

Science Educator Power and Responsibility

Jim Kisiel

California State University, Long Beach

VEXTATION

“With great power comes great responsibility.”

~ Uncle Ben Parker

Hokey comic book references aside, this gets at something I've been struggling with lately. In May 2009, I completed my sixth year as a university professor in a department of science education. I was also fortunate to have been granted tenure. I say this not to revel in the glow of post-tenure ivory towers, rather to provide some context for my vexation. In fact, I'm not sure how important this milestone really is. From a purely practical standpoint, however, this is truly a gift—job security at a time where that commodity is in scarce supply. Never mind the tremendous budget cuts that have ravaged the education system within the state of California (and many states across the nation) which will most certainly impact other educators in K-12, college and informal settings, not to mention students, who deserve much more than textbook-driven science curricula and classrooms filled with up to 50 teenagers. Somehow, as a professor in a state university in California, addressing these problems feels like something that is my responsibility. This responsibility, or perhaps *mission*, for helping others is what I've come to see as a key characteristic of good teachers. Of course, it may also simply be a case of good, old-fashioned Catholic guilt.

Yet this conflict is real, and I believe the tensions that I describe here exemplify the difficulty of finding balance as an academic. Wenger (1998) describes *identity* as a nexus of membership in multiple communities of practice—we define ourselves by the intersection of communities and how we reconcile membership in those different communities. I suppose that is the part of the challenge—defining, or at least attempting to define, the extent to which I am able to (would like to?) participate in multiple communities. My concerns lie within multiple contexts—science teacher preparation, classroom teaching, science learning in informal settings. They also encompass research and practice (including both teaching and advising). On top of this are the questions of responsibility, advocacy and even scholarly activism (as discussed at previous Crossroads meetings.)

This approach toward identity resonates with me, as I believe that walking in multiple communities is part of what I do; it is a part of my professional identity that I value. I just question where the cut-off point is, or the extent to which I can participate within these different communities effectively. To become a better researcher (say, in the general realm of science learning in informal environments), I need to be able to stay current on recently published work; yet because what I currently see as my *practice* extends beyond that research area, there is a different set of literature that I need to be up-to-date on in order to grow as a practitioner (e.g. research related to science teacher development). To be more aware of the challenges facing teachers and informal educators, I need to be able to familiarize myself with their respective concerns, environments, and standard practice. This means getting out to schools and museum sites to see and hear first-hand. Of course, to play greater role in advocacy and policy, this requires forging connections with decision-makers and other stakeholders who may be less familiar with the complexities of learning science or the challenges faced by students, classroom teachers, and even museum-based educators. A long to-do list, indeed, even without standard responsibilities of instruction, committee work and student advising, and other basic requirements such as food and sleep.

I do believe that within these ramblings lies the heart of the problem. To become an advocate (or activist, if you prefer) requires meaningful participation in different communities of practice—research and practice, classroom and informal setting, knowledge-generating and policy-making. This requires the individual to have passion for, and understanding of, the operations, challenges, and goals that define each group. The individual must be able to traverse both communities comfortably and effectively. Not an easy task, even if the spirit is willing.

This summer, I was fortunate to participate in two conferences aimed at examining and strengthening overlap between different communities in science, science education, formal learning, informal learning, policy, etc. These were both outstanding opportunities, and I appreciated being able to take part. I entered into these gatherings with an eye toward defining or redefining my role as a university professor or educational researcher, as well as potentially contributing to the discussions and possible outcomes that each group of organizers hoped to achieve. One thing I walked away with after both meetings was a greater awareness of the gaps, sometimes very broad, between the communities research, practice, and policy. While this was not surprising, it was somewhat disheartening—there is clearly much work to be done. With this thought also came questions of capability and impact—to what extent do I have the tools (skills, knowledge, time) to contribute, and if so, how do I know if it works.

Perhaps my vexation of unbalance comes from the sense that there is a *need* to do more—to improve my skills, increase my knowledge, to help bridge such gaps between such communities and use the 'power' granted by tenure to question status quo and instigate change. Yet wouldn't it be easier now just to 'kick back' (as my high school students used to say) and relax a bit? Find that personal life that was pretty much discarded during grad school and those first years within academia. That's the reward, right? We do the time, then gain the riches of a secure job and academic freedom.

VENTURE

I fear that my musings sound more like complaints, although as I write this, I recognize that identifying obstacles, real or perceived, may be a first step in overcoming them. Wenger (1998) also suggests that identity can be seen as a learning trajectory—we define ourselves by where we have been, and where we are going. I feel that the tenure milestone should be an opportunity to further define identity. Certainly, it seems that a ‘to do’ list could be easily generated from the comments described earlier:

- Making non-negotiable time for reading or personal inquiry related to research, practice, and policy, in formal and informal learning settings.
- Spending more time in schools and museum setting, observing students, teachers and educators and understanding the perspectives and social capital that they bring to these learning environments.
- Re-establishing a research agenda that can better fill gaps in what we know and inform broader issues.

I can certainly do these, but these don’t necessarily help with balance. Time, like funding, is not a commodity in tremendous supply. Yet, another component of my vexation is a sense of solitude—the idea of the individual rather than community. Perhaps finding balance (and meaning) in my work requires greater dependence on others. Perhaps development of my professional identity means forging stronger collaborations, both locally and globally. Of course, this means finding like-minded individuals, with similar concerns and goals. But that is part of what we value in professional meetings, yes?

I think perhaps a better to-do list must take into account my capabilities, knowledge and time, or rather my *capital* available to contribute to these efforts. They must also incorporate efforts to increase capital, both human and social capital. Coleman (1988) suggests that social capital exists and is generated within the relations among people and within social structures. These relations facilitate particular actions for individuals, or even groups. A revised list might look something like this:

- **Limit.** I can’t do it all. I say this knowing that some people can indeed do it all (or at least most of it). That’s OK. Given this understanding, I can move forward and consider which aspects of these science education issues I might be best suited to address. And which endeavors would also reinforce my excitement or passion. This is not to say that I can’t work within multiple communities, and utilize the human capital that I’ve garnered over the first 6 years within academia. Rather, I must be willing to release some interests so that I can better focus on others. The challenge here, however, is the release of these interests, and the human and social capital associated with them. Such change may also require me to reconsider or reshape my identity as a science educator.
- **Strategize.** Regardless of which facet(s) of these science education issues I wish to focus on, I must assess how my context may influence my ability to refine focus. What responsibilities do I need to release? What social structures must I enter, and which ones must I leave? Can these goals be achieved at a teaching university? An ‘R1’ institution? A museum? To what extent is my ability to affect change limited or facilitated by professional locale? Linked to that is the extent to which professional locale allows for growth—both personal and professional.
- **Gather Evidence.** This may be the most challenging, but for me, it may be most important. If my concerns lie in my ability to effectively contribute to our understanding of some facet of science education (whether related to practice, research, or policy), I must consider how I might gauge my contributions. Yes, this need for evidence is grounded in my science and research training, and from a mission perspective may seem superficial. Nevertheless, at this stage in my career, I believe that such feedback is warranted—I need to have some idea that my efforts are valued/useful/successful (choose your adjective).

I recognize that this second list is not much really easier to check off than the first one. Nor is it a complete replacement for that first listing, as those steps still represent relevant strategies. However, I think the latter approach may be a better way to start to reconsider my role, as someone granted the ‘power’ of job security within academia. Of course, my procedure for achieving the items on this second to-do list is somewhat ill-defined. I look toward the Crossroads community to share their experience and expertise in order to help me further reflect on milestones and navigation between interests and concerns.