

HERE I AM... NOW ENTERTAIN ME!

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Vexation: Activitymania vs. Rigor in Science Professional Development

For the past eight years, several colleagues and I have worked diligently in two states at two universities to develop and implement science professional development (SPD) programs. These programs incorporate current research and involve a recurring cycle of evaluation designed to inform ongoing improvement resulting in rejecting or re-tooling less effective components, and refining our SPD models. Our SPD programs are very rigorous and have taken teachers to the Oregon Coast, Zion National Park, and the Great Basin to immerse participants in inquiry and strengthen content knowledge. More recently we have added a strong component that scaffolds the transfer of newly acquired content and pedagogy into the classroom and have focused on teacher change and student achievement.

Both states in which these programs have operated are in the West and have about the same population (2.5 million people) and area. The population in each of these states is centered in two metropolitan areas with the remaining population scattered in smaller rural communities. Much of the area in both states is unpopulated desert. The number of universities in these two states is very small compared to eastern states, and so the pool of science educators is small and we tend to know each other and know about each other's programs. This is not always a positive thing. We also draw from the same limited population of teachers for our professional development programs (and I include state-run programs here as well), so word gets around about the pros and cons of any given program—also not always a positive thing, since it leads to my vexation.

Competition for participants (teachers) in science professional development programs has been keen in both states where I have worked. As professional developers we all desire to run successful programs, and I believe that we all truly want to impact the teachers and the children they teach in hopes of improving the condition of science education within the circle of our influence. However, there are those in the science teacher educator community who, in my view, don't play fair. Either by intent or in ignorance, some professional developers focus on the "make and take" model, the "activitymania" model, or the "world tour" model—all devoid of rigor and inquiry. However, many teachers love these type of courses—oft-times gleaning graduate credits for very little actual work and virtually no accountability for classroom implementation.

Most, if not all, of the participants in our programs have attended at least one, or in some cases, several such programs, thus deadening their senses to what is, in our estimation, *real* science professional development. On more than one occasion, we have had "participant meltdown" occur—a condition precipitated by comparing requirements and experiences in our courses with their previous experience. And while they usually recover and ultimately come to appreciate the rigor and are motivated to enact their new knowledge of content and inquiry pedagogy in their classrooms, it nevertheless causes pain for them and creates a difficult situation for us. We often must counter less effective methods for teaching and doing science along with the mindset of being entertained as experienced in other programs (without attacking those professional developers) in order to set the stage for performing the work equal to receiving 3 graduate credits in our programs.

Venture: Stand Firm and Carry a Big Stick

I must admit that it is difficult for me not to speculate on motive when I observe the behavior of those other professional developers. I wonder if they have read and understand the current literature. I wonder if they are running a popularity contest. I wonder if they are pandering to the least common denominator. I wonder if they really understand that their programs potentially cause more harm than good—that the models they tend to use thwart the cause of working vigorously to acquire something of worth. I also wonder what the best approach is for me to use to improve this situation. My one attempt to confront the opposition in what I intended to be a kind and gentle manner was met with ridicule and contempt, and my reputation was subsequently impugned in front of students in this person's methods classes. So, I abandoned that avenue toward a solution.

For me, powerful and effective science professional development has become a crusade of sorts, but I have decided I need to overhaul my choice of artillery to fight this battle. I am a true believer that good will triumph in the end—but only if we actively fight for it—no more couch-potato approach! So, I have decided to adopt a two-pronged approach: stand firm and carry a big stick.

Standing firm for me means focusing on my own behaviors. I need to be sure that I am current on the literature and am employing the most effective research-based components in our programs. I need to strengthen my position through formative evaluation of our programs and continue to make improvements based on data. I need to seek for ways to improve recruitment into our programs and build more effective partnerships with school districts who might become our advocates as we share program results with them. Our current SPD team is the most dynamic and engaged team I have worked with to date. I need to build on that strength by identifying the behaviors and attitudes exhibited by our team members that contribute to our collaboration and seek for like-minded people to fill staff vacancies.

The big stick I plan to carry is community advocacy. With each group of teachers we recruit, we have a built-in community of potential advocates. We will explicitly teach this group to identify the characteristics of good vs. bad science professional development—yes...a value judgment! We will provide a checklist to help them evaluate previous, current, and future SPD experiences. We will start a Web site where members of our advocacy community can post names of specific SPD programs in the state and rate them using the checklist. We will encourage them to pass the word along to their colleagues about the Web site. We will encourage them to advocate for good SPD programs within the realms of their own influence, and we will publish evaluation results on this Website including impacts on teacher thinking, attitudes and beliefs and on student achievement for our own programs and for any other programs we can. Perhaps by using this big stick and working as a community, we can begin to bring change in a positive direction.