

## Being Open to Surprise: Confronting Assumptions Through a Puzzling

### Moment



To be perfectly honest, during the fall of 2012, I wasn't expecting Jamie (a pseudonym) to be a very good science student, and I didn't know if Kylie (a pseudonym) could really learn chemistry despite the hours she spent working one-on-one with me. How was I going to teach them? These aren't the kinds of thoughts a good teacher is supposed to have, and certainly not verbalize them. They are dangerous. Yet it's the truth, and I wonder how education might transform if more teachers, administrators, parents, and even students felt safe enough to own up to, unpack, and reflect upon them. I would not have dared to share such misgivings just a few short years earlier until I became involved in practitioner inquiry and stepped back to reflect on what happened with another student, Elizabeth (a pseudonym).

Three years ago, I joined a nationwide group of math and science teachers (KSTF Fellows), KSTF staff, and education researchers Susan Lytle and Diane Wood to engage in practitioner inquiry—a form of teacher-driven professional development. We called our group PING (Practitioner Inquiry for the Next Generation). While all of the teachers in the group practiced inquiry as a vehicle for informing instruction, none of us anticipated how the inquiry process would transform the way we thought and acted as professionals, compelling us to be open to surprise about what was taking place in our classrooms and schools. Over the next few years, the way I viewed myself as an educator would change dramatically as we collected qualitative evidence (e.g., student interviews, journal reflections, student work samples, emails between colleagues) and used them to question and inform our research questions.

At our first PING meeting in the summer of 2011, we journaled about a “puzzling moment” from our teaching experience after reading an article by Cynthia Ballenger, which we then read aloud to the group. I shared a story about my experience teaching Elizabeth chemistry from the previous year. Elizabeth had informed me proudly at the start of the year that she wanted to be a scientist. I can still picture her now, sitting in class, her hand raised high above her head. Elizabeth’s hand was always raised high above her head. “Ms. Markiewicz, can you explain that again?”; “Ms. Markiewicz, did you know...”; “Ms. Markiewicz, have you heard the pun about...”; “Ms. Markiewicz, I don’t understand...”; “Ms. Markiewicz, wait till you hear what Tim said about...”; “Ms. Markiewicz, I wonder why...”. Elizabeth was a dominant voice in class, seemingly incessantly asking about a topic her classmates had just discussed and summarized. Every whole class conversation—opener question, brainstorming session, summarizing discussion, etc.—I knew I would see her hand raised high in the air. Elizabeth had something to ask or say, frequently whittling away at 5 or so of the pithy 45 minutes of daily instructional time. She was a social butterfly, occasionally fixing her makeup in class, wearing clothing that left little to the imagination, and flirting with her male classmates. Her homework completion was inconsistent and performance on assessments was below average. For all her questioning, she

seemed to be learning very little.

I try to run a very open classroom founded on students asking questions and sharing ideas. However, after several weeks, I began to feel irritated by Elizabeth, and I gritted my teeth each time I saw her hand start to go up. I would attempt to say, “Yes, Elizabeth?” in an inviting manner, but meanwhile, I would be thinking “What now?” As time went on, Elizabeth continued to struggle to pass the class, and I observed she became quieter and gradually raised her hand less. If I am honest about it, I felt relieved. Class discussions felt more productive because we would reach the end of my lesson plans before the bell rang, yet Elizabeth never did achieve very highly in chemistry that year.

I am not proud of what happened with Elizabeth in my chemistry classroom. I really feel that I failed her. I have a lot of clear evidence from student interviews, written reflections, formal assessments, and individual conversations that I help many students connect with science and become inspired to learn more than they thought they could. The story of Elizabeth doesn't seem to fit with the narrative of an educator who is a KSTF Teaching Fellow, Theodore William Richards Award for Excellence in Teaching Secondary Chemistry recipient, and National Board Certified Teacher in Adolescent and Young Adult Science. Yet I suspect most teachers have had an “Elizabeth” in their classrooms who they know isn't learning and who they don't do more for because they don't have the mental energy.

When I stepped back to examine the situation with my PING colleagues, I learned the power of being vulnerable and open to surprise. After sharing my narrative, we followed a collaborative feedback protocol that engaged us in rounds of probing questions about our stories. These probing questions made me reflect on my assumptions about the incident. I realized I didn't know why Elizabeth was so full of questions, I had just assumed she was attention-seeking. Was she trying to show me just how interested she was? Were her repetitive questions because she struggled to maintain attention? Or was she just trying to make sure she understood the content? Was she hoping that if she participated a lot I would

notice her more? Were my assessments really gauging her learning? While I will never know, I now keep these questions in mind whenever I sense I might be encountering another “Elizabeth” in my class.

Her story stays with me—continually reminding me to try to avoid presuming a student’s motivations and to examine my own biases.

I worry that I negatively impacted Elizabeth’s science experience, but almost three years later I am still learning from reflecting on our teacher-student dynamic. As I continued with PING and practitioner inquiry, I began to wonder where else in my practice I was influencing the way my students relate to science. Where else in my teaching practice was I making potentially false assumptions? Through this initial (and seemingly tiny) piece of data—my narrative about Elizabeth—my practitioner inquiry research question was born: *How am I affecting the science identities of my students through the relationships I develop with them?*

Over the course of my time with PING, I went on to interview students such as Kylie and Jamie about their science experiences, wrote journals, and ultimately explored how my own experience in learning science influences my motivations for and approach to teaching science. All of this invariably led to more puzzling moments. Why had I assumed Jamie would not be a science-oriented student? Is it ever a teacher’s place to tell a struggling student like Kylie that she might want to consider other avenues of study beyond the sciences? Practitioner inquiry has not given me a generalizable answer for these questions or the many others that have come up along my journey, but it has helped me to acknowledge that they exist and seek to better understand them in the context of a given student. In the words of Diane Wood, “Practitioner inquiry is not generalizable in the way we think of it. It is generalizable in the sense that it is evocative, and it resonates with others, and allows them to see a potential change in their own context. That is a type of generalizability that is different than others.”

So how is my teaching changing or my students benefitting from my exploration of puzzling moments and my inquiry question? The product of my three years of work is not an improved test score, because I can't measure the effects of reflection in a clean, quantitative way. However, I am sure my students have benefitted from my inquiry. There are tangible outcomes. I have begun to get to know my students more deeply through interviewing a handful of them each year, causing me to ask more questions of myself and my teaching. I am better able to question my assumptions about why a student acts a certain way. I formed a Critical Friends Group at my school to help others in my local context get a feel for what inquiry on a small scale can do. I wrote a science education autobiography, which showed me some of the parallels between my students' experiences and my own as well as my motivation to support students in science. I also gained an appreciation for how working on others' inquiries and asking dangerous questions can shed light on my own practice.

In our current education climate, which often views educators as the problem rather than the solution, it feels especially risky for teachers (and others involved in education) to admit we don't know the answer or to examine our assumptions openly. As I stated earlier, this is not something I could have done three years ago. It required significant time, extensive practice in using protocols to unpack my assumptions, and a high level of trust and shared sense of responsibility between members of the practitioner inquiry group. By being willing to ask questions about our practice teachers can reach deeper questions, and by situating ourselves as protagonists in the story (only we can change—we cannot force change upon others), I am certain we as educators can make incremental and powerful progress towards improving educational outcomes for students like Jamie, Kylie, or Elizabeth.

## FOR RESOURCES ON PRACTITIONER INQUIRY, SEE:

Ballenger, C. (2009). *Puzzling moments, teachable moments: Practicing teacher*



research in urban classrooms. New York: Teachers College Press.

Cochran-Smith, M. & Lytle, S. L. (2009). *Inquiry as stance: Practitioner research for the next generation*. New York: Teachers College Press.

Lytle, S., Christman, J., Cohen J., Countryman, J., Fecho, N., Portnoy, D., & Sion, F. (1994). *Learning in the afternoon: When teacher inquiry meets school reform*. In M. Fine (Ed.), *Chartering urban school reform (157-179)*. New York: Teachers College Press.

Stokes, L. (2001). *Lessons from an inquiring school: Forms of inquiry and conditions for teacher learning*. In A. Liberman & L. Miller (Eds.), *Teachers caught in the action: Professional development that matters (141-158)*. New York: Teachers College Press.

Wood, D. R. (2011). *And then the basals arrived: School leadership, learning communities and professionalism*. *International Journal of Leadership in Education*, 14(4), 475-97.

Wood, D. R. (2010). *Learning communities: Catalyst for change or a new infrastructure for status quo?* In B. L. Whitford & D. R. Wood (Eds.), *Teachers learning in community: Realities and possibilities (41-71)*. Albany: SUNY Press.

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