

Teaching Outside the Classroom: Considerations for Effective Mentoring

Olivia Harper Wilkins, Chemistry, G2

Objectives: This document will help you learn about...

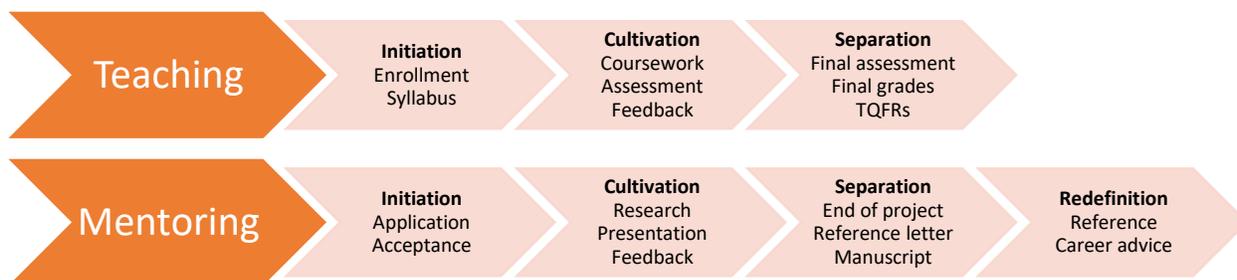
- The overlap between teaching and mentoring
- How to interact with mentees (at any stage)
- Adapting your teaching skills to working with your mentees

Teaching can mean a variety of things, such as:

- giving information about or instruction in (a subject or skill)
e.g. They teach science.
- giving such instruction professionally
e.g. They teach at Caltech.
- causing (someone) to learn or understand something by example or by experience
e.g. My upbringing taught me...
- making (someone) less inclined to do something*
e.g. I'll teach you to use the wrong reagent!
* i.e. make threats (don't do this)

As you can see, there are a number of ways to define **teaching**. **Great teaching**, on the other hand, is guiding students to learn *how* to think (rather than *what* to think), creating curiosity, and inspiring students while also respecting students and remembering that you, too, were once a beginner and like you, your students have great potential to be experts.

These characteristics of great teaching are also what makes great mentoring. These aspects should be carried out through all stages of teaching, from initiation through cultivation until separation. There are, however, several differences between classroom teaching and mentoring.



Stages of teaching and mentoring

Initiation

While initiation in a classroom teaching experience is facilitated through student enrollment in a course and explanation of expectations in a syllabus, the initiation of a mentoring relationship might be less structured. Your mentee might apply to work with you or at your institution, or they may contact you directly to make an agreement over email. In some cases, the expectations for you and your mentee's relationship is explained in some kind of orientation; in others, you may need to have a conversation about your expectations for each other and for your project.

Cultivation

Facilitating students' learning in the classroom occurs through a combination of coursework, assessment, and feedback. Similarly, mentees undertake a combination of research, presentation, and feedback. Perhaps the biggest difference is one of scheduling. In the classroom, assessments (whether they are exams, papers, or presentations) are often scheduled far in advance, and feedback follows shortly after (as grades and, hopefully, written comments). When mentoring, presentations might include informal reports from your mentee about how they've progressed or sharing their work at group meeting. Feedback takes the form of asking questions (both to clarify your mentee's work and to lead them to the next steps), making suggestions (both for their research and for how they present that research), and gauging whether there are (and addressing) any gaps in your mentees' understanding of their research.

Separation

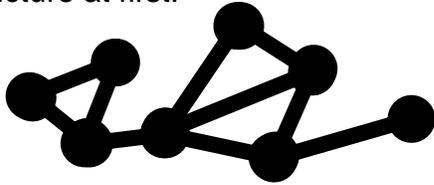
Teaching a course often ends with a final assessment, assigning final grades, and receiving results from feedback reports (e.g. TQFRs at Caltech). When mentoring, your relationship with your mentee might end with a final presentation (perhaps at a symposium) and discussing items such as letters of reference. Some mentoring relationships might also end after the submission of a manuscript. Unlike teaching a course, the end of the mentoring relationship is not often clear, and sometimes it does not end at all. Sometimes, instead of ending, your mentoring relationship requires...

Redefinition

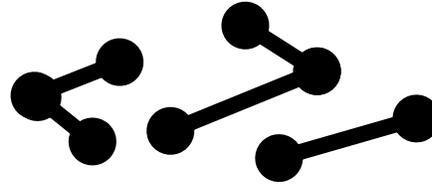
In the event that your role as mentor does not end totally, whether at the end of a summer research experience or with graduation or a new job, you and your mentee should discuss how your relationship will proceed. Can your mentee count on you as a strong reference for future school/job application? Can they tap you for career advice? Are you open to future collaborations with your mentee? Redefining your relationship is important and can help both sides avoid any (awkward) misunderstandings.

Mentors and mentees

When mentoring, it is also important to remember that there are differences between you and your mentee as well. For instance, while you are, at least relatively, an expert in your field, your mentee is a novice looking for grounding in the field. They might not know even the most basic jargon, so it is important that you recall when you were first starting out in the field, be patient, and be prepared to help your mentee get started. Moreover, while you have made many connections between different ideas in your field, your mentee has probably made fewer connections and might struggle to see the big picture at first.



Mentor concept map



Mentee concept map

While both of you have lives outside research, your personal and business lives might be very different. (You are two distinct people, after all!) While you are distracted by things such as applying to the next step in your career (whether applying for a postdoc position or a promotion in your current job), your mentee will have their own distractions, such as applications for fellowships or graduate school, extracurricular activities, and coursework.

Another consideration is that, as the more experienced member of your mentor-mentee relationship, you are also an authority on the project. Your mentee will look to you as an example and might hesitate to make moves on their own without your direction. It is important you encourage your mentee to try new things and let them know both when they succeed and when they need to try again. Consider how you communicate with them, especially over email where positive (and negative) body language will be invisible, potentially rendering your words stern and dissatisfied. Think about throwing in a couple (happy) exclamation points, and even a smiley face if you are feeling generous! Don't be afraid to share stories of how you've struggled yourself either; if your mentee sees how you've succeeded despite (or perhaps because of) your failures, they may be more confident to succeed too.

Examples of mentor behaviors

Effective mentor behaviors

- Sharing experiences of past failure
- Check in regularly with mentee
- Asking mentees for their ideas
- Telling mentee they are doing well
- Saying *when* not *if* for the future

Ineffective mentor behaviors

- Pretending to be perfect
- Check in too frequently or never
- Considering own ideas exclusively
- Giving only negative feedback or none at all
- Telling mentee to not get their hopes up

Mentoring tips: Communicate!

Communication is imperative for effective mentoring. Whether in-person or over email, it is important to be respectful (you'd expect no less from your mentee) and that both parties understand the expectations for your relationship and for the project. This can only happen through planning, discussion, and feedback (from both sides) that occurs regularly.

An effective mentor will:¹

- set expectations (for the project and for the relationship)
- be a positive role model
- be genuinely interested
- share experiences (both good and bad)
- ask questions (to clarify and to lead the mentee to the next steps)
- act as a sounding board
- provide helpful feedback
- acknowledge achievements
- foster community
- make regular appearances

Just like for effective mentoring, communication is also imperative for effective teaching, meaning you can (and should!) apply your mentoring skills to your classroom and vice-versa.

¹ Modified from "Mentoring Tips" by Caltech's Student-Faculty Programs (http://sfp.caltech.edu/mentors/mentoring_tips)