

Mentor to All?

MENTORING ASSUMED

I do not know a single young scientist who has ambivalent feelings about their Ph.D. adviser. There tends to be either mutual respect or mutual loathing. Some have had, and continue to have, a great personal and professional relationship with their former advisor. Others are barely on speaking terms. Yet, the strength of the advisor-advisee relationship is supposed to be one of the foundations of the Ph.D. To a great extent, that relationship not only influences the student's future direction but whether the student completes the degree at all. And still, a surprising fraction of students have difficulty with their advisor.

FISKE (1999)

Despite Hans' prodigious intellectual and intuitive gifts and his many scientific accomplishments, he eschewed personal "clout" and believed that scientists should be a welcoming, worldwide community of diverse scholars working for the common good. Hans learned Chinese (in his seventies!) and led trips to the People's Republic to support Chinese cell biologists in a difficult political climate. Early in his career, he was concerned about the lack of opportunities for professional advancement of female scientists and began addressing such inequities long before it was politically fashionable to do so. His egalitarian attitude, decency, and commitment to providing serious scientific training to all are remembered with great affection and appreciation.

LIM AND SEPSENWOL (2005, p. 43)

Mentoring in its fullest sense is very much a master-apprentice relationship, wherein the master guides the apprentice in all aspects of science and will be the apprentice's champion long into the future. But as listed below, there are many kinds of mentoring relationships.

- Formal or casual.
- Among peers or between teacher and student.
- Passive, acting as a role model without deliberately passing on any information.
- Brief or lasting a professional lifetime.
- Completely enveloping, providing not only professional help, but personal help as well.

With big labs, and the focus on money, people in labs often aren't mentored anymore.

The Functions of Successful Mentors

- Demonstrating a style and methodology of doing research.
- Developing an analytical approach to selection of significant questions and to choosing appropriate approaches to solving them.
- Discussing the concepts in any subdiscipline, and the evolution of those concepts over time.
- Exploring and evaluating the literature of the discipline and the broader body of knowledge of which it is a part.
- Discussing the ethical basis for scientific research.
- Considering, analyzing, and evaluating the work and conclusions of colleagues.
- Transmitting, by example and discussions, the skills required for effective scientific writing.
- Evaluating successful teaching techniques.
- Facilitating access to the research community in the discipline (scientific societies, peer groups, international science, “in groups,” etc.).
- Illustrating the methodology and significance of “networking” in science.
- Helping with particular aspects of research or academia.
- Developing attitudes and approaches to the many interpersonal relationships involved in being a scientist.

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The organization and the kind of lab you have will suggest whether or not mentoring is part of the job. In labs at smaller colleges, the P.I. as mentor to all is usually assumed, but the level of mentoring is usually still up to you. The larger and more competitive the organization and lab, the more usual that very few will be mentored well. In the end, it is you who will decide whether to enter a mentoring relationship and to determine the limits of the relationship.

BEING A MENTOR

A good mentor should have the following set of basic qualities: experience and maturity; the ability to be a good listener (i.e., the best advice may be not to rush to give advice); the ability to treat each student/postdoc as an individual and not adopt a “one size fits all” approach; and the ability not to see everyone’s career through the eyes of one’s own career.

CAVEMAN (2000, p. 32) IN
“WHO IS MENTORING THE MENTORS?” (PP. 32–33)

If you are a mentor, you must believe in yourself; otherwise, you will never respect those who believe in you. You must be critical and honest. You must be able to evaluate a person's chances constructively if you are asked "What do you think my chances of success are?"

Many new P.I.s are not sure how to wear the mantle of mentorhood. They are expected to give essential advice to people sometimes only slightly less experienced and may feel that they lack the age or title or honors to pull it off (even when they think they are right). Those who have been through this agree that yes, it is a problem in the beginning and yes, it will diminish as the years go by.

Flexibility is required to be a mentor. A good mentor will help individuals find their personal strengths and weaknesses, and use those qualities best, rather than having the same agenda for every person. You must decide beforehand whether you will be a mentor for other than work situations for someone. Deciding not to be involved in the personal lives of lab members will put limits on your mentoring. For some styles, this works: You may not want to know intimate details of a lab worker's life. Furthermore, you may not be able to give unbiased advice. For example, if a lab member cannot work after 5 because her husband wants her to make dinner, what do you do? You may advise her that her husband is unreasonable since your own interest is promoted by her working past 5. Your advice will be self-serving. Some people can pull this off, but it is a dangerous area.

Having a mentor yourself is the best training for mentoring others.

I'm not real good at mentoring. It happens informally, as the people in the lab look at how you do things, how you handle collaborations, if you need a reagent, how you get it...you can't tell people how to do it, but they look to you to see how you did it.

I had to learn to be a mentor. Somewhere between the 3rd and 6th year of running a lab, it started to be much more fun when I realized I was more like a parent to the people in the lab.

I mentor, but I don't try to tell them what to do with their own careers.

The influence of your own mentors on your mentoring style

The mentors that P.I.s have had in their training have a huge impact on the P.I.'s expectations and style in mentoring. This influence can be both positive and negative: Some P.I.s were so turned off by

I would like to be more like my graduate advisor. He had a lot of serenity, which I don't have. But his lab was bigger, so he could afford his hands-off style.

their supervisors that they now mentor in reaction to the bad experience. Few people directly mimic a former mentor. Some P.I.s start off by imitation, but it soon becomes clear that the lab situation is too different from that of the mentor's to accommodate the same mentoring style. Most P.I.s pick and choose, adapting methods from one mentor for one situation and from another for a different situation.

I was influenced by the amount of time my mentors spent in the lab—they both spent much more time in the lab than their colleagues.

It's like people looking like their dogs...it is just uncanny to see someone give a talk and realize that their mannerisms and way of speaking are just like their advisor's. It's the example you live with, just as your idea of family is your own family.

Continuing mentors also heavily influence lab members. As P.I.s gain more experience, they will be able to acquire from veteran mentors more and more ideas that are relevant and useful.

Qualifications for successful mentoring

- **Success.** Having something to teach, having achieved enough success in a field to be considered competent.
- **Confidence.** It is obnoxious to be smug or patronizing, but you must believe that you are a good choice for a mentor.
- **Belief in the importance of mentoring.** A desire to pass on your secrets of success.
- **Perspective.** Able to assess what is good for the other person and not just what would have been good for oneself at that age.
- **Honesty.** You may not always be right, but you do have to say what you think.
- **Communication skills.** You must be able to listen, to hear, and to explain things in a way that each person can understand.

Suggestions that you should not be a mentor

- Believing that you got where you are without help and that everyone else should do so as well. These mentors are impatient and resentful of the assault on their time.
- Wanting to mentor to create a colleague or friend for yourself. As a P.I. mentor, a bit of self-serving is implicit in the relationship—the better the researcher, the better your lab runs—but your own interests cannot be paramount.

WHOM DO YOU MENTOR?

One of my most important mentors was Howard Temin. He had received the Nobel Prize a few years before I met him, but I didn't discover that until I had known him for a while and I never would have guessed, because he was so modest. Many aspects of science were far more important to Howard than his fame and recognition. One of these was young people. When he believed in a young scientist, he let them know it. As a graduate student, I served with Howard on a panel about the impact of industrial research on the university. It was the first time I had addressed a roomful of hundreds of people, including the press. My heart was pounding, and my voice quavered throughout my opening remarks. I felt flustered and out of place. When I finished, Howard leaned over and whispered, "Nice job!" and flashed me the famous Temin smile. I have no idea whether I did a nice job or not, but his support made me feel that I had contributed something worthy and that I belonged in the discussion. I participated in the rest of the discussion with a steady voice.

HANDELSMAN ET AL. (2005, p. 62)

Within your lab

The way you spread out your mentoring time is critical to the creation of the spirit of your laboratory. Most P.I.s start out with the assumption that they will mentor equally all of the people in their lab. But as time goes on, whereas some grow more sure that reaching everyone is part of the job, others feel that they are pouring time and effort into a black hole and resolve to mentor only a select few. The variation in talents among lab members can be staggering, and it does take talent and patience to reach some lab members.

I mentor researchers, not people. I do mentor all to each's own ability at some level. Everyone gets the funding, good environment, good project, and time to do the work. I develop their careers long after they have left the lab.

It helps to remind yourself that your mentees are not only unlike one another, but that they are also not like your (real or imagined) younger self. Many P.I.s assume that each person wants to be and is capable of being the kind of scientist that they themselves are, and mentor accordingly. In an established and successful lab, this might be the situation, but it is an unlikely situation for a new P.I., and you will probably have people who require more mentoring or a different kind of mentoring than you received.

I don't mentor everyone to the same extent. I try to take them on trips and conferences with me, as it is important for the lab to see how you should behave with a group of scientists. They have to see that it doesn't matter what the results are if no one gets told. You have to talk.

The best results come when an insightful P.I. is able to help people to achieve what they want. An established routine of meetings and evaluations for all lab members will ensure that you understand each individual's needs and are giving everyone a similar amount of baseline time and training. Strive to be fair. If each person feels that you are watching out for him or her, it is unlikely that there will be any problem with feelings of favoritism if you take the about-to-drop-out student to dinner to discuss options or introduce the postdoc with the *Science* paper to a likely job prospect.

I mentor all, but probably in the order students>postdocs>technicians.

For those not bound for research

In 1997, cell biologist Sandra Schmid of the Scripps Research Institute noticed a drop in motivation in one of her Ph.D. students, who started leaving the lab early and didn't repeat failed experiments. Schmid confronted the student, who explained she wasn't interested in staying at the bench. Over the next two years, Schmid tailored the student's thesis to her main interest: science policy. The student completed her research in partnership with a postdoc and then wrote a more scholarly thesis. Instead of going to cell biology meetings, the student attended AAAS policy forums. Schmid saved time and effort by helping the student change focus and reappportioning her experiments. Now, says Schmid, this former student is a scientific policy advisor for a U.S. senator. "I'm asking for excellence, but I'm asking for it in areas relevant for [her] to succeed," Schmid says. "We've got to get away from students as a labor force and back to the fact that we're training people."

DOLGIN (2008)

Some lab members are candid about their desire to work in some aspect of science other than research, but not all P.I.s are interested in or capable of giving advice or assistance in another field.

Newer P.I.s who have largely broken free from the idea that only an academic career counts realize that there are too few research options for the number of Ph.D.s.

If someone didn't expect to be a researcher, I would still expect him to function as one in the lab, to work hard. I would provide them with what opportunities he needs, but I don't have the contacts to help in a non-research career.

produced. Many philosophical debates touch on the issue of how training can more closely reflect the reality of the available jobs. National Science Foundation deputy director Anne Petersen said, "The Ph.D. should be construed in our society more like the law degree. A lot of people go to law school with no plans to practice law" (Klemm

2000, pp. 31–32). On the other hand, Sherrie Hans, program officer at the Pew Charitable Trusts, said in a report from the National Research Council, "The idea of alternative careers should not be oversold to the Ph.D. students or to the scientific community as a solution to provide Ph.D.s with job opportunities. The committee found opportunities in law, journalism, and K–12 teaching to be scarce and unattractive, since they require additional training. They recommend that the Ph.D. remain a research-intensive degree" (Samiei 1998, p. 2).

There is no consensus on how to train and deal with those in the lab who are not intending to go into research. The main question is, should expectations be the same for those who will continue in research as for those who will not? Those P.I.s who mentor all, no matter what, and whose primary interest is the individual's future, are more willing to invest time in a modified training. In larger and more competitive academic labs, as well as for training positions in industry, the P.I.s demand that learning to do research well is the goal of being in the lab, no matter what that individual will do with the training.

Stay respectful and remember that your mentees are not your clones: What worked for you won't necessarily work for someone else. In addition, remember that a love for science, a love you can nurture, can bring integrity and be useful in almost any occupation.

Other mentors for your lab members. There may be particular needs on the part of your lab members that suggest the use of other mentors instead of, or along with, yourself. Peer mentors, mentors from the same field or expertise, and cultural advisors might all provide added experiences. The more people your lab members can talk to, the better for everyone. If a little bit of jealousy on your part creeps in, ignore it.

Graduate students and postdocs often feel that there is no person to turn to but the P.I. Even if the P.I. is caring and effective, it does no good—personally or scientifically—for anyone if any lab member feels disconnected from the rest of the community.

Outside the lab

Your main consideration for mentoring people outside your lab should be whether it will leave enough time to mentor the people inside your lab adequately as well. In the beginning, this is usually not such a problem.

Someone may ask you to be a mentor. You must first think carefully about whether or not you have the wherewithal to become a mentor. You must never take on a mentoring relationship if you cannot or do not want to fulfill the person's requirements and needs. Your expectations, and those of the person to be mentored, must be the same. When someone approaches you about being a mentor, you should discuss what the relationship is going to be before signing on the dotted line. You should know:

Unless I see that the person has the components to make it, I don't go the extra mile. I only mentor people who will be successful. Mentoring is more than giving the general assistance required, it is going out of your way to bring the person to a certain level of confidence, to put them in the public eye.

- Why the person wants you for a mentor.
- What amount of time it will require.
- The person's expectations. If this individual wants a friend and you want a disciple, you cannot be an effective mentor.

You can say no to a mentoring invitation. If fact, you should say no if the expected relationship is beyond the scope of what you want or can do for that particular person.

You may volunteer to be a mentor. You can do this formally or casually. People might not have the confidence to approach you, so you may have to be very explicit with your offer. You may also "have to" take charge of the relationship, at least at first. Many people, especially those from groups not used to having mentors, may actually act weak or whiny when asking someone for advice. These people may feel that they should not burden someone with their own needs and might actually work to keep information from a mentor. You can completely change somebody's life by mentoring.

A conflict of interest can be caused by taking on someone else's lab member as a protégé, and it can be fraught with political peril as well. Certainly, do not get into any such relationship secretly. Lab members should inform their own P.I. that they are speaking with you.

Special interests

P.I.s who belong to a group that is underrepresented in research or in the institution may find themselves besieged by other members of the same group with requests to be a mentor. Sometimes you will see a female P.I. with a lab filled with women or an African-American scientist who is asked to speak at every "Diversity in Science" seminar scheduled. Although some P.I.s feel that they understand the particular problems of the group and are delighted to serve as a mentor for all who ask, others don't want to be chosen for their ethnicity, gender, or nationality and don't want to choose lab members by ethnicity, gender, or nationality.

There is no doubt that such mentoring is critical for the success of many individuals. As much as possible, treat requests to be a mentor as an opportunity and not a burden. Consult with HR and women's and diversity groups on campus, because these may provide resources such as scholarships and travel money for your mentees, and grants for you.

WHEN AND HOW TO END A MENTORING RELATIONSHIP

Some mentoring relationships have a natural half-life. One person switches jobs, or graduates, or is involved in other topics, and the relationship gradually peters out, to the satisfaction of both.

Sometimes the mentoring relationship must be formally ended. If it is not working for one of the partners, and there is no natural end in sight, it is best to discuss a change in the relationship or terminate it altogether. Ending the relationship can be difficult if it is not working for the P.I. but it is for the lab member. Making excuses such as “I won’t have the time to do a proper job for you” or “I’ve taken on a lot of extra work, and I wonder if we can meet every month instead of every 2 weeks” might be fine, if you are being honest. If you really want to stop the relationship, and not merely slow it down, say so. It is immediately painful, but much better in the long run for the both of you.

If the lab member wants to “terminate” you, do not be offended. Accept it with grace, and avoid building up a resentment or sense of insecurity. Keep that person, as much as possible, in your network of colleagues.

Both of my advisors found it difficult to speak directly to a person. They would ask someone else in the lab to tell a lab member that he wasn't working hard enough. I hated it, but I found myself doing it. It was a mistake, but now I know that it wasn't done out of laziness, but this indirectness helped not to hurt someone's feelings.

BUILDING A NETWORK

The trail of your mentor and that of people you have mentored are network connections to the community of scientists. Other networks are formed by the people you worked with during graduate school and postdoc, or from other investigators in a particular field. Your networks will overlap. As much as you can, bring the people you mentor into that network. Introduce them to outside people whenever possible, and involve them when setting up phone calls to discuss a scientific problem. Encourage your lab members to communicate as much as possible with you, with other lab members, and with scientists from other labs.

Keep in touch with former and present lab workers by collaboration or socially. This will boost camaraderie in the same, increase a sense of belonging, and help new lab members to become a part of the bigger web of science.

Building a network isn’t extra, and it isn’t optional. All of your life, you will tap (and can be tapped by) people you know for letters, advice, techniques, strategies, and collaborations. These relationships are integral to your professional life and will provide friendships and support for your private life.

It takes effort to build and maintain your network. It means having a meal with an old friend from graduate school at a meeting instead of having an early night. It means organizing your pile of business cards and contacts and e-mailing acquaintances to thank them for their comments or help. Be proactive and pass onto your mentees the importance of relationships and your tips for maintaining networks.