

Mentor–Mentee Relationships

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Mentorship is both a challenge and a joy in academia. I stand on the shoulders of my former mentors and try to emulate their best mentorship skills to benefit my mentees. I consider the success of the trainees under my mentorship as an important deliverable of my laboratory. I have heard that some peers are daunted by the upfront investment required for training temporary students, but I consider engaging bright, fresh minds to be a benefit to the laboratory because of the mentees' exuberance, their potential to assist once trained, and their potential to become bitten by the research bug and contribute to our research field in the longer term.

The degree of difficulty of academic research is surprising to students emerging from years of structured courses. During my doctoral studies, several peers and juniors sought my support. In those days I could provide only time, a positive attitude, and scientific suggestions. These interactions and my own experience as a mentee have provided useful insights that I can channel to help my current and future trainees. Initially I meet with prospective mentees in an informal interview to discover their goals, both long-term and short-term. If I see opportunities to help them succeed, I agree to be their mentor. If not, I often redirect them to a colleague who can help. Several very goal-directed mentees have passed through my laboratory. My task as a mentor is simpler when they know what they want, because I can try to help them achieve the goal they have defined.

Psychology students and graduates often gravitate to my laboratory because of our focus on psychiatry research. These individuals are often well organized, with good communication skills, and they are proactive about making progress in their careers. These students may have no knowledge of basic chemistry, which presents obstacles to understanding the biochemistry and

genetics being studied in my research group. Although it is courageous to step into the unknown and take on the challenge of “wet-bench” training in molecular neuroscience, realistically there are obstacles to consider. The predictor of success here is whether the student has taken high school courses in chemistry at the very least. If so, then bringing the trainee up to speed with doctoral-level biochemistry is difficult but not impossible. If students have avoided chemistry throughout their academic career, then it is probable that they dislike the subject and find it difficult. Unless they are prepared to make a herculean effort to fill the gap in their knowledge base, they will be destined to never perform experiments beyond the level of a junior technician. This is because the foundation for understanding the experimental techniques we perform will be absent.

My recommendation now, after one difficult mentor–mentee relationship, is that these students need to study basic chemistry and biochemistry courses outside laboratory hours, preferably before starting a research project with my team. If family commitments preclude this extra effort, then I advise prospective mentees to seek out alternative training that will build on their strengths. As a mentor, it is my responsibility to prevent my mentees from struggling and becoming demoralized in the process. One gifted psychology major did in fact rise to the challenge and, although new to biochemistry, he acquired basic wet-bench skills and completed a short project in my laboratory to get a flavor of basic (non-clinical) research. He subsequently earned his MPhil in neuroscience at Oxford and won an award for his research with my support. He is now a faculty member in a Department of Psychology. Although there were potential difficulties, these were anticipated and overcome through the maturity, intellect, and drive of the mentee.

Another type of mentee is the clinician trainee who is attracted to my laboratory because of our focus on psychiatric disorders. Such potential mentees include residents in psychiatry, medicine, and pharmacy training programs. One psychiatry resident met with me for 2 hours twice monthly for his residency research project. This physician and I worked together for a year to generate publishable pharmacogenetic data. My mentee won two awards for presenting this research, became chief resident, and is currently working in a private clinical practice. I learned from this mentoring experience that despite their intellectual ability, trainees may be able to use this research experience only to boost their competitive advantage in a non-research-oriented job market. Nevertheless, this exceptional clinician will undoubtedly be better prepared than his colleagues when pharmacogenetics becomes more widely integrated into the clinical practice of psychiatry.

On occasion, clinicians underestimate the time required to perform research. Take, for example, an informal mentee who was working in a different laboratory. She was a medical doctor from Europe and considered her year of sponsored research to be a break so that she could start her family and experience living in the United States. This misconception was based on the lack of formal structure of research hours compared with the structure of a busy clinical schedule. In reality, students with just a year to complete a research project need to work incredibly long hours to learn new skills, master the concepts of research design, and collect data that are publishable. This student did not reach her full potential during that year. Nevertheless, she is continuing to contribute to clinical research after returning to Europe. I learned from this experience that detailed expectations must be stated clearly at the start of a mentor–mentee relationship.

The translational (clinical) focus of my laboratory is also attractive to graduate students in pharmacy and medical training programs. These students are some of the brightest that I have mentored. Biochemistry is not a prerequisite of many pharmacy courses, so I recommend extra reading for these students before they start their research projects. A medical student mentee who worked with me for a sponsored summer internship was excited by the research but daunted by the degree of difficulty it entailed. Although he was a pleasure to include in my team and displayed talent and potential, I had to advise this student to focus on performing well in the upcoming medical licensing exam rather than extending his research into the next semester. Another clinical student, in a foreign pharmacy program, learned English within 6 months with intensive didactic courses. He subsequently grasped concepts and laboratory techniques quickly and within the space of a few weeks has performed experiments with minimal supervision.

Undergraduate students are also a pleasure to mentor. These trainees are excited by the discoveries that are possible, and they are often aiming to apply for graduate school to become clinical practitioners or research scientists. My expectation is that at the very least, these bright minds contribute to the goals of my laboratory. At best, they may be infected by the challenge and excitement of research and perhaps contribute to scientific discovery later on in their careers. Although their initial goal is to gain research experience so that they can strengthen their applications to graduate school, they inadvertently become members of our laboratory family and are supported in many ways by my research team. This interaction provides a more personal environment for the students than they find in large undergraduate lecture halls.

These students clearly want to check off requirements for applying to graduate school, and they want to assist in my laboratory in addition to volunteering in other capacities (e.g., in clinical practice). These students may not have a passion for research, but they are highly

motivated and conscientious. One such student followed instructions to the letter without taking notes, and her levels of attention and memory were impressive. She went on to win medals for being the top student in both the bachelors of neuroscience and bachelors of biology undergraduate courses in her university. She is currently in medical training, which was her immovable goal. Another talented undergraduate student was assigned to my laboratory after successfully competing for a summer internship. He continued as a research assistant with me after graduating. This mentee integrated into my research team easily, and he was generally excited about life, his future, and science. His exuberance translated into a high level of achievement, including winning a research prize and co-authoring a book chapter with me. He received offers from a number of medical schools and is now studying medicine in his home state. These goal-directed mentees are a pleasure to work with.

Occasionally, mentorship is more challenging. Not all students remain certain of their goals, and in these cases success takes longer. A student mentee with strong intellectual, communication, and organizational skills habitually changed her mind about her career goals during the time she was in my laboratory. She had initially decided to pursue a career in scientific research and apply for graduate school. I worked with her for 12 months to design a project that would be of publishable quality and that she could present at the Society for Neuroscience meeting being held in her home state that year. The mentee wanted to return home to live, and employers and graduate programs in her home state would be well represented at that meeting. We surpassed expectations, and she won a travel award to present her work at the conference. Before the conference, however, she changed her mind about applying to a PhD program, but she persisted in collecting her prize and presenting at the conference to boost her resume. After some months of uncertainty, she found a position as a research technician in a

neuroscience laboratory in her home state. Returning home reinvigorated her prior ambition to study medicine, and her applications to medical school will be boosted by a scientific publication we have in preparation. This experience taught me that my hopes for a mentee may not always align with the mentee's own goals.

So, mentorship can take unexpected directions. Establishing personal boundaries is essential to the development of a mutually respectful, mature mentor–mentee relationship. Regular meeting times and planned milestones are vital to the mentee's success. Mentorship is a two-way process requiring active participation of both mentor and mentee. The mentee must have goals, ambition, a strong work ethic, and the passion to learn. The mentor must be brave enough to risk giving true feedback so that the mentee can grow.

Mentorship is based on trust, and therefore feedback can be received in a beneficial manner only by someone who is mature, driven, and enthusiastic. Feedback requires an emotional investment on the part of the mentor. It is not pleasant to give negative feedback when it is needed, but it is a duty to help your mentee improve and succeed. Mentors also have a duty to delve into the depths of their own past failures and successes and give the mentee their most honest, considered advice. And most importantly, mentors should celebrate the successes of their mentees. I eagerly await news of the achievements of my mentees, past and present. I am sure that given the talent I am privileged to help nurture, these trainees will find novel ways to grow. It is a pleasure to see mentees extend the wings that start to develop during their training, to fly, succeed, and make us all proud.