit understanding, then positing its conscious interrogation and eventual revision.

We ask our students to describe their own experiences of this form of coming-to-knowledge: What tacit knowledge do they come into the classroom already possessing? What do they know that they cannot tell? (And? So? How are they going to tell it?). What body knowledge (of knitting, chopping vegetables, piano playing, walking...) do they possess, without ever having it articulated for or by themselves? How can they observe, describe, alter it?

As we conclude the portion of the course focused on implicit knowledge, we pause, each year, to reflect on a novel that employs the language of tacit knowing to represent the structure of the unconscious. So far, we've used Toni Morrison's *Beloved*, Octavia Butler's *Parable of the Sower*, Thomas Pynchon's *Crying of Lot 49*, Jonathan Letham's *Motherless Brooklyn*, and Connie Willis's *Doomsday Book*.

IV. Interrogating the Text/Enacting the Performance: Braiding the Loops

> People learn through action and reflection, dialogue and silence, collaboration and struggle. Faculty members also recognize that different people learn in different ways, and professors strive to tap students' multiple intelligences by including visual, musical, dramatic, and other forms of exploration and expression to structure, extend, and

enrich students' inquiry and equip them to do the same
with those they serve.

Philosophy of the Bryn Mawr College Education
Program (2003)

In trying to satisfy my curiosity it has been a thrill to
discover new ideas. At first those ideas and concepts were
not known to anyone, not even myself, until my own little
voice finally announced the colors of those ideas.
Sometimes it has sounded like a song . . . . In this class, all
of my senses were called into consciousness . . . . Play-
acting also played a important role for experience in ideas
and concepts. For example, when I needed to express my
own ideas and concepts about tacit knowledge I brought
words to consciousness by creating a skit . . . . I could
experience these new ideas and concepts through body
movement and facial gesture. This was a complementary
step that had been primordial for a language learner like
myself . . . . In this class my life of learning became
meaningful. I learned more than I could really handle.

Marie-Laure Epaminondas, College Seminar
(December 2001)

The "arc" traced repeatedly by this class begins with an
invitation to our students to tell stories about ourselves, moves
out to construct stories about the nature of the physical world,
moves in to accounts of the brain's tacit processes, then out again
to cultural stories. We end the course, each year, by re-viewing
old stories about the place most present to us all—the place called
Bryn Mawr--and then we invite our students to imagine it
differently. We draw on Ray McDermott and Herve Vareene's
essay "Culture as Disability" for its excellent illustration of the
ways in which the set of abilities valued by any given culture
generates a concomitant structure of disabilities. Asking our

students to identify what is enabling and disabling about Bryn Mawr, we then ask them to conceive of new stories about the college, thereby revising the story that we are all constructing here together.

We also host several performative evenings during the course of each semester of this course on story-revising. Performance is an excellent illustration of the interaction of all three loops. By making use of language and bodily movement, performance simultaneously provides experience and reflection on it, activates conscious and unconscious processes, and is fundamentally interpersonal, both in conception and in its engagement with an audience.

In an attempt to show our students that tacit knowledge is manipulatable—that, once made explicit, it does not cease to be tacit, but can be "fed back" into the unconscious, and so altered— we require them to enact such a change with their bodies. We ask all of them to become performers, not just interpretively engaged but physically committed to acting out their perceptions. Such performance re-conceptualizes all of us learners as operating in a more bi-directional and interactive state than is usual in the academy: our students learn to be creative and intuitive enough to project what they know into three dimensions, to experience the profundity of bodily experience. This sort of movement invites in "bodied ways of knowing," providing our students with mechanisms, distinct from discussion, for articulating what they know unconsciously (cf. Belenky). Analysis and further understanding arise from such experiments and experiences.

Working simultaneously with three intersecting loops increases the unpredictability and risk of this whole enterprise. In particular, inviting our students into the playground that is the unconscious—moreover, inviting them to renovate that space (or at least to consider the possibility of doing so)—can be tricky work, either dismissed as trivial and ineffective, or treated suspiciously as intrusive and dangerous. ("Learning more than one can really handle" is a lot to ask of a first-year college student. As

another student said, "Feelings are a hindrance. It is easy to succeed if you do not feel.")

The advantages and disadvantages of this unpredictability were strikingly illustrated by a performative evening, and its aftermath, which took place during the second year of the course. In preparation for a "Symposium on Fairy Tales," we had read a selection of fairy tales by the Brothers Grimm, followed by Anne Sexton's dark transformations of those stories. One group of students decided to perform several related skits, describing first a story of learning, then repeating it in fairy tale form, and finally in more disturbing Sexton-like mode. These iterative tales, which culminated in the science fiction saga of Princess Krispie, assaulted by aliens and saved by a prince who assaulted her in turn, traced how a rice krispie treat had come, over the past several weeks, to be sitting on the classroom table (there are strong sexual overtones associated with food consumption in Sexton's poetry). At the end of the performance, the actors distributed rice krispie treats to the other students in the course, most of whom ate them quite enjoyably.

What one student called the "dark musings on mayhem" began to appear on our on-line course forum the next day. One student commented,

> Maybe it was the Rocky Horror Show touch (connecting with the audience by handing out sweet little things at the end) that kept me thinking about this story. . . . I was wondering if any of the writers/actors had experienced any of what they were delivering . . . or known anyone who had. What was the message?

Another student observed, "It's a little scarey to think about a group of women (and by this I mean all of use who were there) laughing about the rape and degradation of women."

These responses led to others, as numerous students found themselves re-thinking what they had been shown, and how they themselves had initially reacted to the performance:

- "Do we need to be seduced by allegory in order to accept truths that are too difficult for us to grasp? Or too easy for us to deny?"
- "I can verify that our purpose with the story was indeed to 'gross people out'. . . . We were going for the shock value, not really thinking about the story itself in depth."
- "I think the 'controversy'. . . has been an amazing example of how the audience/reader can get something from a story that the author didn't intend (or didn't THINK he/she intended). . . maybe I did mean something deeper when I wrote the poem."

All three of the loops that our course intended to foreground intersected in these exchanges. The students had the experience of direct engagement with the performance; they moved from the spontaneous playfulness of the unconscious into the more reflective work of the conscious mind and back again; when they exchanged their experiences with one another on-line, they came to revise their understandings of the whole. This last interaction, in particular, made it clear how useful we all are to one another, precisely because we do see the world differently. And then we all could loop back again and again into more—and now altered-- understanding. Doing so involved an insistently social dynamic.

This kind of social process inevitably risks discomfort, but also supports the kind of playfulness that allows productive examination of that which most troubles us. As Hayley Thomas, a folklorist who co-taught the seminar with us that year, observed,

> it wasn't like any other fairy tale conference I've ever attended. . . . But I recognize it. I recognize its ludic energy, the deep and playful space generated when folks get together to give body and voice to the traditional narratives we tell and thus re-vise in the telling. I recognize the break/through into performance. In carnivalesque moments, like our conference, we simultaneously consent to identify with and be estranged

from our everyday selves for the sake of play, knowledge, revolution, and/ or dialogue. Laughing and squirming at things we don't dare invite out loud into our day to day, at least not without some frame, often humor, to help soothe and heal. . . all of the stories, spoken and performed, tugged at me, signaling to me that something significant was happening for me, in me, in and through language. They tore laughter from me, but also ripped at other things in me, I admit. That's the way of humor. It's an optimistic process of delicately matching scraps of sense and nonsense and it's always risky, uncomfortable, and ambiguous.

There are some downsides of the game into which we invite our students. Despite the loopy discipline of the course, numerous possible trajectories are not explored. Some students also lament that they don't have adequate time for struggling through this material. This complaint suggests one drawback to the sort of playfulness in which we are engaged: our refusal to linger too long in any one place, as we turn always to new, and ever larger, sites of exploration. Perhaps it is also a valuable reminder of the diversity of student needs, and of the inevitability, in pedagogical experimentation, of getting it never right, but only, and always, "less wrong."

V. Reflections on the Implications: Transcending the Two Cultures

> I believe the intellectual life of the whole of western society is increasingly being split into two polar groups. When I say the intellectual life, I mean to include also a large part of our practical life, because I should be the last person to suggest the two can be at the deepest level be distinguished. Literary intellectuals at one pole—at the other scientists. Between the two a gulf of mutual incomprehension—sometimes hostility and dislike, but most of all lack of understanding . . . . This polarisation is

sheer loss to us all. To us as people, and to our society. It is at the same time practical and intellectual and creative loss, and I repeat that it is false to imagine that those three considerations are clearly separable.

C.P. Snow, *The Two Cultures* (1959)

We end each semester of teaching with an enormous appreciation of both the pleasure and the productivity of engaging in three interrelated feedback loops with our students. We end this account of the usefulness of this sort of teaching, thinking and writing with a much larger claim: that in inviting our students and ourselves into the self-reflective process of moving back and forth between self and world, the self's unconscious and conscious understanding, and different stories told by different selves, we are making a substantial contribution to the long-overdue breakdown of a two-cultures divide first identified by C.P. Snow over fifty years ago—as well as that of a range of additional polar oppositions which he did not describe.

Snow's analysis of the "two cultures" was motivated by what he saw as a "mutual incomprehension, sometimes hostility and dislike, but most of all lack of understanding" between two groups of humans. Snow identified the two groups as humanists and scientists, but we have come to think that there are similar problems in other realms as well (for instance, in the relations between women and men, conservatives and radicals, or believers and atheists). There are different styles of making sense of the world, some broader and more intuitive, others more focused and analytic. There are also contrasting attitudes toward "progress": on the one hand, a desire to leave nothing out, to conserve all there is, and hence a skepticism about the meaning and significance of change; on the other, an inclination to move on, to see the past as preparation for the future, and an optimism that change is, in some sense, always an improvement.

We have come to understand that different ways of making sense of the world are a consequence of the bi-partite character of the brain; multiple styles are inherent in each of us. Moreover,

the continual production and resolution of the apparently conflicting styles is an essential part of how the brain develops ways of making sense of the world that are progressively "less wrong." Each of us begins with a largely unconscious experience of the world. We move from the full, unstructured business of the unconscious into the more spare and structured work of the conscious mind: generating a story, squeezing experience down into a shape which of necessity leaves out some aspect of what has occurred—and so generates yet another story, yet another "reduction" that is productive of further story telling. Back and forth we go, between an unconscious that deals with the world in terms of rich interconnections, and a consciousness, which treats it in terms of objects and explanations, each feeding, inciting, and altering the other through their differences (Dalke, Grobstein, McCormack).

It is precisely the differences in style between the two parts of the brain, and the continual effort to find ways to reconcile their resulting stories, that are responsible for the permanent tension that generates creative activity (cf. Elbow, "The Uses of Binary Thinking"; Berthoff, *The Making of Meaning*). This is the core of our always-evolving "solution" to the problem of oppositions, wherever we find them: insisting on the loopiness of moving constantly back and forth between different stories, not only different stories within oneself, but also the different stories told by oneself and the world, and the different stories told by different individuals. The interaction is complicated, unpredictable, endless . . . and endlessly generative.

We insist that both we and our students "need to loop." This is the fundamental skill of thinking. The grist for scientific inquiry emerges from story-comparing; the products of science in turn become a part of the comparative story-telling that fuels the humanities. The take-home messages here are two: as Composition Studies has long acknowledged, understanding is fundamentally as much a social activity as an individual one (cf. Paley). And it has two sources: limited personal experience and the juxtaposition of one's own stories with those told by others.

This is perhaps the most important thing we have learned from our College Seminar experience: Different styles need not be in conflict. We desire—perhaps ever more strongly, we need—to see apparent oppositions as instead mutually supportive and--if kept constantly in interaction with one another--mutually generative. Some students, like some faculty, are more comfortable with the "lateral," others with the "up-down" style; some with cultural stories, other with personal experiences; some with "humanities," others with "science"; some with performing, others with talking; some with women, others with men; and so on. But all have the capacity to deal with both poles of such binaries, and all need to appreciate the added strengths that doing so can bring.

Our classroom objective is not to promote one of these sorts of alternatives at the cost of the other, but rather to legitimize and strengthen both, to help those who naturally favor one to see the benefits of the other, and, most importantly, to experience how each contributes to and makes use of the other. To achieve the promise of this understanding requires the willingness of all faculty members not only to draw on our own preferences and expertise, but to explore enthusiastically the relevance of others' styles for ourselves—not only to engage in it for our own learning, but, more importantly, to model for our students the activity in which we are asking them to engage.

We believe the lessons we are learning from our classroom experiences have a wider significance. Humans continue to create binaries, and with them an associated belief that they represent conflicting stories, one of which must prevail at the cost of the other. At a time in history when the price of such conflict is measured in terms of the suffering of very large numbers, and potentially in the extinction of the human species, there may be no more important classroom task than to help students develop and appreciate an alternative perspective: Differing stories need not be oppositional. It is our task, as educators and world citizens, to help our students and ourselves develop the skills needed to

continually create and recreate a human story from which no one feels estranged (Grobstein 2001).

> For Sharon and Hayley (collaborators, provocateurs)—and in gratitude to our colleagues quoted above, as well as to those who read and responded to earlier versions of this essay: Jody Cohen, Tom Deans, Ro. Finn, Diane Gibfried, Gail Hemmeter, Chelsea Phillips, Jan Trembley, and two very careful reviewers at the *Journal of Teaching Writing*.

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