Serendipity and Choice in the Evolution of a Vocation

Pat Martzler

Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

Then took the other, as just as fair
And having perhaps the better claim,
Because it was grassy and wanted wear;
Though as for that, the passing there
Had worn them really about the same,

And both that morning equally lay
In leaves no step had trodden black
Oh, I kept the first for another day!
Yet knowing how way leads on to way,
I doubted if I should ever come back.

I shall be telling this with a sigh
Somewhere ages and ages hence:
two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference.

—Robert Frost

Chance favors the prepared mind.

—Louis Pasteur

Hindsight is always 20/20. Nonetheless, I think that even in my first year at the University of Maryland, I already was preparing to become the hybrid faculty/administrator that I am today.

My current appointment is as director of the Emory College Center for Science Education (ECCSE) and senior lecturer in biology. Our center’s vision is to become nationally recognized for leadership in positive transformation of science education from kindergarten through postdoctoral education. The heart of the ECCSE mission is to improve science education at all levels. We are particularly interested in attracting and retaining underrepresented students, women, and minorities for careers in science. Our work in these areas includes special programs for undergraduates and outreach efforts with metro Atlanta Public School teachers and students. We work with faculty, graduate students, and postdocs at Emory and at other institutions to improve undergraduate and graduate education.
I call it a center for “K” through “gray,” and the gray is not just me!

So how does a person who started out to be a neonatal cardiologist, then studied alligator behavior and evolution and the quantitative genetics of life history end up as an agent of change for science education? As the oldest of eleven children, I learned early to take different paths. Several key incidents—some serendipitous, some freely chosen—led me to my place in the Emory community.

My undergraduate years at the University of Maryland provide just a few examples. As I entered my honors chemistry class in my first semester, the man up front asked, “What are you doing here?” “Chem 3H,” I cheerily replied. “Look around,” he said, “Do you see any women?” As I reluctantly sat down, he uttered words that now seem apocryphal. “Look to your left, look to your right. Those people won’t be here at the end of the term.” Right away, I knew I wanted to be part of changing the way science was taught. Later in my undergraduate years, I worked in the dining hall with wonderful people from inner D.C., immigrants and laborers. I began to wonder why they had to work at such menial jobs for $.95 per hour and why so few people who looked like them attended the university. As they invited me to parties, I began to understand the unique strengths of their multigenerational families and the entrenched barriers that prevented their success in school. I began to participate in the civil rights movement and later in protests against the Vietnam War.

Serendipity again came after my junior year, when I married and my new husband got drafted. Instead of going to medical school, I spent the next eight years trying out different research and teaching jobs. A few years later, the light of my life, my son Sean, was born. I worked on a project (in the Beef Cattle Nutrition Branch of the USDA) that was designed to assess whether cows could recycle newspaper! I worked in the biochemistry of mental retardation and in field ecology (studying reptiles and amphibians). I taught in high school science classrooms. My husband and I had agreed to take turns—first he would get his master’s, then I would get mine. All these explorations were a part of the process of choosing: what was the best way to make a difference?

An unexpected divorce led me back to school as a nontraditional student. Often older than my professors, certainly one of the few single parents, and limited in my choices of schools by the need to stay near Sean’s dad, I chose a school that offered a research master’s and a master’s in college biology teaching. Wonderful mentors at the University of South Carolina and Savannah River Ecology lab challenged and guided me, several becoming lifelong friends. Although these people were faculty at a research institution, many of them took their teaching and mentoring seriously. The best of them also managed to be involved in community issues, took joy in communicating science to the public, and were willing to take the time to discuss barriers to women and minorities in science careers.

Serendipity and choice also played roles in my choice of PhD programs and the experiences I had while earning my doctorate. For instance, I taught in a summer bridge program for minority students, helped form a graduate student union, created a teaching preparation program for fellow graduate students, organized a career discussion group, served as the graduate representative to the department executive committee, and taught my first solitary course—to 800 students.

Throughout these varied experiences, I observed the functional and dysfunctional ways of academe. Who
taught these professors to be good mentors and/or excellent teachers? Why were some such good citizens of the academy—ethical role models for the teacher-scholar-citizen scientist? Why were some of the rules always left implicit? Was this a kind of medieval apprenticeship system that assumed one would absorb the “rules” for professional behavior from the master? Shouldn’t teaching be transformational, not merely assimilative? All these questions led to more choices.

As if life weren’t already complicated enough, I remarried and became part of the “two-body” problem: two quantitative geneticists both working on life-history evolution. So while my husband Fred followed the traditional multiple postdoc route, I chose to teach at smaller schools. I was the scientist in the New College of St. Edward’s University, teaching nontraditional returning students by phone, email, and in person. I taught at large state universities, a historically black college, and a small liberal arts college where I was one-quarter of the biology and chemistry departments. At this school, I was involved in collaborative efforts of the entire faculty to create Writing across Curriculum, Critical Thinking across Curriculum, and Ethical Decision Making across Curriculum. I obtained my first grant for science education. And I earned early promotion to associate professor.

In 1990 I saw the ad in Science that described my dream job. Emory’s biology department had received a grant from the Howard Hughes Medical Institute to create a summer bridge program for African American students, to begin an academic support program, to launch a summer research program, and to reshape the biology curriculum by integrating research into “project lab” courses to prepare more graduates for research in biomedical sciences. I applied for the job and was accepted. Then the real work began. Many grants and lots of seventy-hour work weeks later, what is now the Center for Science Education (CSE) emerged.

Since 1990 my work has broadened to include all the sciences, broadly conceived (I count environmental studies, anthropology, and psychology). The original Hughes Science Initiative expanded to include roles in the precollege community, work with local colleges, joint efforts with other Emory schools (Nursing, Medicine, and Public Health), as well as collaborations with national and international curriculum-reform efforts. I have led teaching reform by modeling inquiry, teaching across disciplinary boundaries, and calling for a scientific approach to assess our engagement of students and the impact of our practice on their learning. Five consecutive grants from the Howard Hughes Medical Institute to Emory ($7.5 million from 1989 to 2010) helped catalyze science-education reform that simultaneously addresses science content and pedagogy across the sciences.

Emory faculty developed innovative laboratory courses, improved opportunities for undergraduate research and mentoring, and enhanced academic support for all students and enrichment for under-represented minorities. They incorporated technology in labs and in lecture, and fostered innovative pedagogy through workshops and seminars. Through special research and curriculum-development opportunities for high school teachers, Emory also began community programs that benefit K-12 students and teachers. The CSE has sponsored workshops and curriculum projects in problem-based learning, technology, neuroscience, and standards-based curricula for more than 250 Atlanta teachers.
By working with graduate students and postdoctoral associates, the center provides opportunities for developing teaching skills and curriculum improvements that support all the science departments. The CSE oversees a number of exciting initiatives, including Problems and Research to Integrate Science and Mathematics (PRISM), which matches graduate students with working middle- and high-school teachers to promote science and mathematics education and develop skills that will help graduate students become better scientists and better communicators of science; and, most recently, the center received a $900,000 award from the Arthur M. Blank Family Foundation for a Pathways to Success project at the New Schools of Carver. The New Schools project is a high school reform effort based on small schools within a larger school complex. (For more information about the history of the center and some of our programs, please visit www.cse.emory.edu and www.scien cet net. emory.edu.)

What does it take to create such broad-ranging initiatives? Money, of course, but also audacity. Change does not come easily to the academy, any more than the right choice is easily discerned on a vocational journey. As one of the leaders of the lecture-track faculty association and a member of the Faculty Life Course Committee, I have joined with others in asking Emory to revamp its policies and processes for all nontenure stream faculty. As a member and then chair of the President’s Commission on the Status of Minorities (now PCORE), I helped question faculty diversity and bring attention to student and staff concerns on campus. As a board member of the Ethics Center, I have called for real attention to the Atlanta community and its public schools.

In order to be a change agent, one must be willing to take risks. I am sure there are individual faculty, chairs, deans, and even presidents who more than once wished I would be quiet or disappear. Change agents need mentors and protectors, and I have had more than my fair share. Mentors such as Dennis Liotta, Jay Justice, and Rosemary Magee have given me wise counsel and advice. (Of course, I haven’t always listened . . .)

I often fall back on the words of Ernest Boyer, who in 1990 wrote in “Scholarship Reconsidered: Priorities of the Professoriate”: “What we urgently need today is a more inclusive view about what it means to be a scholar—a recognition that scholarship is acquired through research, through synthesis, through practice, and through teaching.” I am not atypical among the nontenure track faculty at Emory. Contrary to what some might think, most of us freely have chosen our pathway to scholarship, rather than “winding up” with it as a last option. And although our paths diverge from the typical trajectories of tenured and tenure-track faculty, this difference does not reflect any lack of academic rigor or competence.

Rather, our scholarship reflects our passionate commitment to, and greater emphasis on, teaching, community, and University service. Lecture-track faculty in the college lead academic programs and centers (e.g., Science and Society, Journalism, Creative Writing, and the Writing Center). They lead study-abroad programs, teach graduate students to teach, and conduct disciplinary scholarship. They lead community-outreach efforts, integrating public scholarship in their teaching. They are intimately involved in the scholarship of teaching and the integration of practice. Nontenure-track faculty in other schools support teaching, clinical applications, and the University research mission.

What makes them stand out, perhaps, is their willingness to choose the “road less traveled,” to seek out a
meaningful profession that does not always fit the typical box. Great universities must support faculty who concentrate on the discovery of knowledge and apply it to transform the world, who celebrate public scholarship, and who translate knowledge for the public. Great universities should celebrate all kinds of scholars. Those taking the road less traveled also aid Emory’s positive transformation in the world through courageous leadership in teaching, research, scholarship, health care, and social action.

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Building a Better Portfolio: Reflections from a “Professor of Practice”

Steve Walton

When I first came to Emory in 1996, the business school was a small, unranked program located in the Rich Building. To jump into the top tier of programs, the school needed faculty members willing to do the work of institution building. For their professional survival, tenure-track faculty must focus the majority of their time and energy on developing their own research. However, the business school needed people to redesign classes, teach extra courses, and meet with outside constituencies. Institution building is time consuming and demands commitment. It also takes many forms. Beyond working with students and outside groups, it can mean sitting on another faculty committee or on a University governance committee, even if you do not have tenure. In our case, institution building required a lot of hard work by everybody; nevertheless, a few of us who eventually became non-tenure-track faculty often provided the glue that held the efforts of many together. We were willing to devote