Tech Ethics Series

Communication & Mentoring

11/6/26

facilitated and prepared by Isabel Morris & Chris ChoGlueck

After this workshop, mentors will have the knowledge and skill to:

1. Reflect on your own mentoring and communication style preferences and tendencies
2. Compare different interpersonal dynamics and contrast how different approaches might be beneficial for different pairs, project stages, or situations
3. Practice communication strategies to address problems and improve collaboration effectiveness

Ground rules for discussions:

- Listen with Open Mind: Hear what others have to share before moving to a judgment about what they are sharing. Take this opportunity to reflect and deliberate.
- Disagree Respectfully: Differences are good, and diverse perspectives are encouraged. We have different life experiences and goals, and we don't all need to agree. It is important to maintain mutual respect in the face of differences, rather than othering people ("them" versus "us").
- Be Aware of Power: Mind your role in the hierarchy of your organization and relationships. Power may change your behavior, even in ways that you are not conscious, so be mindful of what you say and how you say it.

Additional Resources (from UW Madison):

- ➔ The Science of Effective Mentorship in STEMM is a consensus report from the National Academies of Sciences, Engineering and Medicine that examines mentoring programs and practices at the undergraduate and graduate levels. It also includes an online toolkit.
- ➔ Building a Relationship with a Mentee, by the International Training & Education Center for Health (I-TECH), includes information on improving interpersonal communication and establishing trust.
- ➔ The CIMER Library of Mentorship Agreements and Compacts is a useful resource for setting and aligning expectations between mentor and mentee. This library compiles a list of examples and worksheets for a variety of career stages and disciplines.

Part 1: Effective Mentoring and Planning

Each of the following is a mentor/mentee scenario. At each stage of a student research project, there is a contrast between their approaches*. Spend a few minutes in small groups discussing the following questions (~5 min for each of the 6 scenarios).

1. What do you think the student needs? The advisor? How might their needs conflict?
2. What would you like to see happen next? How would you like this to be handled?
3. How well does this align with what you would do or expect in this situation?

*Note: *These are idealized scenarios that not intended as "good" or "bad"*

"The First Meeting"

1. The Go-Getter: Student and advisor meet to talk about potential senior projects. The student has one project that they are particularly interested in because they want to learn the software and methods. The student is excited and eager to get started. The advisor asks what time works for their weekly meetings, and then tells the student to come prepared with an "agenda" for each meeting moving forward, without more explanation. The advisor ends the meeting by asking the student to state their goals and plans for the next week, which "*should* include getting ready for the lit review and practice using the software to collect preliminary data and start doing some analysis…" The student's excitement begins to morph into anxiety.
2. The Machine Learner: Student and advisor meet to talk about potential projects. The advisor begins by sharing a few potential projects they could imagine the student completing, and then asks the student to think about which sounds most interesting. After leaving the meeting, the student feels unsure, overwhelmed, and a bit lost. Another professor for one of their classes suggested trying out Gemini "research mode" for that class's final project. The student uses this advice and to generate a list of references for the advisor's suggested projects, as well as important findings, research gaps, and potential contributions to the field. At the next meeting, the student says they've chosen a project based on what sounds most interesting and easiest to contribute something new. However, when the advisor asks them to articulate their idea, the research gaps, and their contribution, the student stumbles and responds vaguely. They are also unable to refer to any specific papers they read or their results. The advisor is taken aback.

"Getting Rolling with A Project"

3. Hands Off: The student and advisor came up with a few project ideas in initial brainstorming meetings, and then agreed on one to proceed with. The advisor shares a few key references with the student, along with some context and background. Then the advisor asks "So, what are you going to do next?" The student feels their palms getting sweaty.
4. Hands On: The student has been working on tutorials for the software they will use for their project. They have started playing with the data, but are having trouble. The student tries to open the data files but keeps getting an error every time. They send an email to the advisor asking for help with access. The advisor responds with, "Here are the files. I cleaned them up and plotted the signals. You're good to go." Now the student feels like they did something wrong.

"In The Weeds"

5. The Procrastinator(s): Student sends a draft of their first conference paper to the advisor and asks for feedback in 3-4 weeks. The advisor takes 4 weeks to respond with a brief email saying, "draft looks great. figure axis labels on fig. 3 and 4 are too small. There are two figures named fig 2." The student is disappointed because they were really looking for feedback on their interpretations of the data before the conference. They have been waiting this whole time for the advisor's feedback before starting to revise.
6. The Cheerleader: Student has been struggling to get the hardware for their project to work consistently. At their weekly meetings, the advisor offers a few suggestions and troubleshooting ideas. They keep encouraging the student to keep going because "struggling it out to figure out this kind of problem is an important skill to have," remarking that they are making progress even if it doesn't feel like it. The advisor does not share that they are also not sure how to solve the problem.

Strategies for Effective Mentoring and Communication:

- Establish and revisit your expectations ("mentoring compact" or agreement) for communication and have open conversations about expectations/priorities.
- Create an Individual development plan (IDP), and take the important role in your own professional development and goals. *This is a good self-reflection exercise for any stage!* First, evaluate your skills, values, and interests. Second, explore career opportunities in your field, both ideal jobs and alternatives. Third, set goals to prepare you for those career paths. Fourth, discuss the goals and strategies with your mentor for feedback.
- Consider building a network of mentors, including those outside your department and at different stages, who can help support goals or areas that are unmet by the primary mentor (or in the case that the relationship ceases or becomes problematic).

NSF Postdoctoral Mentoring Plan (1-pg. Requirement):

1. *Set and communicate your expectations for communication and work,* including regular meetings, working in the lab, communication modes.
2. *Convey your responsibilities as a mentor*, such as feedback expectations, assistance with networking, and notifications of professional opportunities
3. *Tailor your plan:* "All mentoring activities will be tailored in conversation with the mentee and will be revised and revisited annually or more frequently if needed."
4. *Promote a supportive work environment:* describe lab activities and culture; explain how you encourage lab safety, codes of conduct, and other responsibilities/benefits
5. *Strengthen a broader ecosystem of support:* list institute resources like Grad office workshops and presentation opportunities, relevant support through professional societies or conferences, NMT Ethics Series and other workshops (like this one!)
6. *Assess progress*: referring back to IDP, adapt strategies to evolving needs
7. *Include examples of mentoring activities,* e.g., regular meetings, TA training and appointments, SRS/Graduate poster session and seminars for practice, external collaborators, specific alumni, MST and STEM education programs.
8. *Customize and use resources unique to your institution/proposal* (as above)

For more information, visit: https://www.nsf.gov/science-matters/nsf-101-mentoring-plan.
See also additional resources on page 1 of this handout.

Part 2: Team Communication

Scenario 1: It Just Did Not Work*

Chris is working with a really promising undergraduate mentee Isabel and things work well when they are doing them together, but she doesn't seem to be able to get experiments to work right when she's by herself. Chris worries that it is because Isabel is an international student. Chris tries to help her figure out what's happening in her failed experiments, but their conversations all seem to go like this:

Chris: "So what happened with your reaction?"
Isabel: "It did not work."
Chris: "What happened?"
Isabel: "Nothing happening. It just did not work."
Chris: "What do you think went wrong?"
Isabel: "I do not know. I tried it two time, and it failed both time."

They're both getting a little frustrated with the lack of progress, and Isabel has been coming into the lab less and less often. How can Chris get things back onto the right track?

Discuss:

1. Has this ever happened to you as a mentor? As a mentee?
2. What role do you think might have been played by a language barrier? What about a cultural barrier? How would you know?
3. What could Chris ask to check Isabel's understanding? What could Isabel say to help Chris understand what she's done/doing?

*This scenario has been adapted from the Chemistry Research Mentor Training Seminar developed by the Center for the Improvement of Mentored Experience in Research and the Wisconsin Center for Education Research at the University of Wisconsin-Madison. Find more curricula here: https://cimerproject.org/entering-mentoring/.

Scenario 2: The Bare Minimum

You are an undergraduate student working with your group of 3 to develop a team agreement for your capstone project. The assignment for this stage is to create a team agreement that describes the expectations for the group and its members. It covers their target grade, how they will complete assignments, the responsibilities and roles of each member, the frequency of team meetings, expectations for how much time will be spent working on the project (outside of class time), and project documentation.

One of your teammates says "I just want to pass" and is OK with late assignments as long as they don't fail. They are clearly less invested in the class and school than other things happening in their life.

Your other teammate is a high achiever who responds that "We can't get anything lower than an A" and plans to submit the best quality work possible. They suggest meeting every Saturday afternoon for 3 hours, when they are most mentally alert.

You are caught in the middle, and you've already agreed to the role of team manager.

Discuss:

1. What common ground or shared interest can you find to overcome or navigate the conflict?
2. How might you assign roles to divide up the work in an equal, appropriate, fair, or otherwise agreeable way?
3. What are some other possible ways to develop the team agreement in this situation?

Part 3, Option A: Group Dynamics

Step 1: By yourself at first, complete the rows assigned to your group.
Step 2: Discuss with your group your responses to the statements below:

1. What was the likely intent by the speaker of this statement, message, or question?
2. How might the statement or question be heard or read by the receiver?
3. How else could you as a mentor/teammate say/write these questions or statements?

Statement or Questions	What was the intent?	How might it be heard/read?	How to say/write it better (or to whom)?
(1) "Why doesn't she ever clean up the work area? She's so lazy."			
(2) [email] "Are you ever going to get your part of the project done?"			
(3) "Whatever. You're only here because of affirmative action."			
(4) "You're wasting your time on that. Just use ChatGPT already."			
(5) [text] "Still not here! No one cares about being on time where hes from."			
(6) "He's not been in the lab in days. He's really dropped the ball. He needs to check our samples!"			
(7) [text] "Dr. PI is so bossy and mean. Who does she think she is?"			
(8) "The Professor is easy to talk to you. You're just being too sensitive."			
(9) [text] "You ghosted us and leech off our work. We're not your maids."			
(10) [email] "Oh, I'm good at writing, so I'll just take care of that."			

Part 3, Option B: Letters of Recommendation

Step 1 (10 min) Read letter (see last page of this handout), and rate the applicant with the sample rubric below. Assume this letter and rubric are written for applicants to a graduate program in STEM (not for a specific merit- or identity-based award).

Criterion	High	Medium	Low
Academic ability -coursework -undergraduate degree	High achiever in the classroom (top ⅓ of class); Degree in the exact area of STEM expected for grad program	Average achiever in the classroom (middle ⅓ of class); Degree in the exact area of STEM expected for grad program or in a related field	Below average achiever in the classroom (bottom ⅓ of class); Degree in a distant or non-related field
Research experience -duration -technical skills -attitude toward research -publications -presentations	2+ academic years of research; Several skills in experimentation, theory, or computation; Strong enthusiasm and commitment; With contribution toward a peer-reviewed publication; AND oral presentation of original research	1-2 academic years of research; One skill class (theory, experimentation, or computation); Enthusiasm or commitment; With contribution toward a peer-reviewed publication; OR oral presentation of original research	<1 academic year in research; No more than skills needed for coursework; Unclear commitment or enthusiasm for research; No concrete achievements beyond coursework requirements
Other achievements	2+ awards or other achievements (honors, fellowship, scholarship, travel grant, etc.)	1 award or other achievement	No concrete achievement beyond coursework requirements
Ability to succeed in grad school: -ability to work independently -know when to ask for help -making connections b/t topics, …	3 or more strong markers	2 strong markers, or weaker combinations	Few markers or only weak markers

Overall Strengths:

Overall Concerns:

Step 2 (5 minutes) consider the following bias related prompts and the assumptions and reactions in the letter or your reading of it:

4. **IDENTITY**: Remember that certain kinds of grindstone language and adjectives are disproportionately used for certain identities.
    - Are there any identity indicators (e.g., race/ethnicity, gender, class) in the letter?
    - What was your reaction to them?
    - What assumptions not explicitly stated did you make about the applicant?
    - Were there any stereotypes used or implied?
5. **MERITS**: Contextualize accomplishments by "distance traveled." Rather than assuming everyone starts at the same position or receives the same credit for the same work, try to think about the inequality of opportunities and their relative advantages/disadvantages.
    - How much opportunity and privilege has the applicant had? Why do you think that?
    - Do you think any of the student's merits or relevant experience were not captured by the rubric?
    - Does the level/depth of research experience appear to reflect their background & opportunities? If so, how?
    - Do the rubric's categories accurately or fairly reflect what a "successful applicant" needs to demonstrate?
6. **BIAS**: Don't punish applicants for inappropriate or poorly written letters. Try to account for the writer's role in translating knowledge about what it takes to be successful as a grad student.
    - What assumptions about "fit" did you make? Why?
    - What do you think about the quality of the relationship between the writer and the applicant? How did that influence your evaluation?
    - What implicit indicators of overall recommendation such as length did you notice?

Step 3: (5 minutes in small group) Look back at your scorecard after considering the above:

- **Would you change any of your ratings?**
- **Would you change the rubric's criteria for evaluation or scoring?**
- **How could the biased comments in the letter be reframed in favor of the student?**

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October 6th 2026

Office of Graduate Studies
University of ABC

To whom it may concern,

I would like to advance my recommendation for the application of Daniel Cheung to the MS in Physics program at the University of New Mexico. I have known Daniel since the Spring of 2022 when I taught him "Introduction to Statistics." He worked very hard in that course and was able to earn an A- through his diligence. Daniel was in the top quarter of the course. I have enjoyed staying in touch with Daniel in the years since, and I have mentored him toward pursuing a graduate degree. Initially, Daniel was somewhat reticent because he comes from a very family-oriented background, and so he had trouble being far removed from his elderly mother. I have been very impressed with Daniel's ability to preserve through all the cultural differences he experiences in the United States, not to mention his great English-speaking skills.

Over the past year, Daniel has worked as my research assistant. His focus has been on the computational dimensions of my theoretical work on quantum mechanics. Daniel is a very good mathematician because he is meticulous and responds well to feedback. For example, I can also count on him to work throughout the weekends, and he will toil at it for hours on end. He is known in my lab as our resident worker-bee, and I can attest to the fact that Daniel will only need minimum help to be set on a task.

Like all good physicists, Daniel is great with numbers. For instance, I gave him a project last year, and he was able to figure out that the initial constants that I calculated were incorrectly computed. My lab technician calls him a wiz-kid since he catches her errors. Daniel might seem a little cold during his initial interview, but he is either just nervous or stuck in his own head, struggling to think of the words.

Although his publications may not be very numerous, Daniel has supported our lab immensely. He is the fourth-author (of six) since he was very helpful with the proofing of our calculations. I believe that he could be a good physicist in the future, and so I assure you that he should be able to fulfill the roles and responsibilities of a graduate student.

I would be happy to answer any additional questions you may have.

Sincerely,

Professor X

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