Chapter 10
Teaching Elementary School Science: The Road Less Traveled

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The Story of Becoming a Leader–Mentor of Elementary Science Preservice Teachers

I often think of my leadership role as a kind of mentoring. When describing mentoring, Browne (no date) contends:

> Many people in academics confuse mentoring with being an academic advisor. Being a mentor is much more than talking about what classes a student needs to take to meet the requirements for a degree program. Mentoring is [taking] a stand for the success of a student, for the accomplishment of their dreams and the generation of their powerful futures. It is believing that they are capable of succeeding; it is assisting them, bridging gaps when the gaps appear insurmountable. It is listening to them, being their guide, their friend, their advocate and a catalyst for their development. (p. 1)

So leadership is not so much about dragging individuals along, but it is more like putting them on roller skates and giving them an open pathway to travel in order to accomplish their goals.

I have found that in order to enable elementary preservice teachers to become teachers of science more is required than the standard science methods course. What is needed is a form of mentoring that not only illuminates science as inquiry and connected knowing, but also, provides preservice teachers with sponsorship, challenges, coaching, and a look into their possible selves (Packard & Nguyen, 2003). Furthermore, to mentor, as a form of leadership, requires one to know the challenges that new science teachers face (Davis, Petish, & Smithey, 2006) and to acknowledge the socio-cultural beliefs and practices associated with science and schools and the hierarchies and hegemonies that exist in these settings. Such mentoring fosters ways to enable newcomers to become legitimate members of those communities, creates change in those communities, and assists novices in becoming change agents.

My pathway, to this view of mentoring as leadership, began as an undergraduate in an elementary education teacher preparation program and developed as I taught

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science in elementary schools for 18 years, beginning in 1972. It further evolved as I made my way through graduate school and is now being tweaked even more, through reflective practice, as I teach preservice teachers at the university level.

I had always done well in my high school science classes, but did not see science as something connected to my everyday life or as a possible career. In 1970, I was a junior and an elementary education major at Eastern Illinois University. Though my academic concentrations were history and library science, I was enrolled in the required science methods class. Our professor was an energetic guy, always having us do something that perked our interest.

One day he asked us, “How deep, do you think, is the campus pond?” Most of us had a personal experience with the campus pond as, for one reason or another, students were frequently tossed into it by their dorm buddies. It was on the occasion of my wedding engagement that my friends from Lincoln Hall had picked me up, carried me out of the building and across the lawn, and heaved me over the rails of the wooden bridge. As I pondered the question, experience told me that the pond was dark, murky and as deep as Lake Michigan.

After some discussion, he said, “Well let’s find out.” As a class we constructed a plan of how we might map the depth of the campus pond – get a boat and, while rowing across the pond, drop a plumb line at regular intervals. Then, graph the results. During our planning time, I mentioned that I had never even been in a boat. The day of the activity, who do you think was placed in the boat first? What an experience I had, at the helm of science inquiry!

That semester, there were many such activities that invited me into the world of teaching elementary science – a walk in the rain to observe what was not as evident on a dry day; a springtime observation of the night sky; and many, open-ended experimentations with materials from the Elementary Science Study (ESS) and Science Curriculum Improvement Study (SCIS) kits of the 1960s. It was through these experiences that I was able to make a connection between the questioning and exploration that I had done as a child in my backyard and in my Girl Scouting to the kind of science teaching and learning that could take place in my classroom.

When I entered the field of teaching, I would not have self-identified as a science teacher. Yet, for my first position, I was hired to teach 5th–8th grade science in a country school in Illinois. Oh! The fun we had experimenting in my basement classroom, exploring the outdoors, taking field trips to ponds, parks, and observatories, and raising a litany of classroom animals! Over the next 18 years, I continued to do science with elementary students in Peoria and in a suburb of Chicago. I believed I had the best-kept secret – my job was fun and interesting; I was constantly learning with my students; and they found science to be fun and interesting, too.

Imagine my surprise when I learned that my colleagues wanted nothing to do with teaching science! “You go ahead and teach the science,” they would say. They felt secure in their worlds of social studies, reading, and language arts. I found that, in general, many elementary teachers, the majority of whom were women, were not willing to teach science, and many students were not learning science as a result. Somehow they had not made the same connections with science I had made as an undergraduate and were missing out on an exciting aspect of teaching children. So,