In my early weeks at graduate school, I spent most of my time reading and thinking about the many unanswered questions in my field. I loved pondering these fascinating puzzles and coming up with ideas, but I did not know how to convert my many thoughts into actual experiments.

After a few months, and with my mentor’s guidance, I began testing my most promising low-hanging-fruit hypotheses. But the experiments generated data that refuted most of them, leaving me discouraged. I had the simplistic view that a scientist transforms ideas into experiments that quickly lead to cogent conclusions. When that didn’t happen, I didn’t know what to do next. I was also under the illusion that there was just one right answer to each puzzle, and when I couldn’t find it right away, I was stymied. I went back to thinking and reading.

I was intellectually stimulated, but I wasn’t getting any tangible results. Soon enough, it became apparent that my research progress was lagging behind that of other grad students in the lab. I should have had a story ready to write up for publication, but all I had were unproven ideas. I started to wonder whether I was cut out to be a scientist.

My mentor offered unconditional support and guidance through this soul-searching and encouraged me to reflect on whether being a scientist was my true calling. I took her words to heart and realized that I wasn’t even sure what it really means to be a scientist. If I had known, I might have hesitated. But now I see that scholarship as a stroke of good fortune, which sent me along a path that helped me find my life’s purpose.

As I learned to practice this approach to research, my love for experimentation grew, and I learned to embrace the scientific method, with all its uncertainty. The seemingly tedious work of graduate research—learning, optimizing and repeating experiments to answer a single question, then starting over after each incremental step—served its purpose as a rite of passage to becoming a real scientist.

Now that I’m about to graduate and move on to a post-doctoral fellowship, I find myself wondering whether I would have chosen to pursue doctoral training if I had known the challenges I would face. But in my naiveté, I made the right choice. From a serendipitous beginning, and with unceasing support from my mentor, I learned what it truly means to be a scientist.

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