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To Choose an Adviser, Be an "Armchair Anthropologist"

Siri Carpenter
United States
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A quiz: When it comes to interviewing and evaluating potential graduate research advisers, which of the following statements is true?

- An adviser's research interests should closely match your own.
- An adviser should be well known in the field and have an excellent reputation.
- An adviser should take a strong interest in the career development of grad students during and after their studies.
- The lab environment should be friendly and comfortable.
- The adviser evaluates the students--not the other way around.

There is no single right answer, but there is a wrong one: e. Every graduate student tries to choose an adviser with complementary interests, and the more ambitious ones seek to work with someone who is well known (and who, it is assumed, can make her--the grad student--more competitive for the kinds of positions she wants). But far too many students are reluctant to perform what might be called "due diligence" in this crucial decision.

"I sometimes think of it as doing a little 'armchair anthropology,' asking what it's like in this lab, and can I thrive here?"
--Chris Golde

It's both legitimate and wise--indeed, essential--for aspiring scientists to evaluate a prospective adviser before committing to spending the next 4 or 5 years in her research lab. A hasty decision can mean years of dissatisfaction, and poor advisory relationships are a major reason why students drop out of graduate school. Signing on with an adviser who isn't a good fit, or who isn't sufficiently attentive to the development of students' technical and professional skills, can also hinder your chances of landing choice jobs.

ASK QUESTIONS

How can students learn whether a prospective adviser will be a good fit? For getting answers, nothing beats asking questions. The best time to ask those questions is at an interview, but a phone call or an e-mail message also works.

Freeman Hrabowski III, president of the University of Maryland, Baltimore County, and a leading expert on science and math education, encourages students to look for evidence that a prospective adviser envisions a coherent plan of study, encourages creativity, is prepared to provide moral support during difficult times, and can help students think through their academic and professional ambitions. And the best way to get that evidence is to ask questions.

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Freeman Hrabowski III



Chris Golde

"Most advisers can articulate what their philosophy and style are when they're invited to do so," says education researcher Chris Golde, associate vice provost for graduate education at Stanford University in Palo Alto, California. But, she says, "students need to be the drivers of that process. I sometimes think of it as doing a little 'armchair anthropology,' asking what it's like in this lab, and can I thrive here?"

Professors are more powerful than students, so asking them tough questions can be hard. Golde's advice: "Get in there and try anyway. Fake the confidence if you have to."

But keep in mind that arrogance doesn't pay. "You hear ... faculty complain that they'll get an e-mail with 17 questions from a prospective student, [saying] 'Please respond by the end of the week,'" Golde laments. That's just rude. Especially when dealing with someone more senior, it's a good idea to show respect. "You're cultivating a relationship; you're not shopping for a car."

WHAT QUESTIONS?

Too often, students focus only on a potential adviser's scientific interests and celebrity, ignoring the adviser's critical role as teacher and professional mentor, says William Galey, director of graduate and medical education programs at the Howard Hughes Medical Institute in Chevy Chase, Maryland. Students should be guided, he says, by the principle that "an adviser needs to be a student's strongest critic and most vocal advocate."

But even those students who choose well should hedge their bets. No adviser can provide flawless guidance, Galey observes. So it's worthwhile to connect with multiple mentors, including other faculty members, fellow students, postdocs, and other scientists, such as industry collaborators.

Here are some questions you need answers to:



William Galey

- *How much time do you spend with your students? Who would directly supervise my day-to-day work?*
- *What are your expectations for students' workload? How much flexibility in schedules do you allow?*
- *How would I be funded? How well funded is the project I'll be working on? What lab space and equipment are available? You don't need guarantees at this stage that the money is available to support you until you complete your project. But you do need to know you'll have access to the needed equipment and supplies.*
- *What is your approach to deciding authorship on collaborative research articles? Do graduate students have a real chance at first authorship? Do author rankings reflect real intellectual contributions or laboratory rank? It's good to know that good work will be rewarded by high billing.*
- *How many students have earned Ph.D.s in your lab? How long did it take them? Where did they go? What are they doing now? Scanning faculty members' Web pages can yield some of this information. While considering your options and the answers to these questions, keep your own career objectives in mind. If you aspire to a career at a top research university, for example, it's best to choose an adviser who has already placed former students in such jobs. If your adviser is just starting out and doesn't have a track record yet, it's a tougher call. But you can do a solid risk assessment by considering his profile in the field, or the stature of the journals she publishes in. Frequent publications in *Science* and *Nature* make it far more likely that you'll be able to swing a postdoc in a high-profile lab--your next step toward a big-time professorship.*
- *What specific strategies do you use to help students hone their interests, refine their technical skills, and develop independence? You want evidence--from the adviser's mouth and from others--that he/she takes an active, serious interest in training and career development.*
- *How do you guide students who are interested in pursuing nontraditional--or industrial--career options, or who are uncertain of their career goals? If you think you might pursue a nontraditional path, make sure your adviser is willing to sign on. Some academic scientists resist their students' efforts to leave the academic track.*
- *Do you support your students' travel to scientific meetings? Travel to scientific meetings is one of the most important networking and career-development activities in which a graduate student can participate, and it can be inspiring to interact--even socialize--with other important scientists in your field. It helps you feel part of a collective effort.*

The list could go on. Different students will prioritize different questions and value different answers. Ultimately, the specific questions one asks a prospective adviser may matter less than the act of asking them. According to a national doctoral education survey led by Golde and completed in 2000, graduate students who were most satisfied with their adviser used twice as many criteria to select their adviser than dissatisfied students used.

LOOK BEHIND THE ANSWERS

The best way to get answers is to ask your adviser questions. But an adviser's answers may not be completely objective, and some questions are just too awkward to ask directly. So you should also supplement these answers by talking to other graduate students and--especially--lab alumni. Are (or were) they happy in the lab? Are they getting (or did they get) the training they needed? How do they rate their experiences overall? Here--especially in dealing with people no longer in the lab--you can relax a little and ask harder questions.

Still, the potential adviser is your most important source of information. Asking your adviser questions does more than elicit concrete answers. It also gives students a chance to gauge how much the adviser has thought about the challenges of mentoring graduate students.

"When you begin to ask questions, you get at the answers that you're looking for by paying attention to *how* the adviser responds," says Kafui Dzirasa, who earned his Ph.D. in neurobiology from Duke University in 2007 and is now completing his M.D. He says if the adviser "has a look on his face like these aren't reasonable questions, then that might be a sign for you" that you should look elsewhere for a Ph.D. adviser.



Jo Handelsman



Kafui Dzirasa

GETTING MARRIED

"It's the most intense relationship that most of us have outside of marriage," says bacteriologist and plant pathologist Jo Handelsman of the University of Wisconsin, Madison, who has written a book about mentoring and developed a mentoring course that has been adopted at universities across the country. "The question students should ask themselves is, 'Do I get inspired about science when I talk to this adviser?' " If so, she says, "then the basic relationship is there."

But by itself, that's insufficient. Having an open, trusting, comfortable relationship with your adviser is more important than any other aspect of graduate education, Handelsman says.

WOMEN AND MINORITY STUDENTS

Research shows that women and students of color tend to face additional challenges beyond those experienced by white male students. Often in the sciences, notes Hrabowski, a woman or a member of a racial or ethnic minority group is the only such person in a lab.

"If you've not been the only woman in a group of men, or the only person of color in a group of whites," he says, "it's very difficult to understand why that can be a big deal." To smooth the way, students should ask prospective advisers "honest questions," such as how other minority students who have come through the department's doctoral program have fared.

Because discrimination is typically unintentional and difficult to discern, it can be hard for students to judge whether they are likely to be treated fairly. For example, "a lot of women get very subtle messages that steer them away from careers in academia, so they never bring the subject up," Handelsman says. "Or sometimes an adviser will bring the subject up and the student will say, 'Well, I want to have a family,' and the conversation will end there."

Most faculty say--and believe sincerely--that they treat everyone fairly, Handelsman adds, but "there's so much research that shows that we all bring tremendous unconscious bias to every interaction. It's probably the people who are aware of that who are likely to make the best advisers for minority students."

Related resources

C. M. Golde and T. M. Dore, *At Cross Purposes: What the experiences of doctoral students reveal about doctoral education*. Philadelphia, PA (2001): A report prepared for The Pew Charitable Trusts.

How to Obtain the Mentoring You Need, The Graduate School, University of Washington, 2005.

Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering. National Academy of Sciences, National Academy of Engineering, Institute of Medicine. National Academy Press. 1997.

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