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## 'I Wish ...' Deliberations From Farther Along the Career Path

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Over the past few years, I have added a question to my interviews that will sometimes surprise the candidate. I like it, though, because it isn't one of the "normal" interviewing questions, and it is good for an interviewer to shake things up on occasion. Sometimes I get a disappointingly short response, but more often I get to learn a bit more about my interviewee.

The question--and, more particularly, the interviewee's answer--can change the direction of the interview entirely, sometimes opening it up and allowing the "real" person to come out.

The question I ask is "What do you wish you had learned in grad school--that you didn't--about the world or about the way things work in industry?"

In this month's column, I've gone back through years of interviewing notes and come up with the following responses, which run the gamut from more science classes to formal training in business, management, and ethics. Because they come from interviewees who are already in senior positions in industry, I expect that you'll find these answers illuminating as you ponder the future direction of YOUR career. What could you do now to make sure that you don't have to give the same "I wish ..." answers when YOU are asked what you would have done differently in grad school?

## On Missing Skills and Slices of Education

- "I wish that I had had access during my university years to some courses on how to write grants. In industry, you still have to propose ideas and go

after funding (sometimes internally and sometimes to external sources such as SBIR, the Small Business Innovation Research grants). Having had some background in these areas would have made my transition to industry much smoother, and naturally it could have been a great help if I had stayed on the academic track."

- "I wish that we had specific ethics training at the university level. I think each graduate student should appreciate the ethical considerations of their work, the intended and unintended consequences, and the ramifications of their projects."
- "I wish that my adviser had emphasized the importance of a broad understanding of biotechnology, instead of just my unique specialization. Despite the fact that I was a chemical engineering student, I took some biochemistry courses that later proved to be very helpful to me in my current role. I would say in general that it's useful for people to have something more than just a focus on their specialty. Although most will work for years in their own niche, as they develop their career they will interact with or even manage teams with diverse skills."

- "I wish that we had had a tighter coupling between our program and the medical school. Students who want to go into biotech

**Where to go for more information on skills and education:**

- Grant Writing: [Murder Most Foul--How Not to](#)

need a real flavor of the clinical arena and what it's like to deal with patients, which I think is a must for anyone in the health-care research field. My university certainly had the ingredients to do this, but there was a division between the two schools, and such a program did not exist."

- "I wish that I had developed better record-keeping skills at the university level. A major surprise for me was the GLP/GMP requirements [Good Laboratory Practices/Good Manufacturing Practices] documentation. I was like most grad students, totally spacing out on the importance of keeping detailed records."
- "I wish that I had known more about regulatory considerations. Working in a highly regulated industry is very interesting. My dealings with FDA have been fruitful but often frustrating. Despite all protestations to the contrary, it's not just about science."

### [Kill a Grant Application](#)

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# On Management and Teamwork

- "I wish that I had taken some management classes. Although on-the-job training works pretty well, I've often wanted to enhance what I learn on the job with some knowledge of management theory. I do this through taking courses or reading books, but it would have been much nicer to have had some of this in school, since it is such an integral part of my career as a scientist in industry."

- "I wish that I had been taught how to actively manage people. I had one person help me on a project one summer. Now I have a department of 15. Almost every single graduate will be responsible for supervision, whether they go academic or industrial. They need core management skills or a minor in kindergarten teaching. (Just kidding ... but only just!)"

## Where to go for more information on management and teamwork:

- Management Training: [Working With Others the MBA Way--Part of the A Scientist's Switch to MBA series](#)
- People Skills: [The Curse of Brains: Overcoming the Bad Habits You Learned in Grad School](#)

- "I wish that I had been prepared for the political nature of industry. Sure, academia has its share of politics, but they are of a completely different nature. I found it tough to work with difficult people, and I had to learn to nurture relationships in order to get things done. In academia, you can be totally isolated. In industry, you are rarely working on something alone. When problems come up, just being right, or doing good work, is not enough in itself."

## On the Business of Business

- "I wish that there had been an entrepreneurial program where engineering students and business students could be mixed together and introduced to topics such as how to raise money, how to write a business plan, what investors look for, how to run a business, what it's really like to start a company, etc. I think that the most important message to students should be that starting a company is a real career option these days."
- "I wish that I had truly understood the business considerations of my employer. It was amazing to me that the scientific considerations (Will it work? Is it elegant and interesting? Will we learn something?) more often than not take a back seat to business concerns (Can we make money? Is the market big enough? Do we have access to that technology?). This was a real shock."

**Where to go for**

- "I wish that I had understood the importance of intellectual property. My university should know the value of a good patent, but they did nothing to make me aware of the power of I.P. What I never realized is that, for an industrial scientist, patents can make technology completely off limits! 'Sorry, we can't use that procedure. Company X owns it.' Huh?"
- "I wish that I had understood the way that projects are chosen and managed in industry. I've seen quite a few people who seem to think that work in industry will be structured like work in graduate school, where you choose a project on its scientific merit and pursue it to its ends. Instead, projects are chosen on their commercial merit, and they are constantly evaluated and often stopped when they no longer meet those criteria. Strangely, that's often a hard pill for scientists to swallow."

## more information on the business of business:

- Intellectual Property: [Intellectual Property Resources](#)
- Entrepreneurial Mindset: [Learning to Think Like an Entrepreneur](#)
- Starting a Business: [Becoming an Entrepreneur-- Drafting a Business Plan](#)
- Entrepreneur Web Links: [Entrepreneur Resources](#)

## On the Culture Shock

- "I wish that I had been more prepared for industry. We were prepared to become professors (and carbon copies of our advisers). Our research was very esoteric and not applied. We learned how to plan and carry out an experiment, but we weren't taught how to discern the importance of one experiment (or project) over another, or how our time could best be spent in achieving the final goal. My adviser allowed my academic research to have a sort of meandering personality. This doesn't cut it in industry."
- "I wish that I had earlier recognized the high quality of the other scientists in industry. Engineers expect to meet bright and talented people in industry, but biologists are often surprised to find out how good their colleagues in industry really are."
- "I wish that I had truly understood the speed/expediency/timelines issues in industry. No one ever prepared me to get so much done with so little time. It is amazing how much good work one can get done quickly. Focus is critical, and that was another skill area that seemed to be missing from my academic upbringing."
- "I wish that I hadn't listened to those people

**Where to go for more information on industrial culture shock:**

who said that the specifics of your thesis work would have little impact on your career. I've found

- Academia vs. Industry: [Academia or Industry: Finding the Fit](#)
- Culture Shock: [A Clash of Cultures: What It Takes to Work in Industry](#)

that the opposite is true. Ph.D.s are usually hired based primarily on what they worked on as a graduate student or postdoc. I would tell people that if they want to go into industry, make sure they choose a thesis topic that is important to employers (and one that they would like to keep working on!)."

## Your Own "I wish ..."

If you will soon be leaving grad school and heading off to your first postdoc, then get ready for this question. It isn't unique to my interviews. And it is genuinely helpful to spend some time analyzing what went right and wrong in the past. It makes preparing for the future so much easier. In fact, I wish that I had done this sort of analysis on a regular basis!

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