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IN SEARCH OF THE UNPREDICTABLE: COMPLEXIFYING THE CLASSROOM IN THE AGE OF GLOBALIZATION

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> "….the net…was a big borderless soup and I was cooking"
> (Karen Tei Yamashita, *Tropic of Orange*, 246).

> "This … is about entanglements….not simply to be intertwined with another, as in the joining of separate entities, but to lack an independent, self-contained existence. Existence is not an individual affair….individuals emerge through and as part of their entangled intra-relating" (Karen Barad, *Meeting the Universe Halfway*, ix).

In Fall 2007, we collaborated on designing and co-teaching a new course on "Gender and Science: Re-envisioning & Revising the Relation." Three years later, in preparation for re-designing the course, we enrolled in a faculty seminar on "natural learning environments," which was facilitated by Ken Bain through The Andrew W. Mellon Teaching and Learning Institute (TLI). The new iteration of our course, which emerged in Spring 2011 as "Gender, Information, Science and Technology," was a complex system: a learning environment that highlighted the unpredictable intra-actions of differently positioned individuals, an experiment in "mutual engagement" that was collective, uncalculable, and, we think, very well suited to learning in the age of the globalized internet.

With the assistance of Alice Lesnick, a colleague in Education, and Susan Sutton, our College's Advisor for International Initiatives, we are now designing a third iteration of this course, refashioned as a global collaboration with an international partner. The first version of the course put science in a social context for majors; the second was much more multi-dimensional, interactive, and unpredictable. We expect that our upcoming iteration will be even more expansive and surprising in its outcomes, since the orientation of our international colleagues is so little known to us. It is precisely that unknowability—*what they will bring that we do not know*—which is the premise for our collaboration.

This pedagogy in search of the unpredictable has emerged slowly for us, in consultation and collaboration with our student learners and teachers. When we first designed our course, it had three parts, each generated by a distinctive set of questions about the role of women in the scientific enterprise, the contemporary feminist critique of scientific practice, and what our answers to both sets of questions suggest about the science education of everyone. In that class, we used physics as the exemplar of scientific practice, in part because Liz is a physicist; in part because physics has particularly poor representation of women; but largely and most excitingly because of the correspondence we recognized between feminist standpoint epistemology and modern physics: both look at the ways in which our measurements of probabilistic, non-deterministic phenomena are influenced by our observations; how our role as observers makes us part of the experiment/measurement, not just a perturbation but a determinant in outcomes (Harraway, Keller & Grontkowski, Kuletz). In line with this epistemological orientation, our course also demonstrated how generative transdisciplinary work can be, precisely because it is

not overly determined: it unsettles assumptions about what counts, about what should be foregrounded, what needs to be attended to; it maximizes serendipity (cf. Barad).

We have written elsewhere about the surprising emergence of new understandings in that first course (Dalke & McCormack, Synedoche and Surprise; cf. also Dalke and Lesnick). Our students shattered, on the first day, the dichotomies around which we had constructed our conversation; they quickly made it clear that they were more interested in a web of interests than choosing between oppositions (for example, they quickly challenged the category of "woman," and just as quickly broke down the paired options we offered them of "women" or "scientist"). Accordingly, when we met again under Ken's aegis to re-design the class, we found ourselves creating a syllabus that attended less to disciplinary-specific reflection than to the serendipitous emergence of new things that occur when different disciplinary orientations, and various personal investments, encounter one another.

In the course's second iteration, the categories under interrogation doubled. We expanded "gender and science" into "gender, information, science and technology," and then we queried each term, challenging the computer science majors who (thought they) had come to learn about the underrepresentation of women in their field, as well as the gender studies concentrators who (thought they) had no interest in technological innovation. We also considerably complexified the course "field" by communicating in person and on-line (both on Skype and in an on-line ecosystem called Serendip) with faculty and students in a Gender and Technology course at Massachusetts Institute of Technology, which was far more technological and global in its emphasis than was our own project

In their mid-semester and final evaluations, quite a few of our students testified to the need for such unpredictable mash-ups; fawei wrote, for instance, "I can see why discussion is becoming a problem in academia today….There is so much insularity and focus on the concerns within one field that it is difficult to mesh with others." Other students celebrated the degree to which the intersections generated in the course expanded their own skill set. As vgaffney explained,

In the beginning of the semester I had a very limited and constricted knowledge of Gender, Information, Science and Technology as most of my knowledge of these areas was contextualized within each of the separate fields. I originally brought my experience of close-reading and the study of English to the class, but I ultimately left with…new skills that are infinitely helpful for any future study: being able to see the connections, interactions, and intra-actions among even the most distinct disciplines, subjects, and ideas.

An essay completed by another English major in our class serves as a good indication of the surprising range of work that such a complex assemblage of fields can produce, and the sorts of new questions it may generate. Our students had spent several weeks agonizing about the mutability of their on-line identities, repeatedly querying the possibilities of reifying and renovating them through social networks, when our colleagues at MIT introduced us to an article by Raka Shome, about the alterations of identity produced by working in Indian call centers. Learning that agents employed in such centers were trained in "the control and regulation of 'voice,' tone, phonology," their voices "literally erased and reconstructed" as they were taught "how to role play an American," our students were forced to re-think both what they understood

about individual agency, and about the possibilities of re-working its on-line representation. In studying the "privatized dis-appearance" of call center agents, and "all kinds of personality problems caused by the con/fusion of temporal belonging" among those who could "not disclose their true identities to the global public sphere," our students' understandings of the commercial constraints on the performance of identity were considerably complexified. The answers they'd found to questions about their choice to present certain dimensions of themselves on-line became much more problematic, as they were reframed in an international context.

In response to these discoveries, one of our students, Isabel Holmes, went "undercover" for her next web-project, in order to explore the reaction of American and English clients of such call centers. Her study formed an interesting counter-story to Shome's: she developed an account of the deep sense of threat on the part of American and English callers who feel that their own identities are under assault when tasks once performed "at home" are taken up by others "halfway around the globe." Her analysis suggested that apparent consumer complaints about "competency" are actually veiled complaints about "identity theft"—and raised further questions about the possibility of "connecting" with others through the performance of a "common identity" (Holmes).

Our college's president and her international advisor have cataloged a number of the dimensions that are necessary, in principle, for "internationalizing the learning community"; these include "relationship-building, mutual benefit, open communications, shared decision-making, resolving differences, confronting inequalities, flexibility, adaptability, and institutional support for partnership activities" (McAuliffe & Sutton). We look forward to testing these out on the ground, and over the internet, in the newest iteration of our course, when we imagine that building a community of learners across institutional boundaries, through cross-national conversation and mutual experience, will begin to unpack some of the inequities and complexities which Isabel Holmes's project began to gesture towards. We anticipate that our international course will incorporate sustained collaborative exploration and critical analysis of the global dimensions of gender, science, technology, and information, though we cannot predict what the outcomes will be—which is, of course, the reason we're doing this!

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