

Labs That Work

FOR EVERYONE

*An Intentional Professional
Leadership Curriculum
Tailored for Researchers
at HHMI and Beyond*



PERSONAL LOGBOOK: Module One

Cultures of Excellence

ncpre National Center for Principled Leadership & Research Ethics



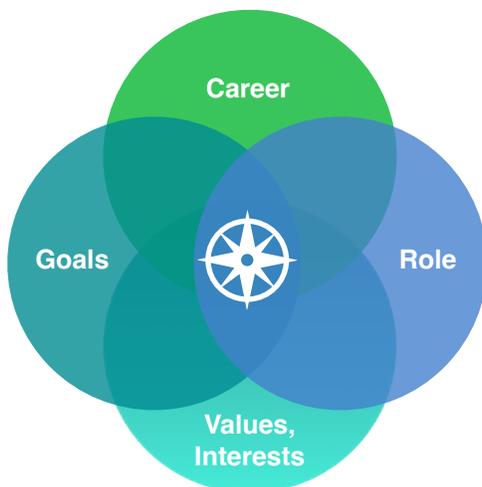
Welcome to Module One of *Labs That Work... for Everyone*



Welcome to the *Labs That Work... for Everyone* leadership program, designed to foster your professional development as a researcher and as a leader. In our approach, leadership does not come through power or position, it is about having control over your own life, and making professional decisions that align with your values and goals. The content is built around an evidence base about human cognition and interactions, adult learning, and leadership.

We will begin by asking you to articulate your values and then to use them to guide your choices—to use them as the source of how you manage yourself and navigate situations you will encounter across your working life, and finally to use them to guide your choices in the leadership of others. You will see situations play out in a movie and then addressed in scene-by-scene deep dives through comments from working scientists and through your own reflections and completion of professional development assignments.

The assignments center how you contribute to a culture of excellence—what you have control over, and the choices you make. This means cultivating an awareness of your own values, goals, and patterns of behavior when interacting with others, then developing strategies that work for you when navigating interactions at work. The results can help you build strong habits and lead to better professional relationships. Throughout, you will be exploring topics for navigating your career within the existing power structure, while having the skills to assess and address its inequities.



Getting Started



Allocate two hours for getting started. In that time, please watch in this order:

- a) Erin O’Shea’s Introduction to *Labs That Work...for Everyone* (4 min)
- b) *Labs That Work...for Everyone: What to Expect* (4 min)
- c) The complete movie, *A Tale of Two Labs* (1h 45 min)

The movie storyline* is built from a composite of real-world examples from people working in research laboratories. Bear in mind that the story, while based in reality, is fictional, and thus not a literal representation of any single lab environment. While you may not experience these issues with these *exact* characters in your lab or program, we invite you to look at the patterns of interaction and map them to your own experiences. Pay special attention to the assumptions that characters make, both about each other and their research. If you find behaviors or issues in scenes that resonate with you, use those as opportunities to think about your own situation.

As you continue, each episode you encounter will have three parts: a scene from the movie, expert interviews and content videos, and assignments you will compile in your own professional development logbook. We will expand on that below. Use the interviews with active, practicing scientists to ground the fictional concepts and conversations, and consider how you can use insights of the experts to build your own skills and career.

As you go through this course, you will be considering a range of topics that contribute to a lab culture of excellence. Among the tools are approaches to help you evaluate the factors that influence decision-making, navigate tricky situations, and deal with difficult conversations.

By the end of the program, you should have two products:

- 1) a logbook with your reflections and completed assignments, and
- 2) the strong core of a lab manual for a lab of the future in which you are the PI or in which you are a member.

CONTENT WARNING

* The story in the accompanying film is fictional, portraying realistic scenarios within lab environments both positive and negative. It is based on interviews and interactions with working researchers. In the movie and in the work that follows, we depict and reference difficult and sensitive topics as a case study for discussion in an educational setting. These include: mental health, self-harm/suicide, racial discrimination and micro-aggressions, and sexual harassment. A detailed list of content warnings for this module can be found in the appendix.



As you begin... Keeping a Logbook

The logbook you keep as you go through the program is for your use only and is designed to support your learning process and professional development. Its format is entirely up to you. It should be a format you are comfortable working in and will continue to use throughout the program:



Handwritten: download and print the logbook we provide or use a notebook of your own.



Digital: you can choose to enter answers directly in the course online and we provide a PDF version you can use for keeping notes in your own files.

“This is what the best journals look like. They aren’t for the reader. They are for the writer. To slow the mind down. To wage peace with oneself.”

– Ryan Holiday, *Stillness is the Key*

Our intention is for this resource to be useful to you. During the program, we suggest you frequently revisit observations you recorded in earlier sections; sometimes they may highlight the ways your own thinking changes or evolves.

The more difficult you find the questions, the more likely they are to yield longterm benefits for you.

This program is meant to help you identify and address personal and environmental challenges you’re likely to face, as well as identify and capitalize on your values and strengths as you build your career. While you may not experience all of the situations portrayed, building the skills to respond to them, or similar situations, will be important across your career.

How to Use this Professional Development Logbook

The logbook is designed to help you integrate concepts and to reflect on your learning process. Use the logbook to practice, reflect, and build your own skills and knowledge. Its section numbers correlate with those of each online episode.

There are five cues used for sections of this logbook:



Practice

Opportunities for you to put specific tools to use—to test them out in a low-stakes environment. You will be introduced to a range of tools that can help you navigate the dynamics of lab life. The activities have been designed to help you practice using them so they can become part of your professional toolkit.

Reflection

Structured reflection questions followed by open space for you to capture thoughts or observations that are not explicitly a part of the practice opportunities. Structured reflections have been shown to increase creativity and productivity in professionals. Pausing to reflect regularly can help you keep track of questions, ideas to try, emotions, and more. Take the time to draw, bullet point, or record in a way that works for you to integrate concepts from this course into your professional habits.

Lab Manual

Throughout this program, you will be developing lab manual sections that reflect your values and philosophy for a lab you might run or be proud to join. Early users have found it helpful to create a separate document or file and work on all emerging lab manual sections there. Engaging with this exercise will give you an opportunity to apply your values and think through environments in which you can be productive and fulfilled. Whether you use your emerging lab manual one day in a lab of your own, or use it to help you assess labs you might join, making notes and drafting sections as you go will benefit your professional and leadership development.

Integration

Periodically, you will find integration exercises or reminders. These will help you identify key skills and points to consider; they will challenge you to integrate your observations and thinking into clear takeaways useful to you.

Key Highlight

Text that introduces concepts, tools, and literature based information is marked with a star. These sections present key highlights to keep in mind while going through the program.

Scene Synopsis: A Tale of Two Labs

New grad student Ana Sofia Flores arrives for her first day in the lab of Dr. Jules Sorenson and finds herself immersed in the interpersonal dynamics of a high-productivity research lab. She accompanies postdoc Dr. Jayna Bell to a meeting with colleagues in a collaborating chemistry lab led by Dr. Malcolm Heideberg. Tensions rise over the differing working styles and objectives of the two labs; the chemists and biologists “other” their colleagues based on their disciplines, dismissing their work and its value.



Thinking About Cultures of Excellence

This professional development program is about you and your career: you will get out of it what you put into it. Take a moment to reflect on Erin O’Shea’s comments, and consider what it means to you to work in a culture of excellence in a research environment. Throughout this program, we will ask you to engage in structured reflection; evidence shows that this practice can help manage stress and lead to new insights.



Reflection

- How do you define a culture of excellence in a research environment? What observable characteristics would you expect in a culture of excellence?

- What features of labs in which you have worked (currently, or another in your career) exemplify and/or detract a culture of excellence?

- What issues did you recognize in this first scene? What challenges, what opportunities? Thinking about what you wrote above, about observable characteristics in labs of excellence, what did you see of those? What elements that contribute to a culture of excellence were missing?

- Some of the characters in this scene denigrate the work of their colleagues based on how “chemists” are or with the implication that the biologists don’t understand the complexity of the work done by the chemists. Is this helping either side work through the challenges in the collaboration? What effect is this having on helping them work through the challenges in the collaboration?

Remember that your logbook is private: Your entries will not be distributed or shared with your PI.

Practice: Articulating Your Values

Leadership is not about having power; it is about having control over your own life. Knowing yourself and centering your values in your career is key to developing your career and making good decisions about it. Values direct our thoughts, attitudes, and behavior. As you take responsibility for building professional skills and managing your career, aligning your values and aspirations—and keeping them aligned over time—can help you stay centered and on a track that matches who you want to be and how you want to live.

Articulating your values is the starting place. Being clear on your values helps clarify decision-making, because it can highlight what issues you are willing to let go—and which ones you are not.

Who do you admire? The people we admire often embody the values we care about. Think of two people, taking a moment to consider the quality of their work and character, how they embody their values, and how each exemplifies excellence. Now, list their names and specifically what you admire about each of them.

1.

2.

Circle **FIVE** items that you value most in guiding your life; add your own if not already represented on this list.

Achievement	Fairness	Personal Growth
Adventure	Financial Stability or Money	Professional Recognition, Respect
Authenticity	Friends & Family	Rationality
Autonomy	Helping Society	Relationships
Community	Honesty	Reputation
Compassion	Humor	Responsibility
Competence	Independence	Security
Creativity	Inspiring Others	Self-Respect
Curiosity	Integrity	Stability
Decisiveness	Intelligence	Status
Dedication	Justice	Tolerance
Duty	Loyalty	Wisdom
Empathy	Open-Mindedness	Work Ethic
Excellence	Personal Faith or Religion	Work-Life Balance

Reflection: Your Values and Choices

Reducing a long list of values to only five requires us to focus. Many of the most serious dilemmas you will face in your career will arise from conflicts between strongly held values: loyalty to a friend vs. your professional integrity, or a conflict between your work ethic and a desire for a good work-life balance, or a conflict between helping society and your personal ambition or desire for achievement and recognition. Reflect on how you made the choices you did, getting to only five values.

A possible resource for this reflection can be found here, with a values assessment instrument: <https://myidp.sciencecareers.org/Values/QuickTips>

As you wrap up this first episode, consider steps that you personally can take right now to ensure a better work environment and culture in your lab. Start thinking about specific policies or procedures you will implement when you are the PI to support a strong culture of excellence, or qualities that you will seek out in the next lab you join.

Episode 1.2: Do Your Choices Match Your Values?

Scene Synopsis: In Transit

Jules is in a hotel lobby, getting ready to head home from a conference, when she learns a pending grant has been awarded. She shares the news with Dr. Evelyn Towne, a colleague who attended the same conference. They talk about what lab growth means as the PI shifts from hands-on involvement in day-to-day activities to a bigger-picture role. Evelyn offers some advice.



Do Your Choices Match Your Values?

Jules Sorenson is facing a career shift that will affect her day-to-day activities. Has she considered enough how to adapt to the coming changes? Does she know enough? How thoughtful are you about moments of career shifts?

It is your responsibility to build professional skills and manage your career. Aligning your values with your choices will strengthen your ownership of your trajectory.

Consider: Why you are a scientist? How do your values shape your choices? How do they affect how you choose to interact with colleagues? Do your choices match your values? How challenging is it to align values and practices? Where do you find that struggle to be the most difficult or frequent?

Reflection: Owning Your Career

Science can be a demanding discipline. What drives you? What makes you truly excited about what you do? Consider the core of what you love about what you do. Can you explain why are you pursuing a career as a scientist?

Reflect on what responsibilities you have in moving your career forward. What resources can you identify that can help you chart your path and achieve your goals?



Practice: Using Your Values to Shape Your Career with an IDP

Values lie at the center of your role in a workgroup, your goals, and your career. Acting according to your values can be challenging in the face of conflicting pressures, incentives, and ambitions.

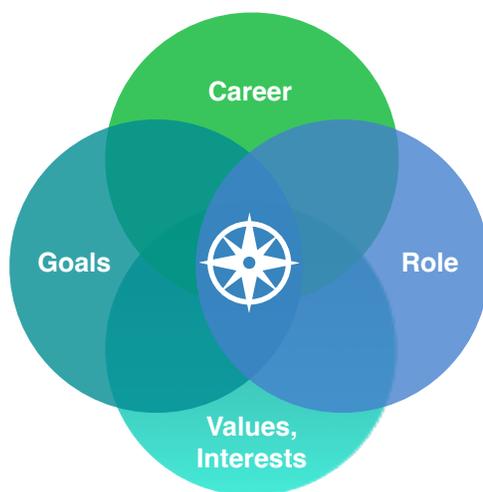
One tool many professionals find helpful for aligning career goals and choices with articulated values is an Individualized Development Plan (IDP). We have provided some samples to review in the Resources section.

Consider starting—and maintaining by revisiting it regularly—an IDP or making notes in your logbook addressing one or two professional development areas on which you might focus first.

You can consider beginning your IDP by first addressing one or two skills development areas on which you might focus by taking the skills self-assessment found here: <https://myidp.sciencecareers.org>.

Set a time for a conversation with your PI about your self-assessment and your goals. Share your self-assessment with your PI and have a conversation together.

- ➔ Ask your PI for specific suggestions for you re gaining proficiency in those areas that are current challenges or opportunities for you to learn and grow.
- ➔ After your meeting, stop and consider what most surprised you about your PI's response to your self-assessment.



Your responses in the skills self-assessment will help you, along with your PI, in crafting your IDP. You will have an opportunity to revisit developing your own IDP later in the program.

Scene Synopsis: The Heideberg Lab

Harold Wendling, a third-year grad student, is struggling with replicating the work of postdoc Dr. Darren Novak in synthesizing the compound used in the collaboration. Darren is disengaging as he prepares to leave the lab for a faculty position. In an effort to remedy the delays with the collaboration, Dr. Malcolm Heideberg directs Darren to put grad student Meena Anand in charge of collaboration under Darren's supervision.



Scene Reflection

Harold has recently joined the Heideberg lab, which is a more competitive environment than his previous lab, where he was highly successful. How much of what Harold is encountering stems from his transition from his successful previous experience (on the basis of which he got into grad school) to a more competitive environment? Does it seem familiar? Moving from being high-achieving in one environment to another that holds professional challenges is stressful—and it happens in a range of transitions, for example, moving from a small high school to a large college or from an undergrad institution to grad school. Could he, or those around him, be taking steps to make this a smoother transition?

Here's another way to consider what's going on in this scene: human beings perceive stress as either a challenge (something that we can overcome and will benefit us) or a threat (something that we cannot overcome or that holds no benefit for us or our goals).

- Which way is Harold reacting? His first thought is that “it must be something” that he’s getting wrong. What factors and actions of those around him are contributing to his perception of the situation?

- Apply this to your own experiences: Consider an event you experienced that matches the definition of a threat stressor (e.g., rejection of a manuscript, inefficient administrative processes, disparaging comments from a coworker, etc.). Now, reframe and write out that experience as fitting the definition of a challenge stressor (e.g., improving that manuscript from reviewer feedback, find out if you can alter that administrative process or recognize that it has little impact on your day, spend more time and focus on supportive coworkers, etc.). Does reframing it for yourself provide any helpful perspective for managing the stress of a challenging situation?



★ An Analytical Decision-Making Framework

Another tool that can be helpful is to use an analytical decision-making framework. The Decision-Making Framework (DMF) we use is a six-step tool to help you navigate difficult interactions more successfully. Using the DMF to help work systematically through a problem situation can help you to assure that your choices are considered, balanced, and contribute to positive outcomes for you and your career. Using the DMF can open up a problem and provide ways to think about it that you might not have considered without a structured approach. It can help you act consistently with your values.

When you adopt it as a habit, the DMF can help to slow down your thinking (reacting), assure you are giving broad consideration of a range of aspects about a situation, assure that your actions are fully considered, and help you to make choices that match your values and align with your career goals.

6

questions

1. What issues does this situation present?
2. What rules and regulations apply?
3. What questions do you need/want to ask?
4. What resources are available to you to work through this situation?
5. What options do you have? Who will be affected by each?
6. What are you going to do? *What (exact) words will you use?*

Before moving to practice using the DMF, watch the video applying it to Harold's situation.

Practice: 2-Minute Challenge

A two-minute challenge (2MC) is a short case study that lets you practice with new tools you're learning about. All the 2MCs in this program are real problems encountered by active researchers shared through interviews and focus groups.

You began working in a new lab a few weeks ago. You met with your new PI in your first week to discuss the project you'd be working on, but you realize now you didn't ask as many—or the right—questions to really understand the work. After a few weeks of working, you do not have much to show for your time. You are supposed to present your work at next week's lab meeting, and you are afraid that, because you do not have much to show, your new PI will think you have not been working hard enough. You feel that it is too late to ask for additional direction or help because you have waited so long. You haven't gotten to know any of your new colleagues well enough to feel comfortable asking them for advice, or whether any of them are doing work close enough to yours that you could ask for help. What do you do?

Practice using the DMF by walking through each step in order to explore this situation.

1. What issues does this situation present?
2. What rules and regulations apply?
3. What questions do you need/want to ask?
4. What resources are available to you to work through this situation?
5. What options do you have? Who will be affected by each?
6. What are you going to do? *What (exact) words will you use?*

Reflection: Cohort Discussion and Video

Share your responses with your group discussion cohort. Did this structured format open up any aspects of the problem you hadn't at first seen? Did it assist in developing words you might be able to use? Watch the video applying the DMF to this 2MC and see if it gives you any new ideas about use of this analytical tool.

Scene Synopsis

Jules Sorenson returns to the lab. Lab manager Dr. Loretta Wenstrup brings up items requiring her urgent attention. Jayna talks to Jules about her frustration with the Heideberg lab. Jules throws the lead back to Jayna for resolving this issue and asks Jayna to take Ana Sofia under her wing.



Reflection: Consider Leadership

Research has well established the large influence we have on those around us in shaping the tone of working environments. As a thought experiment, consider how the Sorenson lab members affect and influence each other in this scene and the messages Ana Sofia is getting about her new place in her new lab.

1. How would you describe/characterize Jules Sorenson’s leadership style? Does it resonate with you?
2. During their meeting, Sorenson equates her own experiences with sexism with what Jayna is experiencing, saying “I’ve been there.” Do you think that Jayna felt supported by Sorenson’s statements? Would you, in her place?
3. What are some ways in which Sorenson and Jayna’s experiences in science are likely to be different, based on what you know about them?
4. With the previous questions in mind, what might you rather have seen in Sorenson’s interaction with Jayna?
5. Now, evaluate yourself on how you interact with and affect those around you. The expectation is that you have not yet attained the level of leadership to which you aspire, so rate yourself on dimensions you listed above. Define a scale, give yourself a “score” on each to add some rigor to the exercise, and force yourself to be specific.

How You Affect Others—Your Leadership

Leadership does not require a position or title—our choices affect and influence those around us. There is plentiful evidence to suggest that we are shaped by our environments and by those with whom we choose to associate—and that our actions and reactions influence others as well. Bear in mind the power of peer pressure, for example. Think about how you are affecting those around you, and what messages that sends about your values and goals.

Practice: Moving to the And Stance for More Productive Difficult Conversations

Watch the video that introduces the And Stance: when you communicate in a difficult situation using the And Stance—by changing how you orient and align yourself in the conversation to solve problems rather than be in opposition to others—others will both attend longer to what you’re saying, and retain more of it. You need not change your answers or your principles: what you change is how you communicate. This commitment to change how you communicate to align with others in problem-solving will ripple through and affect the tone of your working environment; it is an act of positive leadership.



Watch and listen for how characters in the scenes use “and” and “but” in their interactions with each other. Consider when alternative stances in their conversations might be more productive for achieving their ends.

Write out answers using “and” instead of “but” for the following prompts, always bearing in mind that your basic answer does not change; only the way you are saying it.

1. Personally, I think she tried to be nice, but she's just impossible to work with.

2. I would like to help, but I just don't have the time.

3. I would like to take on that project, but I am just stretched too thin with other assignments right now.

Lab Manual: Assess Leadership Reflected in these Lab Manuals

Part of being a good lab leader is assuring that the members of your lab have constructive information about the overall structure and expectations of the lab. This happens in multiple ways: 1:1 meetings, lab meetings, and through a lab manual that lays out the philosophy and mission of the lab. Review the Sorenson and Heideberg lab manuals. Do you get a sense of the culture of the lab in reading through these two lab manuals? Compare and contrast them with others in the resources section, attending to elements included and omitted.

Make notes for a section in a lab manual that you would find useful in setting the tone and providing helpful information for lab members.

Scene Synopsis

Darren informs Meena of Malcolm Heideberg's decision to move responsibility for the collaboration with the Sorenson lab to her, in a major blow to Harold.



Scene Reflection

The interactions in this scene illustrate a number of lab leadership and power dynamics: Harold is not told directly by his adviser about his reassignment, and is left to draw his own conclusions about what is happening and why. Meena is given no real options either to decline the project nor to decline being the one who informs Harold.

- What tone is being set in the lab? Where were the communication and information lapses? Was there enough information for Dr. H to have someone else try to synthesize the molecule?

- What would you like to have seen done?

When Experiments Fail

The pursuit of science, like life more broadly, will contain moments of failure. If we are open and thoughtful failure can teach us valuable lessons like what not to do, offer insight about how things relate/function, and provide clues about what could be attempted next. The way you respond to failure, including the way you think about disappointment, the choices you make as you react, and the people and systems you use for support, make a difference in your well-being, self-esteem, professional productivity, and the way others see you.

- Describe a situation in your career where you have experienced a failure. How have you handled this experience? What were your thoughts and behaviors? Note that separating thoughts and behaviors in a column format may make it easier to identify adaptive and maladaptive (unhelpful) thoughts/behaviors.

Thoughts	Behaviors

- Looking back, how did you feel you handled this situation? What did you do well? In what ways would you have handled the situation differently? (You may wish to put answers in a column for comparison.)

- What, if any, lessons did you learn from this experience?

- What skills might you need to employ or modify in order to be more effective in handling your previously disappointing situation? For example, might you need to improve your communication skills, ignore matters of insignificance, identify lab members' roles and strengths, admit your weaknesses, and/or learn to ask questions?

- Do you have a good system or process in place that helps you better handle disappointments in your career? What is it?

- Who are the individuals that help you process, reframe, and/or recover from moments of failure? What do these individuals do or say to help you?

- Remember that the fourth step of the Decision-Making Framework (DMF) is to identify your resources. Where can you turn for support, advice, or working hard issues through? Identify resources available to you on your campus. (Hint: do a search of the student services and graduate college websites.)

Reflection: Cohort Discussion

- What is the difference between experiencing a failure and being a failure?
- Think about Meena and Harold's responses to not being able to make the compound. Can you identify any good or promising strategies? Can you identify any strategies that could have been effective had they occurred in a different environment?
- In an ideal lab, how would mistakes be handled such that lab members can learn and grow from the situation?



★ Recognizing (to Avoid) Career TRAGEDIES

▶ PLEASE WATCH THE VIDEOS BEFORE PROCEEDING

Common career pitfalls are shown in the TRAGEDIES video, which describes the acronym for factors that can influence rational decision-making processes.¹ If you can recognize the TRAGEDIES when they arise—and then work to compensate for them—your working life will go more smoothly and you will have more choices.

How you think about and manage your reactions when things don't work the way you'd hoped or planned ("failed experiments") is one form of knowing yourself well enough to avoid pitfalls. Another of the tools many find helpful in navigating difficult challenges is the concept of the Career TRAGEDIES, which can help you separate out what you "own" in any given situation—and need to manage in yourself—and what elements might be coming from pressure from others.

T	Temptation	<i>"Getting my name on this article would really look good on my CV."</i>
R	Rationalization	<i>"Everyone else adds all lab members to their papers." or "It's only a few data points and those runs were possibly flawed anyway."</i>
A	Ambition	<i>"The better the story we tell, the better a journal we can go for."</i>
G	Group and Authority Pressure	<i>"The PI's instructions don't exactly match the IRB/IACUC protocol, but she is the senior researcher..."</i>
E	Entitlement	<i>"I've worked so hard on this, I know this works, and I need to get this publication."</i>
D	Deception	<i>"Everyone does it, and I'm no worse than them." Or "Nobody will find out."</i>
I	Incrementalism	<i>"It's only a single data point I'm excluding, just this once."</i>
E	Embarrassment	<i>"I don't want to look foolish for not knowing how to do this."</i>
S	Stupid Systems	<i>"I'm better off submitting the paper through my personal email to avoid having to pay another membership charge."</i>

Practice: Career TRAGEDIES

Now, consider the factors of TRAGEDIES you have felt or experienced. Choose three to five of the TRAGEDIES, and when you experience them. What do you feel? What do you say to yourself?

TRAGEDY Name	When You Experience It

Episode 1.6: Listening as Leadership

Scene Synopsis

Grad fellow Alex Park is struggling to find a starting point for his project—and the review for his fellowship is approaching. Loretta notices his struggles and suggests he meet with Jules. Alex is short with Loretta, but reluctantly agrees to a meeting. Alex is frustrated by Jules' mentoring style, as he is seeking “answers” for what to do.



Listening as Leadership

Active listening means listening without judgment to fully understand what the other person is saying. It goes beyond listening to the words—good active listening includes paying attention to the other person's tone and body language. Active listening helps you to build a trusting relationship with the other person—and to really understand their perspective.

Spending the effort to improve your listening skills is foundational to building a culture of excellence—and it starts with paying attention to how often and how well you are listening to others.

Practice: Listening (*with a partner*)

Find a partner for this practice. You will each take a turn being the listener.

1. Agree which of you will start as the the listener/questioner; the other will be the first speaker.
2. Select a topic on which the two of you disagree and develop specific phrasing for how to pose a controversial question about it—avoid something too controversial (no politics or religion). For example, “*is our department (or group) advice/policy on preprints a good approach?*” “*should authorship order be alphabetical?*” or “*should peer review be anonymous?*”
3. Set a timer to two minutes (120 seconds) for each person's speaking turn.
4. The listener poses the agreed-upon controversial question, and then, for the next two minutes, listens, speaking only to ask one of the following questions:
 1. “*Tell me more about that.*”
 2. “*Help me understand more about...*”
 3. Nodding and affirming (“*yes...*”, “*uh huh...*”)
5. **NOTE! The listener may not take notes:** this is only listening!
6. When the timer goes off, the listener should repeat back the views of the speaker to the speaker's satisfaction, signaled by the speaker saying: “*yes, you've got it.*”
7. Switch roles, set the timer, start again.

Reflection: Listening

- Which role (the listener/questioner or the speaker) was working harder? Why?
- How did it feel to be listened to that intently?
- What kind of listeners are the ideal leaders you were thinking about in the reflection for section 1.4?
- If listening was on your list of areas to improve, did this practice help you?

Practice: Asking Questions

You can practice listening and asking effective questions starting today. Individually or separately, listening intently for the purpose of understanding and asking constructive questions can be applied to any conversations you are having – professional or personal. Reflect on how good an effective leader or mentor you know is at these skills, and how that affects your interactions with that person.

In the 2MC in an earlier episode, formulating and then asking good questions was key. Do you have the habit of considering and raising good questions?



Loretta is having a hard time communicating with Alex. He doesn't seem to want to open up to her. Alex is frustrated because Jules is "just asking him questions," without giving him any direction.

Is Loretta listening to Alex in a way that helps him hear himself and move to a problem-solving mindset? Is anyone else? What kind of questions might do that?

What kinds of questions might Loretta and Jules ask that could help find a starting place and give Alex ownership? For example, "*Have you thought about X process? How can I help you with that?*"

Let's say you notice someone in your lab who seems frustrated or shut down. Create a list of questions that might encourage this person to feel more comfortable sharing.

Optional Reflection

How do you develop scientific independence? How does it change through the course of: 1) a graduate program, and 2) a post-doc career?

Episode 1.7: Having Words When You Need Them

Scene Synopsis

Jayna feels time pressure and struggles to mentor Ana Sofia, giving her direction to replicate an old experiment to keep her occupied. Ana Sofia cannot understand the lab notebooks, so consults Alex, who confirms that there is some disarray in the lab protocols. Alex makes a racist comment about Jayna. Ana Sofia voices her disapproval instead of being a passive bystander.



Personal Scripts

Thinking back to the decision-making framework we encountered in 1.5, let's focus for a moment on the last step which asks you to articulate *specifically* what you will say after you make a decision and are starting to act on it. Finding the words is an important step: it is not enough to know what you want to do after you have assessed the situation and your options: you must also know how to implement your decision. This takes personal scripts.

The difference between being a bystander when something dismaying or objectionable happens can easily be whether you have anticipated and prepared personal scripts. Think about situations that come up in your life for which having some words prepared could be helpful, even if just to buy time for thought and applying the DMF. What would those situations be? What scripts might be helpful for you to prepare and practice in advance?

Practice: Personal Scripts

Would you have been prepared to react in the moment the way Ana Sofia did to Alex instead of being just an uncomfortable bystander to an inappropriate or offensive remark? What about when Darren makes it Meena's job to tell Harold she's taking over his project? Let's start with simpler scripts before we work up to more challenging ones.

Take a few minutes to create and practice some personal scripts if someone asks you to do something you're not sure you want to do for whatever reason (time, interest, other conflicts). For example: *"I need some time to reflect. Perhaps I could get back to you [tomorrow/in about 20 minutes]?"* Or, *"I wouldn't be able to do the kind of job you and I both expect of me because of my other commitments. Thank you for thinking of me."*

1.

2.

Reflection: Cohort Discussion

Share your scripts with your group discussion cohort, and revisit yours after you see what others developed.

Lab Manual: Setting the Tone and Expectations

Review the Sorenson and Heideberg lab manuals again: is there anything in either document that would guide lab members to know about expectations for civility, respect, or interactions in the lab environment? Do you think these topics can effectively be explicitly addressed in writing, or is that something that is only demonstrated implicitly in daily interactions?

Make a list of specific provisions or wording you would use to address these topics in a lab manual for your own lab in the future, or for a lab you would like to join.

Act One: Integration



Integration

Consider the interactions between and among the characters in Act One: there were assumptions made about, and expectations placed on, others that were not based in any real knowledge of those others. There were missed opportunities for useful communication (written and oral) and for meaningful connection. Reflect on how these lab cultures can have negative—or positive—effects on good scientific practice.

Reflection: Using the Tools

Reflect on the role that communication and assumptions about others play in complicating or mitigating conflict. Among the tools introduced to help you apply your scientific skills of analysis and observation to interpersonal interactions are:

- Career TRAGEDIES: knowing and managing yourself (*Temptation, Rationalization, Ambition, Group & authority pressure, Entitlement, Deception, Incrementalism, Embarrassment, Stupid systems*)
- DMF (Decision-making framework) and creating, using Personal Scripts
- 2MC: practicing with short “two-minute challenges”
- Listening purposefully and carefully to show respect and civility
- Asking questions to assure understanding, make it safer for others to open up, to explore problems

Identify three (3) tools or skills that you learned in this module that you would like to begin to experiment with in your working life.

1.

2.

3.

List three (3) ways that you might begin to develop habits for using the tools you have learned in act one to contribute to creating a culture of excellence in your lab. Review the specific statements you jotted down for inclusion in a lab manual. Do they encourage and support use of these tools in lab interactions?

1.

2.

3.

★ Communication in Cultures of Excellence

An important element of creating a culture of excellence is recognizing what day-to-day personal and professional information is useful in helping lab members learn about expectations and protocols.

New lab members must gain some explicit knowledge to be effective in a new environment, including:

- ✓ Research background and procedures
- ✓ Data management, compliance protocols

Consider the implicit or informal elements of how your lab operates, including unspoken elements that could help a new member both with start-up and in sustaining a culture of excellence, including:

- ✓ Interpersonal interactions
- ✓ Cultural norms
- ✓ Use of shared equipment, maintenance, safety
- ✓ Mentorship interactions
- ✓ Expectations (research, publications, authorship, etc.)

Ponder which topics you would have found helpful to have documented or explained in a lab manual.

📖 Lab Manual: What Should Go in Lab Orientation Section?

- Review some of the “group orientation” samples in the resource section and list some topics you would like to have known about and understood before starting in your present group. Consider both explicit information (how do lab members learn about use of shared equipment and expectations for maintenance; safety, compliance protocols, etc.) as well as more informal expectations (greetings, sharing food, communication, time in the lab, etc.).
- Make a list of things to share—basic information, lab/department/campus resources, etc.—the next time a new member joins your lab, making notes for your own aspirational “lab group orientation” document, whether for now, or for a lab of your own in the future.

🔧 Practice: Participate in a Data Management iREDS Discussion

The scenes in Act One have highlighted concerns in both scientific practice (data management) and interpersonal interactions (collaboration, exclusion, othering). As Act One closes, Ana Sofia is struggling with finding data from earlier experiments, and her work is made much more difficult by the lack of good records.

The iREDS approach to a lab-based conversation about data management is a way to address both of these concerns. As you learn in the video introduction to iREDS, the deliberative communication approach is meant to foster, diversity, inclusion, and civility. The topic of data management discussed using this approach will help assure that the lab agrees on the best data management practices/guidelines for your lab and its projects.

Your lab should soon be holding an iREDS discussion about data management in your lab. After your group has held that discussion, please stop and reflect on the questions that follow.

Reflection: iREDS Data Management Deliberative Lab Conversation

- What were some of the ways this deliberative conversation was helpful?

- Were you able to communicate your own thoughts/ideas/concerns in the conversation?

- Did you feel heard and respected?

- What did you learn and discover in this conversation, either about others' perspectives or your own about data management, that you had not thought about before?

- Will you be making any changes in how you approach data management?



Bringing It All Together: Your Takeaway Lessons

- List three thoughts or ideas that stuck with you from Act One.
 - 1.
 - 2.
 - 3.

NOTE: We encourage you to revisit your entries as you move through the other acts in Module One to see how your thoughts might have changed.

Episode 2.1: Power and Bias

Scene Synopsis

The male members of the Heideberg lab watch the World Cup at a billiards lounge. Harold sinks the cue ball and feels his lab status is in jeopardy. He asks Darren for another chance on the synthesis, to no avail. Ana Sofia takes materials to the Heideberg lab and meets Meena, who mentions preparing for an upcoming poster session. A friendship between the two starts to form.



Reflection

Bias that leads to in-grouping and out-grouping can exist in many different ways. Meena is excluded from the World Cup/billiards event, and Harold is sidelined in the group. Are these manifestations of in/out-grouping? Are they intentional? What effects might such “social” interactions have on work in the lab?

Take a few minutes and make notes about biases that may be present in your current environment— biases that lead to favoritism and those that lead to differential treatment that isn't favorable.

Are you contributing to any of those? If so, how? Remember that bias need not be malicious to contribute nonetheless to “othering.” No one is immune to bias.

- cultural biases
- socioeconomic
- nationality
- language
- field of study
- age
- gender
- racial
- familial responsibilities
- educational background
- smell, voice, weight
- disability

Consider the kinds of bias that may cause or result in exclusion in lab or research environments:

What can you do to see and address your own biases?

How inclusive is your lab group (inclusivity could be: everyone in the group knows how to pronounce each other's names and their meaning; members feel comfortable bringing meals from their own culture; sharing family information; the lab acknowledges or celebrates lab members' varying religious/spiritual faiths or holidays; people share language lessons/common phrases, or learn greetings and polite conversation (please/thank you) in others' native language; people have access to accommodations without judgement)?

What can—and will—you do to mitigate barriers to inclusivity in your own lab group?

Reflection: Cohort Discussion on Power

How do power dynamics create or hinder cultures of inclusion and excellence? In your cohort discussion group, identify and explore the expressions of power in the scenes at the golf course/back in the lab.

- What are the expressions of power on display? Identify and label at least three specific examples.

- Are expressions of power contributing to the problems in the collaboration?

- Are those expressions of power advancing or undermining the team in creating a more productive and inclusive environment?

Practice: Commit to Improvement

- What expressions of power do you experience in your current situation?

- Is power used in healthy ways?

- Is the way various forms of power are expressed in your environment contributing to your growth or challenges in your own work and development?

- Do you have any reasonable options for ways to contribute your voice to making things better?

- Refer back to your personal scripts developed earlier; do they help reduce barriers? What commitments will you make to yourself to help you become more aware of your own potential for bias, and what will you do to overcome these barriers to inclusivity in your own career?

Lab Manual: Bias and Inclusion

Look through the relevant sections in the Sorenson, Heideberg, and sample lab manuals in the resource section and make notes on the passages addressing bias and inclusion that you think are particularly strong. What specific provisions would you want in your lab manual of the future?

Compare your notes to what the lab you are now in says (or doesn't) in its lab manual.

Scene Synopsis

Jules receives an email from Malcom informing her that Darren will be leaving soon, and Meena will take over the collaboration. At the Sorenson lab meeting, Jayna is frustrated by the news, anticipating even more delay in her own work while Meena gets up to speed on the project. Sorenson tries to reassure Jayna, commits to meeting with Ana Sofia, and recognizes the need to meet with Alex again.



Scene Reflection

Leaders set the tone by their actions and their words. How a leader frames information (is it an obstacle or a challenge to address?) and words difficult news matters. As Jules Sorenson is telling Jayna about the personnel change in the Heideberg lab, she says “I don’t want to upset you, but...” The preamble and the “but” communicate that Jayna isn’t going to like what comes next. Together, they put Jayna on the defensive.

Consider how much a change in framing and phrasing might have saved time and energy for starting this difficult conversation and moved more directly to aligning in problem-solving with Jayna.

Try out these reframed openings; use the And Stance to complete them:

- “Jayna, there’s a change in the Heideberg lab that is going to affect us, and....

- “Malcom Heideberg is responding to our concerns, and....

- “After some reflection, I think the news I just got presents us with an opportunity, and

Lab Manual: Mentoring and Professional Development

- Review the sample lab manuals, or other lab manuals you have: is there anything in the lab manuals about communication, career ownership, or mentoring that might have made this situation with the changes to Jayna’s work less frustrating?



Optional Practice 2MC: Drawing the Line

You're relatively new to a lab and just getting comfortable with the people and rhythm of the group. Lab meetings have been focusing on problems reproducing one important line of work, and you're wondering if something might be wrong with the cell lines they have been using for several years. In your last lab, there was a problem with incorrect cell lines, and it caused the same sorts of reproducibility issues being discussed in recent meetings. You've read the [PLOS ONE paper](#) estimating that nearly 33,000 articles in the literature are premised on incorrect cell lines. What should you do?

APPROACH

- 1) Identify any TRAGEDIES that might affect a) how you approach this situation and b) how others might respond to your suggestion.

- 2) Apply the DMF:
 1. What issues does this situation present?

 2. What rules and regulations apply?

 3. What questions do you need/want to ask?

 4. What resources are available to you to work through this situation?

 5. What options do you have? Who will be affected by each?

 6. What are you going to do? If you need to have a potentially difficult or awkward conversation, what exact words will you use? What is your personal script?

Optional Reflection: Drawing the Line

It's possible, although not likely, that your cell lines are not what you believe them to be. But the consequences of that mistake are too great to ignore. The first step is to try to understand your own resistance and what you anticipate could be the reluctance of others to verify the cell lines.



- How, if at all, does this situation involve your personal values?

- What are the power dynamics in your lab that affect how you or others raise this issue?

- Who or what are your resources in thinking this through and taking action that matches your values?

Postscript: In 2020, Susanne Stoll, a graduate student in England, was trying to replicate her group's 2014 paper in *Current Biology*, on visual perception. When her efforts failed, Stoll initially assumed that she was doing something wrong. But she soon found that the problem involved a commonly used analysis in the field that biased results to skew positive. Stoll's finding prompted the retraction of the 2014 paper, and may lead to the retraction of hundreds of other papers that rely on the same approach. <https://retractionwatch.com/2020/12/23/i-thought-i-had-messed-up-my-experiment-how-a-grad-student-discovered-an-error-that-might-affect-hundreds-of-papers/>

Episode 2.3: Bystanding and Upstanding

Scene Synopsis

At the tail end of a lab meeting, Meena describes an uncomfortable experience at her recent poster session. Others don't perceive her discomfort or offer support. In a discussion afterwards, Harold and Darren make it worse.



Reflection: Being an Upstander

Consider Meena's situation and how it could have played out differently if any of her colleagues—or her lab head—had perceived and responded to how uncomfortable and inappropriate the interaction was.

An 'upstander' is someone who notices inappropriate or biased remarks and steps in to help in an awkward situation instead of just standing by—someone who “stands up” for their values and for others. *Remember Ana Sofia speaking out to Alex in Episode 1.7.*

Take a few minutes to reflect on some of the topics portrayed in this scene and what it means to lead for inclusion. Pick from among the following questions and address those that are most relevant to you:

- When you feel your feelings are being dismissed, what kind of questions or responses cause you to shut down? What kind of questions or responses motivate you to speak up?

- In what ways have you encountered gender or racial bias in your own science career?

- What other areas of bias may be present which can create exclusivity in lab or research environments? Take a few minutes and make notes about biases that may be present in your current situations.

- What can you do to mitigate these barriers to inclusivity?

- What are some ways in which power might be related to creating or hindering cultures of inclusion and excellence?

- When do you sense your values influencing your decision to speak as an upstander? Identify a specific example.

- If you seek to support others in uncomfortable situations, how can you build your skills and comfort level to be effective?



Practice: Personal Scripts

It can be hard to find the right words in the moment, so it may help to think through how you might respond to different situations and have your personal scripts developed, ready, and practiced—as Ana Sofia did when responding to Alex in Episode 1.7.

It's also important to consider the overall context: speaking up, or taking action that is helpful in one setting, may backfire in another. Every person and situation is different and the way you can learn how to respond is at its foundation to listen to what your colleague is saying in words and what they are signaling through non-verbal indicators.

To be an effective upstander, ground your actions in empathy. Acting without consideration for the concerns or feelings of those you seek to protect amounts to virtue-signalling and can do more harm than good. Context matters.

Come up with two to three personal scripts you can use in the following situations:

When you are in a situation where you are experiencing bias or incivility:

When you are listening to someone else talk about a time when they experienced bias or incivility:

When you are a bystander and you observe someone who is experiencing bias or incivility:

RESOURCES

Sample collected scripts for responding to *sexual comments* or *harassment* in the moment:

- *I don't get the point of your remark.*
- *I don't understand what that means.*
- *Help me understand how your comment is relevant to our discussion?*
- *I am not available in that way.*
- *I prefer to focus on my work when I am presenting, please and thank you.*
- *Thank you for your interest; I'm just not there now.*
- *I beg your pardon! Did you really say that?*
- *Do you have any idea how inappropriate that is?*
- *Do you know that could be seen as sexual harassment?*

Personal Scripts When Hearing About an Incivility Experience

"That really sucks, and you worked so hard on that project."

"You didn't deserve that treatment, you are a scientist!"

"Do you know that could be seen as sexual harassment?"

"It's hard enough being a grad student without having to deal with remarks that feel like they are minimizing your value as a scientist and pretend like you're just eye-candy there to model the poster."

Personal Scripts for Bystanders in the Moment (at the Poster Session)

"I fail to see how this is relevant - let's discuss her paper?"

"I wish we could talk more about the science."

Peer faculty member or more senior scientist to harasser:

"Wow. Did you really just say that? Want to try again?"

"I must not have understood you, as that wouldn't have been appropriate. Let's focus on the great work in this poster."

More Direct: Name or Describe the Behavior That Is Inappropriate

"That comment is offensive to all of us (not "to me"); it is unprofessional and is sexual harassment. That behavior has to stop."

"This is not the first time you've said things which many people would call sexual harassment. It's getting in the way of your effectiveness and has to stop."

A FINAL CAUTION

Before assuming the role of an upstander, consider the overall context: speaking up, or taking action that is helpful in one setting, may backfire in another. Every person and situation is different and the way you can learn how to respond is, at its foundation, to listen, to what your colleague is saying in words **and** what they are signaling through non-verbal indicators.

To be an upstander, ground your actions in empathy. Acting without consideration for the concerns or feelings of those you seek to protect amounts to virtue-signaling and can do more harm than good. Context matters.

Episode 2.4: Using Questions Effectively

Scene Synopsis

Jules Sorenson has a mentoring meeting with Alex. She fails to hear or understand Alex's concerns. Alex leaves feeling frustrated. Ana Sofia and Jules still have not had their meeting.



Scene Reflection

Jules and Alex left their meeting with vastly different perceptions of how it went.

- Was Alex prepared for this meeting?

- What could he have done differently to achieve an outcome that would have been more helpful to him?

- What could Jules have done differently to assess where Alex was in his project and his needs?

Using Questions Effectively

One of the most effective skills you can build is to ask good questions and deploy them effectively. Your relationship to others in conversation always affects how questions land: Asking someone “how’s it going?” is a different question if you are a friend than if you are their supervisor.

In Act One, we saw questions being used for problem-solving. For owning and managing your own career, questions can be a leadership skill to build. If you’re lower in power than the person with whom you’re dealing (as with a mentor), framing your questions to assist with problem-solving and as open-ended questions focused on learning and curiosity are skills to cultivate that can build trust. If you’re higher in power, watch with care when your questions veer into the confrontational (“aren’t you done yet?” “what’s the holdup here?”), and use questions intentionally when you are seeking to influence next steps (“are you going to do X next?”).

Practice: Personal Scripts for Effective Advisor/Mentor Meetings

Before you meet with a mentor or advisor, whether it is for the first time, or for standard check-ins, your preparation can make the difference in how effective the interaction will be. With any professional from whom you seek mentoring, your goal is to establish and maintain a professional relationship that will support your professional development and help you achieve your goals.

Alex didn't have personal scripts that communicated what he felt were his needs—and he has been having a version of the same conversation with his advisor, Jules, over and over without making much progress.

In this practice, incorporate the listening and asking questions skills introduced earlier and prepare personal scripts for a constructive meeting if you face a challenge in your relationship with a mentor.

- Write a concise summary of your career, research, and teaching goals. Does the IDP you started in episode 1.2 include specific, measurable and realistic individual development goals for the future? If not, sketch some out and share those with your mentor or advisor and seek feedback on them. Share the areas in which you particularly seek advice, or to clarify the scope of this mentoring relationship.

- Target areas in which you specifically seek information: don't be afraid to admit what you don't know. (Alex is having trouble narrowing his focus and starting his project and seeks direct guidance. He could say, "I feel stuck narrowing this down and feel like I'm spinning my wheels. I don't know how to move forward.")

- Devise a difficult conversation with a supervisor (for instance, how Alex might have told Jules that he needed a different kind of interaction or asked for specific help).

- Identify colleagues or others you would value having a professional introduction or connection to: are there other potential resources that can help you?



Lab Manual

Review the Sorenson and Heideberg lab manuals; specifically their sections on professional development, goals, and mentoring. Make notes and start thinking about what you would like to have seen in those sections.

Scene Synopsis

Meena talks to Ana Sofia about her frustrations with the poster session. Ana Sofia coaches Meena on personal scripts, helps her process the experience, and gives her resources going forward.



Reflection

Ana Sofia mentions two organizations in which she's involved, that she's found to be helpful in dealing with frustrations of lab life; for her, those frustrations come from being a woman in science. Pause, and think about the parts of lab life that are currently the most frustrating for you (tedium, stress, lack of progress, bias, preconceived ideas about your work, etc.), and then list two specific organizations or activities that might help support your values, alleviate some of those stressors, and contribute to your professional development.

- 1.
- 2.

Practice: Using the DMF, Developing Personal Scripts

At a lab group meeting, a male postdoc argues with the PI about the interpretation of results. The PI thanks him for the rigorous scientific debate. Later in the meeting, a female postdoc brings up a point related to the interpretation issue. The PI responds, *“that snarky attitude must be PMS.”* What do you do or say?

What if the comment had been less blatant, for example: *“When you’ve worked with this team a little bit longer, you’ll understand better what we are trying to do here.”* Does that change the situation for you?

Use the DMF and develop personal scripts for three situations: 1) if you’re the person addressed, 2) if you’re in the seminar as a relatively low-power member of the group when the comments are addressed to someone else, and 3) if you’re present and have enough personal power in the group to take a bigger risk in pushing back.

6
questions

1. What issues does this situation present?
2. What rules and regulations apply?
3. What questions do you need/want to ask?
4. What resources are available to you to work through this situation?
5. What options do you have? Who will be affected by each?
6. What are you going to do? *What (exact) words will you use?*

 **Practice: Using the DMF, Developing Personal Scripts *continued***

1) Identify any TRAGEDIES that might affect a) how you approach this situation and b) how others might respond to your suggestion.

2) Apply the DMF:

1. What issues does this situation present?

2. What rules and regulations apply?

3. What questions do you need/want to ask?

4. What resources are available to you to work through this situation?

5. What options do you have? Who will be affected by each?

6. What are you going to do? If you need to have a potentially difficult or awkward conversation what exact words will you use? What is your personal script?

Scene Synopsis

Jayna encounters racial microaggressions in the department mailroom. Loretta commiserates and provides support. Darren deflects any responsibility for problems with the compound. Darren maintains that the problems are on Jayna's side.



Scene Reflection

Take a moment to process Jayna's mailroom experience. What is going on when Jayna's presence is questioned by others in a department she's been in for several years?

All Jayna wants to do is her research, and it's hit a roadblock. On her way to what she expects is going to be another frustrating day in the lab, she encounters microaggressions and incivility from senior colleagues. The interaction carries implicit messages that she doesn't belong, set against reminders of external societal inequities. It takes a visible effort at self-control for Jayna to respond 'professionally' to these two senior faculty colleagues.

Everyone deals with these indignities in different ways. Some people prefer to deal with them privately, while others prefer to share their experience/s with others.

- Have you experienced a time when someone's actions caused you to feel that you did not belong? How did the experience affect you? What would have helped you handle this experience better?

- How do you deal with such occurrences when they happen? E.g., do you talk to a friend, exercise, meditate, keep a journal, etc.? What helps you cope?

- Now imagine having such experiences at work, repeatedly. When you are present when others have experiences like what Jayna experienced in the scene, what, if any, responsibility do you feel to speak up? How would you like to respond? If you encounter daily microaggressions, how would you like your colleagues to respond?

- How do these experiences undermine a culture of excellence? What lab practices could help you or others better handle such situations?

Practice: Personal Scripts As an Upstander

- Revisit the personal scripts you developed after Episode 2.3 and see how it might be different if the person to whom you are responding is of greater power or status than you are. Are there ways you can safely be an ally?

Lab Manual Review: Lab Culture

Look through some of the sample lab manuals in the resource section, and see if any have sections addressing lab culture that you think are useful and well done. Make some notes for yourself on the elements you particularly like for building your own inclusion section later; note elements you would improve in your own manual.

Episode 2.7: Mental Health Issues in the Lab

Scene Synopsis

Meena fails, as Harold did, to make the compound. She seeks help from Darren, who insists that all necessary information is in the notes. Harold arrives late to lab and is called out by Malcolm for his tardiness. Meena persuades Harold the two of them should talk to Malcolm tomorrow to ask for help.



Scene Reflection

What does this scene reflect about the people in it and the culture in the Heideberg lab? Harold is struggling; he's publicly chastised for his tardiness, and he's showing signs of his distress to his colleagues over his repeated inability to reproduce the molecule. While Meena, one of his peers, offers support, no one with more power in the lab seems to notice or respond.

Can you identify statements made by Harold that indicate his distress? How about non-verbal indicators?

The pursuit of science, like life more broadly, contains moments of failure. We invest in lab members and coworkers in pursuit of producing strong science. While it is natural to try to avoid failure, many important scientific discoveries emerged through, or despite, mistakes. What are the members of this lab learning as this scene unfolds? What can you do in the face of challenges to remain productive scientists operating in a culture of excellence?

Self-Talk: How Kind Are You to Yourself?

The way we talk to ourselves is important. And yet, often, our first thoughts are not our most encouraging messages about ourselves or our abilities. Paying attention to our internal dialogue can help us avoid inadvertently harming ourselves or undermining our professional efforts. Considering whether you would say a statement to colleagues in front of your entire lab is a good litmus test to whether it's helpful to say this statement to yourself.

One method that can help make your self-talk more constructive is to consider the acronym T.H.I.N.K. before you speak to yourself. Take the self-statement, "I'm stupid and I will never complete this task." Is this statement:

T= true? **H= helpful?** **I= inspiring?** **N= necessary?** **K= kind?**

- **True:** Think about whether there is contrary evidence to the truth of your statement. For example, can you think about your previous accomplishments, degrees, and experiences when you complete tasks?
- **Helpful:** Next, examine whether this self-talk is helpful. Does saying this self-talk benefit you or add information that will help you complete the task?
- **Inspiring:** Does your self-talk motivate you in a positive or inspiring way? Be careful here: if you are using negative self-talk to motivate yourself, its presence carries damaging effects.
- **Necessary:** Contemplating whether your self-speech is necessary is related to whether this statement is essential. Could you carry on without this message?
- **Kind:** Finally, when assessing whether your self-speech is kind, consider whether your self-talk is up-lifting.

Practice: Self-Talk

If you cannot answer all of these questions in the affirmative, consider working on making it a habit to alter your thinking and to reframe your self-speech. Practice reframing these negative self-talk phrases:

- “What did I expect? I am terrible at writing papers.”

- “If I continue making this mistake I will be kicked out of the lab.”

- “I might as well not apply for this grant. I will never get it.”

- “Soon everybody will learn that I am incompetent.”

Now identify some scripts that you could practice when you find yourself in these situations:

- You were 15 minutes late to a lab meeting and everybody is looking at you.

- You continue to fail to replicate the finding of an important study.

- Your lab mate wins a prestigious research award you were also vying for.

A FRAMEWORK FOR IMPROVEMENT

Improving your self talk is just one way to support mental health. Mental health is affected by both internal and external factors that intersect in complex ways. By giving you tools to manage the internal factors that you *can* control, you will be better equipped to weather the external and internal factors that you cannot.

Altering maladaptive cognitive patterns is hard work! Consider employing the THINK acronym as another analytical framework to help you build healthier habits over time.



Scene Synopsis

Ana Sofia looks over the electronic notes for her lab and cannot make sense of them. She shows Jules the online materials she finds confusing. Jules and Loretta agree this is a problem and decide to overhaul the lab's data management protocols.



Reflection: Better Lab Practices?

- Thinking about your iREDS discussion on data management, and reflecting on this scene, how might the data management issues discovered by Ana Sofia have been averted?

Lab Manual Review: Data Management

Review the data management sections in the sample lab manuals, and what domains they focus on. Make notes about elements and sections you would include in your lab manual of the future.

Practice: The Grad Student's Dilemma

Your first thought was: “I can’t be right. I’m just a grad student, after all. Could an entire sub-field of research really be based on a fundamental error?” And yet, the conclusion is unavoidable. You’ve checked and rechecked your analysis, and a central analytical approach your group used in several publications (indeed, one used by scores of other research groups, as well) is vulnerable to bias. It dawns on you that the problem could compromise hundreds of related articles from other labs. What do you do?

Apply the DMF to this situation:

1. What issues does this situation present?
 2. What rules and regulations apply?
 3. What questions do you need/want to ask?
 4. What resources are available to you to work through this situation?
 5. What options do you have? Who will be affected by each?
 6. What are you going to do? *What (exact) words will you use? What is your personal script?*
- 

Reflection: Cohort Discussion on 2MC

Compare your responses to each step to those developed by others in your discussion group. Did you or others distinguish between finding support for the stress and fear of raising an unwanted conclusion from the process of bringing it forward?

Episode 2.9: Power and Questions

Scene Synopsis

Loretta notices that Alex is still struggling to get started on his project. She gets to the bottom of his struggles and persuades him to have another conversation with Jules and offers her support. Jules is surprised, as she'd thought the previous meeting with Alex went well. Loretta suggests that Alex might need more direct guidance.



Scene Reflection

Alex is failing to make progress, which he needs for his Fellowship review. The longer he avoids the problem, the further behind he gets and the more his anxiety builds. This feedback loop keeps increasing the Embarrassment of the career TRAGEDIES hole he is digging himself. What breaks the cycle is having the right person paying attention and using leadership skills to help.

Loretta's communication strengths lie in listening and asking questions. She's able to connect with Alex by observing his discomfort and asking the right questions even when he seeks to push her away because of his embarrassment. By making sure that Alex feels heard, and by speaking with empathy, she is able to uncover the miscommunication between Alex and Jules and make concrete plans for next steps.

- How can you support a colleague who is struggling with admitting they need help? Write a personal script for a situation in which a lab mate is stuck on a problem and is hesitant to ask for help.

★ Another Framework for Asking Questions

Questions are a powerful communication tool. Different situations warrant different types of questions. Do you need to gain consensus? Diagnose a problem? Learn something new? Building on the skill of asking questions raised in Episode 1.6, here is a framework for thinking about how different questions can facilitate different responses. We present these questions on a spectrum, from the least to the most open-ended and curious.

Confrontational	<i>Inserts your ideas in the form of a question, often requires a yes/no response</i>	Did that make you angry? Why didn't you say that in our meeting?
Influential	<i>Takes a position to suggest how you might hope the other person might respond</i>	What is the current situation? Can you give me an example?
Problem-Solving	<i>Diagnostic in nature, attempts to understand what is going on in the situation</i>	How did you feel about that? How would you do that differently?
Curious	<i>Accesses your own ignorance, questions that attempt to understand the other person and the situation without any judgment</i>	What is happening right here, right now, between us?



Practice: Asking Questions

- Think about the last question you asked someone. What type of question was it?

- Consider a situation that you are facing at work and write one type of each question that you might use in that conversation.

- Construct two questions in each of the four categories, and note when they would be useful to you.

Confrontational

- 1.
- 2.

Influential

- 1.
- 2.

Problem-solving

- 1.
- 2.

Curious

- 1.
- 2.

- Develop or mark with an asterisk three questions you anticipate finding valuable in an initial meeting with a mentor.

 **PRACTICE: ASKING QUESTIONS, CONTINUED**

Now, put yourself in the position of a principal investigator or senior researcher.

- You have just been approached by two graduate students who have not been delivering.
- One of the students is new, and the other student has a track record of underperforming.
- Instead of solving their own problem, the students are asking you to take the valuable research time of a senior post doc to help them.

Consider the four categories of questions, and what you need from these two students.

Write out **at least two questions** you can ask the students in such a situation to get closer to your goal.

What category or categories did you choose for your questions and why?



Then, put yourself in the position of a new graduate student in a lab.

- You and a fellow student have been failing to deliver on an assignment despite your best efforts.
- You have been following instructions from a senior post doc who has been successful with this technique in the past and asked the principal investigator if that post doc could be assigned to help the two of you figure out what you have been doing wrong.
- The PI refuses and has put the responsibility back on your shoulders.

Consider the four categories of questions from the previous exercise, and consider what you need from your PI.

Write out **at least two questions** you can ask the PI in such a situation to get closer to your goal.

What category or categories did you choose for your questions and why?



Scene Synopsis

Meena works all night in the lab. Later, she tries to convince Harold to talk with Malcolm about the project, but he cannot face it and hurries away. Meena talks to Malcolm about needing Darren to help figure out the synthesis problem. He reluctantly agrees and puts the responsibility back on them.



Scene Reflection

Meena and Harold have asked for help in different ways throughout the film. In each of these instances, they were uneasy, or even frightened, to ask for the help they needed. This is indicative of a culture of fear in the Heideberg lab—one in which asking questions or making mistakes is seen as a sign of weakness. We see the impacts of this culture take a toll on both Harold and Meena, amplifying their stress and pushing them to exhaustion.

- What are the warning signs that Harold and Meena are uncomfortable raising a question to the PI or a lab manager? What are other possible warning signs not depicted in the film?

- Harold's only support came from Meena, who is on the same power level as him in the lab. How might have Harold's situation been different if he had support from someone in a position of authority? How might that have impacted Meena?

- In the past three scenes, we have seen multiple cases of lab members needing to ask for help with their work. Ana Sofia, Alex, Meena, and Harold all need help and have varying success in asking for it—and receiving it. Compare the cultures of the Heideberg and Sorenson labs pertaining to getting help. How are they similar? How are they different?

Practice: Recognizing Stress in Others

- What are some of the colloquial things people say which indicate emotions they are experiencing? For example, one might say “it feels like the weight of the world is on my shoulders.” These informal phrases will be different depending on where you were raised. Give yourself five minutes to write down as many of these statements as you can imagine that reflect emotions you have felt in the lab.

- Are there other characters in this scene who appear to be in distress? If so, who, and what signals did he/she give?

- Think about what you might do if you see signs of a struggle in a colleague. How would you respond to different signals?



If you are finding that you are having trouble identifying distress signals, there may be several contributing factors. Do you pay attention to the people sharing your lab space? Perhaps you focus intently while you are at work and less likely to engage with others. Or, may it be that reading social cues is difficult for you? Whatever the source(s), if you spend a bit of time observing people in your workplace and learning more about your colleagues, you never know when your efforts may be needed—and make all the difference for someone else.

★ Supporting Mental Health in Lab Members

At times, lab members may struggle with negative emotions, an absence of positive emotions, being overwhelmed, feeling hopeless, or they may have trouble managing the stress inherent in a research environment. People who are struggling may not be able to bring their best and most productive selves to work. Failing to attend to the mental health and well-being of lab members and coworkers can undermine all of the other investments we and they have made in their training as scientists.

To support their well being, their careers, and our own careers—and to prevent unnecessary setbacks—we and they must know that stressful, yet usually temporary, situations can be addressed. Before one can offer help to a colleague, we first must be alert and aware that there is problem. Things said, as well as facial expressions, tone of voice, breathing patterns or frequent sighing, body position or posture, gestures, movements (unusually slow or rapid movements), and changes in work productivity can all be signals that convey important emotional information. Harold has signaled his distress in a range of ways: his statements (“tired of being tired”), and his disrupted appetite, sleep, and productivity.

Supporting others can take many forms, depending on your personality, comfort talking about emotions and problems, history and experience with those around you, and their needs and preferences. Helping someone is not a one size fits all endeavor. There may come a time when it would be beneficial to lend a helping hand.

All of the steps listed below are those you can take when you believe a colleague is exhibiting distress. First, think about your boundaries and comfort with emotional tasks. Put a ‘+’ by behavior you would feel comfortable doing, a ‘-’ by a behavior you would not feel comfortable doing.

- | | |
|---|---|
| <input type="checkbox"/> Asking another if they are doing okay | <input type="checkbox"/> Telling PI, lab manager, postdoc, or other trusted person about your concerns |
| <input type="checkbox"/> Sharing with a colleague what you appreciate about them | <input type="checkbox"/> Discreetly giving colleague a kind note with mental health resources and contact numbers |
| <input type="checkbox"/> Offering to go on a walk | <input type="checkbox"/> Asking if there is anything you can do to help them feel better |
| <input type="checkbox"/> Increase talking to colleague about shared interests | <input type="checkbox"/> Offering to do some of colleague’s work tasks/chores |
| <input type="checkbox"/> Noting to a colleague that they appear sad or distressed | <input type="checkbox"/> Smile at colleague |
| <input type="checkbox"/> Bring a preferred beverage | <input type="checkbox"/> Give a compliment |
| <input type="checkbox"/> Asking your colleague out to lunch | |
| <input type="checkbox"/> Noting to colleague that you are concerned about them | |
| <input type="checkbox"/> Giving colleague your personal number | |



Scene Synopsis

Jayna continues to be frustrated by the lack of compounds from the Heideberg lab and seeks intervention from Jules. Jules advises that Jayna use this as practice for the kind of problem-solving she will need to do when she has her own lab. Jayna reluctantly accepts this plan.



A Mentoring Network

Limiting yourself to one mentor is not realistic in terms of the range of needs you will encounter across your career. Developing your understanding of mentoring relationships—both for being mentored and for mentoring others, formally or informally—will benefit you throughout your career. Building a mentoring network requires understanding your own needs as well as personal scripts and ways to approach others for advice and support.

Reflection

Think about different situations and the kinds of advice and input that would benefit you in each situation listed below. Consider who (or what kind of person) can help you work through the situation. How could you get an introduction to each, or approach each? Don't forget to include your peers, as well as those who have already attained positions you may be seeking. Write down the name or names of specific individuals for each:

- Scientific advice about shaping a manuscript or responding to negative reviews:

- Advice about comparing and contrasting job opportunities to pursue:

- Support when dealing with a disappointing experimental outcome:

- Who in your network can hold you accountable for your commitments (writing for 30 minutes a day; reading 5 new papers a week; etc):

Reflection *continued*

- Working through a complicated situation after you've completed the DMF to help you assess whether you're reading a situation correctly:

- Giving you feedback about whether you are a constructive collaborator:

- Where might Jayna have gotten useful advice about managing herself in her challenging situation other than Jules Sorenson?

- Now, in a challenging situation affecting your research progress, where could you go for constructive counsel and to serve as a sounding board and help you problem-solve?

Practice

Start your own **Mentoring Network Map** (*three per item is a good start, but try to fill each area*):

My Personal Mentors		My Personal Mentors	
Personal Accountability	1. 2. 3.	Career Development	1. 2. 3.
Emotional Support	1. 2. 3.	Sponsorship	1. 2. 3.
Role Models	1. 2. 3.	Grants opportunities & writing	1. 2. 3.
Time Management	1. 2. 3.	Journals & Conferences	1. 2. 3.
My External Mentors		Service Commitments	1. 2. 3.
Career Development	1. 2. 3.	Mentoring Others	1. 2. 3.
Professional References	1. 2. 3.	How to get things done	1. 2. 3.
Research Partners	1. 2. 3.	Culture, Expectations, Promotions	1. 2. 3.
Professional Community	1. 2. 3.		

Scene Synopsis

Elliot Barr, the Director of Graduate Studies for the Chemistry Department, visits Malcom to inform him about Harold's attempted suicide and departure from the university. Malcolm is dumbstruck and suggests Harold hasn't been doing well in the lab. Elliot Barr explains that the lab will start a program focused on healthy and inclusive labs.



Scene Reflection

People may experience momentary thoughts of hopelessness or passing thoughts that they would be better off in another situation. Having suicidal thoughts, making plans to kill oneself, and/or making a suicide attempt, are signs of extreme distress that suggest that a higher level of care, monitoring, and perhaps, treatment, is needed. If you are currently experiencing suicidal thoughts, please reach out to your local crisis line, mental health professional, or one of the formal resources available in your community.

Harold was unable to identify alternate ways to handle his distressing, overwhelming circumstances. As a result, he attempted a potentially permanent strategy. For the sake of your mental health and/or personal values, temporarily altering your professional plans can be a very worthwhile decision—and give you an option other than a drastic, permanent strategy. The courage it takes to advocate and care for yourself, is a strategy that will yield major benefits for you and others in the long run.

- Have you taken a step back from a professional task to engage in self-care, reflect, or seek support and resources to cope with a difficult situation? If so, what was that circumstance and what was the outcome?

- If not, what are the situations in your lab (or that you have seen others experience) that would make you want to temporarily alter or rethink your involvement in your current lab? What would make you leave your current position?

- Besides finding another lab, are there other ways to address extreme workplace distress or discomfort in your lab? List other methods to care for yourself in the context of your lab.

- Review your list above, and put a check by the methods you have personally seen or have heard that have occurred in your lab.

Reflection

In episode 2.10, you identified signs that Harold was struggling, and thought about how you might notice and support colleagues who are struggling. Please take time here to reflect on how you are doing, your own emotional functioning, and how you communicate.

- In 2.10, we asked you to consider some of the colloquial things others say which indicate emotions they are experiencing. Take a moment now to consider what things *you* tend to say that reveal your emotions. Give yourself five minutes to write down as many of these as you can imagine that reflect emotions you have felt in the lab.

- During moments of stress or emotional distress, what strategies or behaviors have been helpful in reducing or managing your stress?

- Which of these emotions are safe for you to share in your lab environment?

- What help are you willing to ask for? To receive from others?

- Now, think more broadly. Which emotionally-laden scenarios can labs address and which can or should they not? Briefly describe one of each below.

- If you were in charge of the lab, what would you include in a manual or strive to make part of the working climate to support lab members to deal with difficult emotional issues?



Practice: Identify Resources

What resources should you and others have available in the lab to foster mental health and an uplifting research environment? Challenge yourself to write down at least one specific resource for each of the following categories.

- Individuals who are your peers:

- Individuals who are your mentors or advisors:

- Department or institutional resources:

- Community resources:

- Hotline phone numbers or websites:

Do you have resources available for self-care?

- What activities do you do outside your lab that support your well-being? Which of these has helped you? Do you have friends, family, or peers who support your well-being? List them:

- What informal interventions, policies, or practices could be useful in decreasing your stress in the future?

- What *could* your lab be doing to foster physical and mental health and a culture of excellence?

Act Two: Integration

Integration

Consider the developments in Act Two: there were frustrations in the lab, disappointing and antagonistic interactions with colleagues, and problems with data management. Harold's stress substantially damaged his mental health. Take some time to reflect on elements of the lab cultures that didn't support good scientific practice, which requires more civil, inclusive, and respectful interactions.



Reflection

- Act One introduced Cultures of Excellence and explored topics of power dynamics and effective communication for lab interactions. Reflecting on the film's events in Act Two, which power dynamics affected how things played out, and which approaches to communication were effective and which less so? How are you building on what you learned from one act to the next?

- Review your personal values and assess them against the cultures of the two labs centrally portrayed in the film scenes. Place yourself in one or both of these labs and consider:
 - Are there skills, tools, or coping mechanisms you could use that would help you to thrive in this lab?

 - Which ones? How would you use them?

- We explored knowing yourself well enough to know when to seek help, and how to support lab mates: what can you be doing differently for your own stress management?

- What resources will you use if you become concerned that a lab mate's level of momentary stress is worsening and possibly moving towards a negative mental health spiral?

- Synthesis: List three thoughts or ideas that stuck with you from Act Two.

Reflection *continued*

Hearing negative messages about people taking time for mental health, medical, family, or self-care reasons discourages others from taking steps to help themselves and others. Likewise, not hearing anyone talk about the importance of mental health and self-care can have similar effects on lab behavior and culture. For the following questions, consider your lab culture, previous and current experiences in your labs, and your own behavior.

- How have others spoken about you or your colleague's decision to alter professional tasks and responsibilities to attend to emotional or personal matters?

- List the positive/supportive messages you have heard about self-care:

- List negative/discouraging messages you have heard about taking time out for self-care:

- Review the list of self-care messages. Do you see a pattern of who is sending these messages? What have you observed from this review?

- Now think about the way you have spoken about mental health, self-care, and medical issues in the past. Have your messages about these issues been mostly supportive? Antagonistic? Ambivalent?

- Do you think you're open to thinking about these topics differently since the LTW program? Have you observed any changes in you attitudes, values, or behaviors when it comes to mental health, self-care, and intervention methods? If so, what are they?

Practice: Second iREDS Discussion on Data Management

Acts One and Two introduce the importance of lab manuals to help establish expectations and to structure the work of the lab. An important part of the work you do in the lab is managing your data. Your lab should now be holding a second iREDS discussion about data management. This second iREDS discussion about data management can help you to develop sections of a data management plan, either for your current lab, or to include in your lab manual.

After you have completed your second iREDS discussion please address the reflection questions.

Reflection: Data Management

During the iREDS deliberative lab conversation, what are some of the domains you identified as critical to focus on in your data management planning?

What are some specific items discussed for each of these critical domains?

Lab Manual: Section Inventory

Thinking back through all the lab manual reviews you did in Acts One and Two, list the sections you believe are important to include in your lab manual.



NOTE: We encourage you to revisit your entries for Acts One and Two as part of this integration of your thoughts and ideas to date.

Episode 3.1: Wellness and Inclusion

Scene Synopsis

Malcolm Heideberg tells his lab that Harold has left without mentioning why, though some lab members—including Meena—know the truth. Malcolm requires Darren to work through the synthesis with Meena to root out the problem that is holding things up.



Scene Reflection

Malcolm Heideberg has to find a way to announce Harold's sudden departure from the lab without sharing details. While this both respects the wishes of Harold's family and adheres to the university guidelines about personnel information, it is clear that some lab members have more information. This kind of information imbalance can result in rumors that can be more damaging to the lab climate.

- Allowing for the very real constraints on what can be shared, as lab leader, has Malcolm taken actions that will buttress the culture within his lab?

- What would you like to have seen him do following these tragic events?

- Meena has more information about what is going on with Harold—and hasn't been asked to keep it to herself, though she likely wants to respect Harold's privacy. What, if anything, could or should Meena share with other members of the lab?

Practice: Using the Tools

Consider the tools introduced through Acts One and Two: identifying Career TRAGEDIES in yourself, the DMF, developing personal scripts, listening effectively, and asking good questions.

- Using the tools, what might you have done differently if you were a fellow lab member as Harold's struggles and frustrations grew?

Reflection: Empathy and Accountability

- When do high expectations for rigor and results become unrealistic and impossible expectations? When does a focus on the work cross the line and become indifference to the person or, worse, abusive?



Lab Manual: Draft a Lab Manual Section on Wellness & Inclusion

Review the notes you made on section(s) of the lab manuals you reviewed addressing personal wellness and inclusion.

- Draft sections addressing what you would like to see in your lab of the future, or a lab you would be happy to join.

- How do sections in a lab manual “live” so that they are used and reflect daily interactions? A well-written paragraph on asking for help or mental health support is only useful if it actually matches lab practice. What can be done by leaders in the lab (whether that is the PI or members of the lab) to make these sections accurately reflect lab interactions?

Scene Synopsis

Jules Sorenson engaged in self-reflection and realizes that her students have gotten a bit lost in the shuffle. She and Loretta agree to work together to create a better mentoring system and data management protocols.



Scene Reflection

As Jules Sorenson grapples with how to improve the mentoring and support she is providing each of her students, she and Loretta are thinking about how to improve the lab's systems and protocols for data and lab management.

- How do data management practices contribute to cultures of excellence?

- How do lab management protocols and practices interact with mentoring and student support?

- Is the mentoring you are receiving responsive to your needs and current development? If not, what can you do to express your needs in a way to get them better addressed? What is your personal script for expressing your interests in career development support and guidance?

Lab Manual: Draft Lab Philosophy Section

At the beginning of this program, you reflected on what a culture of excellence is and where you have seen such a culture in labs. Review your notes on lab manual sections you have been developing through Acts One and Two. Reflect on how the iREDS approach to deliberative lab conversation and other methods of communication fit into your lab values. Leverage everything you have encountered in this program and be specific and thorough.

- Draft a lab philosophy section describing what a culture of excellence will mean in your lab.

Scene Synopsis

Darren and Meena go through the synthesis together and discover an error made by Darren. It doesn't explain everything; the compound's color is still off. Together, they discover that the base material is incorrect. Darren doesn't want to share that with the Sorenson lab, but Heideberg insists on transparency. Darren realizes the complications of this as it relates to Harold and rationalizes that he would have washed out anyway. Meena calls Harold to explain the issues with the compound.



Scene Reflection

Darren and Meena discover that a miscommunication with Darren's lab notes was the cause of their difficulties with the compound synthesis and realize there was a problem with the original base material. Darren seeks to avoid admitting the mistake to the Sorenson Lab, which violates Heideberg's sense of scientific integrity. Making mistakes in research is inevitable, and how they are addressed will affect the development of scientists working in the lab and their ultimate cultures.

- Take a moment to look at Darren's actions in this scene through the lens of the Career TRAGEDIES. Identify and describe a few of the TRAGEDIES at play. How have Darren's actions throughout the story escalated to the point of him suggesting a breach of scientific conduct?

- How do you respond when you have made a mistake? What actions do you take? Consider personal scripts you could use depending on the severity of the mistake and with whom you are communicating.

- How do you respond when others admit their mistakes to you? What actions do you take? Consider personal scripts you could use for different situations.

- What can be done in writing or in lab practice (meetings, discussions, journal clubs, etc.) that will support a culture of integrity and growth when mistakes happen?

Reflection: Considering Management Practices

Consider how data management and approaches to mistakes in the Heideberg lab are playing out. Compare that with your emerging lab manual section on data management, and your own lab's iREDS discussions focused on data management.

- Review the data management section(s) of the lab manuals you preferred as examples and highlight or save items you want to include in the data management section of your lab manual.

- Review your notes from the two iREDS discussions around data management. What procedures and information do you think should be included in your lab manual?

- Writing it down isn't enough: what daily practices do you adopt to assure that your procedures match your written values and aspirations for good data management?

Lab Manual: Being Transparent about Mistakes

One of the ways TRAGEDIES arise in lab environments is when we as researchers attempt to minimize or cover up our mistakes, hoping that they will go unnoticed or that we can fix them before anyone realizes we aren't perfect.

- Review the section(s) of your lab manual where you explain how you want mistakes handled in your lab to determine if it is as clear and strong as you want it to be. Note any needed changes here. If this section does not yet exist, sketch it out here.

Scene Synopsis

Malcolm emails Jules to explain the delays with the synthesis. The two of them have coffee to discuss the issues with the collaboration. They work together on more clarity about how the collaboration will work; Jules raises the issue of the disrespectful treatment Jayna experienced in the Heideberg lab.



Scene Reflection

- How did the conversation between Malcolm and Jules go? What statements were particularly helpful?

- What would you have liked to have addressed in this conversation? Is the collaboration on a better footing going forward?

Practice: Difficult Conversations

- Consider an instance where you are collaborating with another lab or with a colleague and you feel the expectations are not clear or have not been met. What can you do to re-set the collaboration and move the project in a constructive direction?

- What personal scripts would you throughout this conversation? To open? To address your concerns?

- What would you expect to see in a collaboration agreement or compact in place between labs *from the beginning*? What expectations should be discussed and/or recorded?

Lab Manual: Listening and Communications

In this program, we have discussed the art and science of listening and communication.

Review the section(s) of your lab manual where you explain how you want listening and communications handled in your lab to determine if the manual clearly conveys what you want it to. Note any needed changes here. If this section does not yet exist, sketch it out here.

Prospectively Considering Collaboration Arrangements

- Review the resources provided on constructive collaboration arrangements. As you become responsible for establishing collaborations, what factors will you consider both in initiating a collaboration and with keeping it on track throughout its lifespan?

Scene Synopsis

Jules meets with Alex and Loretta. Alex explains how he needs a firm hand to help kickstart his project. Jules realizes that she needs to adapt her mentoring style. Alex apologizes to Loretta.



Reflection: Apologies

▶ PLEASE WATCH THE VIDEO ON APOLOGIES BEFORE PROCEEDING

Think back on apologies you have been offered—and that *you* have offered. Will the concepts described in the video change your approach? Bear in mind that the single most important element is sincerity; human beings have finely-honed hypocrisy detectors. When you are really sorry, what will you say?

When Alex apologizes to Loretta, did it feel sincere and appropriate to you? Why or why not?

Scene Reflection

Alex is new to the Sorenson lab and finds that the structure Jules offers is vastly different than what he has experienced in his old lab. He is very hesitant to reach out to her for help and ask for additional guidance, in part because he doesn't feel heard when he does speak—and she doesn't perceive or know that.

Write out some key phrases that define what good mentoring looks like to you.

How does what you just defined as mentoring get enacted/show up in practice?

Reflection: Mentoring Philosophy

Take a moment and think about your understanding of mentoring. Call to mind and consider at least two mentors from whom you have learned either positive or negative lessons.

What does good mentoring look like? What does good mentoring feel like?

Write out some key phrases that define what mentoring means to you.

Scene Synopsis

Jules talks to Ana Sofia about their mentoring relationship and taking the lead on a data management plan. Ana Sofia is excited to start her first major project.



Scene Reflection

After acknowledging the ramifications of her hands-off, Socratic approach, Jules is reconsidering how she matches mentoring with individual needs. The responsibility is not all the mentor's, though. When you own your own career, you have responsibility for your values, goals, and needs, and finding effective ways to communicate them. Are you doing that? What one step could you take to improve in that area?

Practice: Personal Scripts for Mentoring Conversations

Leverage the work you did on your mentoring philosophy in Episode 3.5 alongside the outline below to create an approach to what you seek from a mentoring relationship. Your goals for each relationship will be different, and considering them with this framework can help you ensure that you and your mentor are on the same page. Create personal scripts for expressing your desires and for opening a conversation with your mentor about the following topics:

- The primary goals for our mentor/mentee relationship are:

- We collectively define the success of our work together as:

- We agree to work together for the following, specified amount of time:

- Our preferred form of communication is:

- If one of us faces a barrier in our effective interactions, we will:

Lab Manual: Professional Development and Goals

Now that you've considered how you will approach your own mentor and mentoring relationships, draft a lab manual section for your lab of the future that describes how the professional development of lab members will be addressed.



Scene Synopsis

The Heideberg lab has figured out the problems; Jayna is vindicated. Jules advises Jayna about next steps in the collaboration and suggests a colleague of color to augment Jayna's network. Jayna happily agrees to guide Ana Sofia's work to research the stereoisomer.



Reflection: What Might Have Been?

Think about the events in the episodes you have watched. While Jayna didn't test the compounds, other characters, especially Darren and Malcolm, had major blind spots (or worse) and were dismissive of Jayna's repeatedly expressed concerns. Darren had mistakes in his record-keeping and ignored Jayna's observations about differences in the delivered compounds. Throughout, the collaboration was not approached as intellectual colleagues working together, respecting each other's work.

Let's focus on our central character, Jayna: Ultimately, her paper may be better with the hard-won knowledge gained. Once it was traced to its source, the error offered a richness she hadn't foreseen (the shape of the antimere is important to whether the drug works) and might lead to a better paper. At the same time, there were methodological approaches neither she nor anyone else thought to take.

Look back over the events in the collaboration between the two labs: at what point would you have done something different that might have changed and improved how events unfolded?

What use could the different characters in this story made from this curriculum? Pick one character from each lab and describe moments where having practice with professional development skills would have been helpful.

Practice: Start Your Own Individual Development Plan

As you think through the scenes in Act 3, and the issues and the relationships that were resolved—and the ones that were not—turn your attention to what you would most want to pay attention to over the next year, and what supports you would need to be successful in those areas. Prepare an Individual Development Plan (IDP) for identifying your personal and professional goals over the **next academic semester or year**. Please specify for yourself which you select; your goals may differ, depending on the timeframe. This starting place is intended to be for near-term goals, not career-wise.

Your goals should be *specific, measurable, and realistic*. They should focus on skills and knowledge you believe will complement your current strengths and be valuable in meeting your career goals as a leader in research environments.

You can find valuable resources in many places. Look through some of the links in the resource section.

For each of your goals, please address the following:

What, specifically, is your purpose in selecting this goal?

How will you know that you have succeeded in achieving the goal? What would you be doing that you're not doing now? What will you NOT be doing?

What are interim steps you believe you'll need to take to achieve the goal? Set milestones for checking in on each step.

Record your plan and set calendar dates for assessing progress on each element.

Integration

Step back and think about the events in the scenes you watched. Have you seen things like this happen, or had similar experiences? What tools could be useful to you? Have you been practicing them? If not, how will you start? Can you see how a lab manual could be useful in sustaining a culture of excellence in a lab?

Reflection: Pulling it All Together

List 5-7 lessons that you have internalized from this program:

What would you like to learn more about?

Answer this final question for yourself: what is the most useful thing from this program I can apply right now, in my current situation?