

To Develop an Interconnected Community of Exemplary Urban Science Teachers

Donna Ross

San Diego State University

VEXATION

Are we serving as the best role models for future science teachers? We ask K-12 teachers to consider research findings in their practice, and to engage in a variety of effective strategies that are not always directly aligned with common district expectations, but do we ask the same of ourselves while teaching pre-service teachers?

In terms of social capital, what access to institutional resources, relationships, norms and networks do we intentionally make available to student teachers? Are we conscious about the exposure and introduction to social capital for our newest inductees? Bourdieu (1986) described the dynamic, non-explicit nature of social capital in education that serves to maintain the dominant group solidarity. I believe we (teacher educators) implicitly introduce many of the norms and symbolic exchanges without providing formal support to the student teachers to understand the context and importance of social capital. Then, without conscious recognition, many of the instructional decisions, both at the university and in the K-12 schools, are influenced and guided by the expectations, norms, and interactions of diverse stakeholders who bring different dispositions (Dika and Singh, 2002). Even among the teacher education faculty, we rarely explicitly discuss social capital as we make decisions related to the experiences for student teachers.

How *DO* we prioritize the needs of student teachers? What is our most important function as science teacher educators? Is it to help student teachers understand inquiry-based teaching? Is it to help them pass high-stakes assessments? Is it to guide them in culturally relevant pedagogy? Is it to strengthen student teachers' content knowledge? Is it evident from the teacher education program description or the course syllabi?

Recently, I have found myself making excuses that echo those of the K-12 teachers with whom I work. I say, "I'd like to do more field activities with my student teachers, but I just don't have time." Or "I can't give problem-based learning the time necessary for my students to really be able to implement it in their classes because I have too much to cover." I hear my colleagues say, "I feel like I am just preparing them for the assessment, we don't have time to focus on theory anymore."

In our teacher education program, the students in the elementary program have one 3-unit course in science methods. The secondary students have only a 3-unit class one semester and a 2-unit seminar another semester. During these terms, they take several other methods courses, complete a student teaching placement, and develop an extensive high-stakes portfolio assessment at the end of the course. It is true that some recent changes have impacted the program. The state has mandated the high stakes assessment and we have chosen a portfolio model over an exam in an effort to make the assessment more authentic. Due to fiscal pressures we have larger class sizes and first and second semester students now take the methods courses together. Similar challenges face K-12 teachers.

We know that talking with students to find out "where they are" is important. When I talk with my university students, they request more emphasis on the logistics of teaching science; materials management, pacing guides, and grading practices. They also ask for time to work on their high-stakes portfolio; a failing grade can require them to return for another semester of student teaching. I sympathize with their daily feelings of being overwhelmed and I recognize that part of my role is to help them learn to manage the basic "how-to" of teaching. And, really, if we are going to ask our students to take a high-stakes assessment, we need to provide support.

But my goal is not for my students to just "get through." I endeavor to change the trajectory of their teaching. I want my students to recognize the influence of social capital on their own decisions and the school-related effects on students. I want my students to move toward becoming teachers who listen to their students, who understand their students' backgrounds and build from those foundations, who develop opportunities for their students to do meaningful and relevant investigations incorporating critical thinking, who hold students accountable but scaffold the academic experiences to allow for success, and who strive to make a difference in the lives of each of their students.

The choice of master teachers is, itself, an interesting study related to social capital. Student teaching is an apprenticeship model, but many of the master teachers are not aligned with the traits described above. Is it even realistic for these to be priorities for my class? If I knew they would continue receiving professional development in science, I would be less concerned, but that is far from assured. How, then, shall I prioritize my university courses and hold myself to the ambitious expectations I have for my student teachers?

VENTURES

I've considered several possible ventures. My current favorite is the idea of teaching one period per day at an urban high school. Video clips and examples from the high school setting would be used to model strategies, including the day-to-day logistics. Ideally, this course would also serve as a case study to spark discussion of the successes and challenges as I try to create a class culture and curriculum based on the high school students' backgrounds. When my pre-service teachers report that their master teachers are not making science relevant to the students' lives, I have no effective way of judging those claims. However if I am teaching the high school class, I can show them ways in which I am striving to relate science instruction to the local environment with a social action component based on interpretation of data collected by students and evidence from local scientists.

There are a variety of concerns about this approach.

First, my teaching at the high school level may not be as stellar as I like to believe it would be. I will, of course, have limited time for the high school class and it will be a course I have never taught. I need to be sure I can make a commitment that will benefit both my university students and the high school students. I will also need time to select relevant video clips, case studies, and examples to use with the methods students.

Second, my student teachers are earning credentials in all areas of science and this would be an environmental science class. It might be hard for some of the students to make the transfer from environmental science to physics or chemistry. I would need to be sure I can facilitate the recognition of relevance.

Third, even if my teaching successfully models project-based, culturally-relevant practices, will that hold sway over the model of the master teacher? Should it? How well will my one course, taught as a guest in the school, represent what most teachers face in an urban school?

My second favorite venture would be harder to organize. Although I might not be able to structure it for this year, it could be a future endeavor. I have considered offering a science class in the evenings at an urban high school. Many students at the local high schools are lacking credits to graduate. These students can opt to do night school, but it is a series of packets in different subjects with a proctor in the room. I could volunteer to teach a biology class at night and overlap it with my methods course. In that way, the student teachers could participate in the teaching.

This venture has even more challenges.

The first is organizing the courses in a way that they overlap and meet the liability and departmental requirements of the university.

The second is trying to figure out how the student teachers from different disciplines would participate in the teaching and planning. How would the entire university class be involved and actively engaged? How would this differ from their student teaching placement? Would it be redundant? Would it be a good use of the precious time I have for a methods class?

The third relates to enrollment by the high schools students. Typically, the number of high school students who remain in the night class throughout the semester is very small. I predict it would be higher if we taught the course, but it would probably still dwindle. Would I be able to keep enough students to have a class?

Would one of these two ventures change the way most of my university students teach in the future? Is there a different venture that would make a greater difference? Is there a venture that would ultimately improve the education received by urban kids in my neighborhood and provide a population of strong master teachers? Would it help build a community of exemplary urban science teachers to make a bigger change than I will ever be able to do alone? I also wonder if one of these ventures would lend itself to researching the influence of student teachers' ability to analyze the effects of instruction using evidence collected during student teaching (Morris, 2006). Would it be reasonable for student teachers to position the evidence within a social capital context? How could I incorporate this into my own research? I end with more questions than before I began, but this makes the venture exciting.