

Thoughts on Being a Teaching Mentor

Reva Kasman

Just two months after wrapping up a bachelor's degree in mathematics, having been given exactly one day of university-wide TA training, I was put in front of an undergraduate class of my own. Six years later, as a newly minted PhD with a portfolio of experience teaching one course at a time, it was naturally assumed that I was ready to design and run multiple classes simultaneously. Although learning "on the job" ultimately worked out for me, I think we owe something better to our students and early-career colleagues. Serving as a teaching mentor has been a powerful and rewarding way for me to support new teachers as they find their place in the classroom.

Trust Your Mentee

Like any good relationship, a successful mentorship pairing is built on a foundation of trust. When I meet a new mentee, I go in believing that they have what they need to be a good teacher, and our work will be to bring those skills to the surface and hone them. I make it clear that their opinions will be integral components of our collaboration, and I have a genuine interest in knowing who they are as teachers already, what their strengths are, where they want to grow, and what they're excited about. I am open and curious, and use these conversations to envision how I can be most helpful as we move forward.

While I almost certainly have more experience in bringing together students and mathematics, I'm just an invited guest on a mentee's teaching journey. Even if mentors are officially assigned, mentoring only works if the mentee wants to be in the relationship. That means that they need to see their contributions being valued as they cultivate their own identity as a teacher. I always remember that mentoring isn't an audition for the role of teacher—my mentees have already gotten the part. I am there to provide support and encouragement so they can become the best version of themselves in this role.

An Inquiry-Based Approach to Mentoring

In my own inquiry-based teaching, the path through each topic is motivated by the questions which intrigue us about a situation. I think of mentoring in much the same way. I invite my mentees to consider their visions of a course, and together we explore how to turn these ideals into practice. This process can be daunting—as students, our learning

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experiences often seem predetermined by a textbook, where the "big picture" is to get through some number of chapters, and individual lessons are dictated by each section. New teachers may not have previously thought to ask themselves what they want a course to really be about.

It's exciting to have the agency to make reflective choices about course design, but converting lofty goals into concrete, meaningful tasks for students is challenging, even for seasoned practitioners. In the initial stages of inquiry, the following types of prompts can be helpful:

- What would you like the class to appreciate or understand about this topic?
- What is the underlying theme of this lesson, and what tasks might be chosen to illuminate it?
- Can you anticipate what might be difficult for the students in this material, and how do your planned activities address this?

An Ongoing Conversation

Mentoring relationships are more likely to flourish if they involve regular interactions. Sometimes my mentee and I will set up a schedule for our meetings, while with others I just informally (but consistently) check in with curiosity about how things are going for them and to share what's happening in my own classes. Having fixed meeting times ensures that we are always interacting without waiting for a "problem to fix" (and if there are worries, we have an existing setting in which to introduce them). But some mentees prefer a more intuitive approach to deciding when we want to chat, and I'm happy to oblige, provided we actually do stay in communication and things are going well in their classes. With either structure, I want to model the message that "talking about teaching" is just something that self-reflective colleagues do (and enjoy) throughout their careers.

Another benefit of frequently meeting with my mentees is that class visits are simply one more topic for us to discuss. Observations have an unfortunate history of being anxiety-laden experiences, primarily because they tend to occur only as part of a formal evaluation process, which should be separated from mentoring. But it is important to watch my mentees teach, because as delightful as it is to rhapsodize about pedagogy in theory, what ultimately matters is how all the idealized planning is being translated into actual student learning experiences.

The Full Classroom Visit Experience

I think about a class visit as the central component of a three-stage process, in between preparatory and post-visit discussions. The preliminary conversation is an opportunity to share what the class is usually like: the collective "personality" of the class, how the period is usually structured, whether things seem to be going smoothly, goals for this particular lesson, etc. Having this information helps me to go into the class valuing my mentee's intentions and style, instead of looking to see whether they match my own.

Prioritizing their approach doesn't preclude me from making suggestions outside of a mentee's usual toolbox or giving critical feedback. But it compels me to check my ego at the door and first envision the best version of the class from the instructor's perspective. For example, I rarely lecture in my own classes, but I have mentored faculty who deeply value the lecture components of their teaching. I respect that preference when I visit their classes, and look for ways that technique is working well for them and what might be honed within that style, prior to noting what might be enhanced by experimenting with something new.

I also invite my mentees to weigh in on the logistics of the visit. Should I sit in a particular location? If students are working in groups, is it OK for me to walk around the room and/or to ask students about what they are doing? Is it distracting if I use a laptop? I prefer to establish these guidelines over email, so that there isn't pressure in person to quickly agree to something which actually makes them uncomfortable.

During the visit, I take two separate categories of notes. One is a rough but objective account of what transpires in the class. The second is a record of my opinions, questions, and concerns. I tend to do this on paper, as it's easier for me to handwrite my subjective responses directly next to the relevant occurrence (a student question, something that was written on the board, etc.). As you might imagine, this leaves me with a messy, reactive, and potentially overwhelming collection of thoughts at the end of the class. For this reason, I never have a debrief conversation immediately after my visit. I do thank my mentee right away for letting me watch the class, and say how much I enjoyed the experience (which is nearly always true—even in a class with issues, it's just really cool and far too rare that faculty get to watch each other teach).

We choose a time to meet when we won't be rushed and which gives us both time to reflect. I can then sort through my notes to identify themes and examples that highlight them. I consider what feedback might be beneficial at this time—this is a long-term relationship, and not every issue needs to be pointed out and addressed urgently. I make sure to recognize things that are going well, and I come up with constructive ways to bring up potential areas for growth, appreciating good intentions even when there is bumpy execution. Finally, I challenge myself to come up with concrete suggestions that I might offer for anything I have critiqued. If I think something isn't working as well as it could, then I should certainly be able to produce alternative strategies myself.

Even with all this planning, I still open the post-visit meeting with an invitation to my mentee to share first. Authentically listening to their perception of how the class went influences the trajectory of our conversation, and how (or even whether) I will introduce the details of my prepared feedback. Ultimately it is up to them to choose what to incorporate from my ideas, so being selective and

responsive in what I bring into the discussion is key to maintaining a collaborative spirit in our work.

When There Are Concerns

Sometimes mentoring is simple—my mentee is already an effective instructor with sharp teaching intuition. I'm basically just a source of old syllabi and a friendly sounding board. I'm happy to have these relationships, but this type of mentee would do just as well without me.

Part of the point of mentoring, though, is that someone just starting out doesn't have to feel alone or ashamed when things *aren't* going smoothly. They don't have to agonize over who to tell when a test is a disaster or their first attempt at active learning is met with silent stares. There's a pre-existing safe person who is going to respond in a nonjudgmental way, and who might have some ideas for how to make teaching more successful and enjoyable.

New teachers make mistakes because they are still practicing—that's what they're *supposed* to do. Many years into teaching, it's easy to forget just how hard it was to start out, to not have any reference point for what was "normal" or how much to internalize difficult interactions with students. Yes, experienced faculty get it wrong sometimes too, but they've weathered challenges before, mostly successfully, so these incidents don't usually provoke the same level of hurt or fear. So when it becomes clear that there's something which actively needs to be improved in my mentee's teaching, I need to be compassionate, reassuring, and calm. We break down worrisome situations together into manageable pieces and brainstorm strategies that might help. I may need to be proactive in making sure that we don't ignore the problem, but I don't catastrophize or take away their agency. My role is still to foster my mentee's ability to professionally handle the challenges of teaching. And should it become apparent that an issue goes beyond the scope of our work, I can be an ally in finding support and resources from the broader community.

Just One of Many

I endeavor to be someone with whom my mentees will feel comfortable sharing their full experiences and asking for anything they need. But it will come as a shock to no one that I don't always have the answers, and not all of my opinions are going to resonate. In developing their own style, I encourage my mentees to seek out conversations with other colleagues and to watch many different classes as they determine what works best for them. I pass along information about opportunities from professional organizations, external networks, and the various resources on campus. Being a good mentor should never imply that I am the only one they will want.

Moreover, my mentees might not always need me to be in "problem-solving mode" when they describe their experiences or frustrations. While this applies to many situations, it is particularly important when hearing about

instances where issues of identity may play a role. How we are each perceived and treated by our students and colleagues can be affected by our (actual or assumed) gender, race, nationality, accent, etc. The reality of my mentees' experiences as teachers and academics may be different from my own, and as their mentor I trust what they tell me, and I respect that there are things which they will choose not to reveal. It's vital that I don't minimize someone's narrative or redefine it in terms of my own. Sometimes all that is required of me is to listen. I may ask if there is anything I can do that would be helpful, accepting that the answer might be "no," and that I need to be ready to step up if the answer is "yes."

Over the years, I've had support from many mentors of my own. While some were assigned to me in an official capacity, others were people I met along the way who offered guidance voluntarily, or ones that I "secretly" decided to turn into my mentors. I feel extraordinarily privileged that I can now play that role for so many people at the start of their own journeys, and I'm incredibly proud of who they each become as teachers and colleagues.

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Credits

Author photo is courtesy of the author.

Undergraduate Research: Publish or Flourish

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I have had the privilege of mentoring undergraduates in a summer REU program, held jointly by SUNY Potsdam and Clarkson University, for many summers. Working as

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an REU advisor has been a lot of fun, and a good change of pace from the very busy, teaching-heavy, 12-hour teaching semesters that we have at SUNY Potsdam. Below are some observations I have gleaned through my involvement with REUs over the years.

My experiences as a student in the Williams SMALL program influenced how I organize my student groups. In particular, my mentor, Frank Morgan, encouraged us to start thinking about the topic (just a bit) before the program started, and then we dug right into research as soon as possible. As we figured out proofs, we wrote up drafts of results individually, but with all group members editing. We also gave talks to the other participants regularly during the program. After the program ended, one student took the lead in getting the group's work published. This included more revising, giving talks, and responding to feedback, as well as dealing with referee reports. I have tried to incorporate all of the above structures in my summer research groups.

The most helpful way to get students on the path to publishing is to find a good problem for them. I seek inspiration for problems from a variety of sources. I find it helpful to attend conferences, both traditional research conferences—which remind me of research trends in the larger community—and undergraduate conferences—as they allow me to see what students are doing in research. I also read papers—MathSciNet and interlibrary loan (my school has a limited journal budget) and the arXiv are my main tools there. Often, making just a small variation on a previous problem can make for an interesting new problem that requires a novel solution. For me, the topic of embedded graphs in projective space had a nice 3-year run—the second and third years were variations on the first year's topic: intrinsically linked graphs in projective space, followed by intrinsically 3-linked graphs in projective space, and then intrinsically linked signed graphs in projective space. Finally, I need solid chunks of quiet time to dream about good problems. My life during the academic year at SUNY Potsdam does not include much of this—did I mention frequently having to supervise graduate seminars and committee work on top of the teaching load? Fortunately, an academic calendar always includes breaks—typically I finalize what problem(s) I will present to my REU group over spring break. When the REU is going, and my students are working on their own, I am typically in my office thinking about what problem to propose in the subsequent summer. At such times, I am often rereading through old favorites like Adams's *Knot Book* or Harary's *Graph Theory*, hoping for inspiration. Typically, I do not know the solution to the problem that I present to my student groups. I do, however, try to pose a couple of warm-up problems that are relatively easy to solve and that build toward better understanding of the main problem. Solving these problems helps to build my students' confidence, and also gets them writing early in the program.