Cell Systems

CellPress

Voices

Leadership

We asked group leaders how they foster mutually reinforcing research productivity and psychological safety in their teams.

Dawn Bowdish
McMaster University

Communication Is Essential for Productivity

Collaboration is a cornerstone to my lab's productivity, but it requires open communication and trust, neither of which happens when someone doesn't feel safe. The COVID-19 pandemic was a stress-test of the psychological safety nets I had in place for my lab. I was very grateful to have had an instant messaging system already in place because this allowed us to work and play despite being more distant than usual. Separate channels for lab business, private conversations, and journal clubs kept our research on track while our "quarantine and chill" channel allowed us to maintain some of the silliness that I associate with a high-functioning and close-knit team.

Fear of failure, or more specifically, fear of failing in front of our peers who always seem to be more successful than we are, seems to be a feature of academic life. My lab devotes some lab meeting time to sharing "Lessons Learned," in which anyone who has had a recent success (e.g., a paper publish, an award received) or failure (e.g., grant rejected, experiment bomb) shares their insights. The goal is to learn from each other's successes but also to acknowledge that failure is a part of the scientific process and both success and failure are constructive learning experiences. I realized how well this was working for my team when those who had had a recent success would share all the failures they had overcome to get to that success. The root word for "communication" is "share", and this process of sharing has led to a virtuous cycle of team members feeling more comfortable admitting to mistakes and accepting failure and being more likely to ask for help and feedback on their work.

Tejal A. Desai
University of California San Francisco

Setting Your Own Pace

When I was younger, I believed that conducting scientific research was like running a marathon. It was important to pace yourself for the long run, to train physically and mentally in order to sustain your productivity. But I now know that doing research is not about running alone for long periods of time but rather more like a hiking expedition—a journey where members of the group trek together, encouraging each other to scale steep inclines or navigate tortuous trails while also allowing each other to stop for breaks when needed and take in the spectacular views (or experimental results) as they go; ultimately creating a team that supports each member and works collectively to reach their goal. And importantly, no one gets left behind. It is this expedition that allows for unexpected encounters and serendipity, which are so essential for scientific breakthroughs.

How does one create a culture of collaboration? It starts with understanding the goals of everyone in the lab and realizing that there are often different paths (and paces) to achieve those goals. We work to encourage active communication among all lab members and highlight everyone's strengths. In this way, we can strive to create a culture that values everyone's viewpoint regardless of experience. This goes hand in hand with active discussions about not just scientific topics but also diversity, equity, and inclusion in STEM, coupled with a lab commitment to actively engage in outreach and mentorship efforts.

Creating an environment that celebrates collaboration and teamwork is not just a nice thing to have but necessary to foster creativity and innovation—and solve the most important scientific challenges in society.

Angela DePace
Harvard University

People First, Scientists Second

The conviction that we are people first and scientists second is a core value of my group. The pandemic showed in new and dramatic ways what has always been true—that we do science in the context of our individual lives. To help my group stay connected as we started remote work, I focused our attention on our day-to-day experience of this extraordinary time. We started our group meetings with the question, "what was your greatest challenge of the previous week?". People's answers reflected real life. The guy who plays tuba in my building. Fear of going to the laundromat. We ended our meetings with "what was your greatest triumph?". Sometimes people told us about solutions to the challenges the week before—people got to the laundromat and started running during tuba time. Sometimes people told us about the birds that were nesting outside the window. These everyday challenges and triumphs let us connect, laugh together, and cheer each other on. This is what community is all about.We all have unique challenges that are exacerbated during this time. But we all have unique assets too. We have different expertise, different interests, and different amounts of time and energy. When we know these things about each other and appreciate them, we can see more clearly how to help and how we can be helped. In uncertain times, we need things that we can count on. Tending to someone else's experiment when you are on a rotating schedule can make an enormous difference to everyone feeling safe—it shows that people have your back and that you have theirs. Science is full of challenges during the best of times, and focusing on the joy brought about by working together has always been a key strategy for us; it has been especially important now.

Elizabeth S. Haswell
Washington University in St. Louis

Hot Take: You Can't

I do not believe that it is possible to foster *both* psychological safety and research productivity at the same time. Within the capitalistic framework of contemporary academia, a trainee's products (results, papers, fellowships, invited presentations) are valued most. Fostering psychological safety means protecting trainees from harm, empowering them to take risks and learn from mistakes, and encouraging them to show up with their full identities; and doing so means putting students' selves ahead of their products. This is a hard lesson that I have learned over the past 13 years as a PI, and it is one that I am still integrating into my approach to leadership.

Of course, completely ignoring the need to create these products isn't a real option for those who stay in academia. PhD students, postdocs, and junior faculty need publications, talks, and awards to advance in their careers, and PIs need all of these *plus* grants to keep our labs running. I have come to believe that the only way to change the system is from within, and that those of us with power and privilege hold the key. We can, as Jenny Odell says, "participate, but not as asked."

We can encourage discovery instead of productivity, curiosity instead of efficiency, discernment in place of judgement, contribution rather than accomplishment, and community over competition. Because discovery, curiosity, discernment, contribution, and community are linked to the research *process* rather than research *products*, it is possible to foster these ideals while working toward making a safe space for our lab members.

David Baltrus
University of Arizona

They Are Going through the Unimaginable

There is no one-size-fits-all answer to the challenges that arise as either a mentor or mentee within a lab. The mentor-mentee partnership is just that—a partnership. Like any successful partnership, mutually beneficial outcomes occur largely because of hard work, communication, openness, and respect. This kind of environment doesn't magically happen, however, and to get to this place, I've tried to listen and learn from numerous failures. We are not trained in empathy in science, and yet this skill is as critical for success as a mentor as anything else we are taught. My mentees come from different backgrounds than I did, and they have had vastly different experiences that led them to this point. They think differently than I do, they learn differently than I do, and they think and learn differently than each other. Despite your best efforts and acknowledgments of potential challenges, it's impossible to know everything that your mentees are going through. It's on me as a mentor to listen to them, to find the right messages, and to give them the support and the tools and the space they need to flourish in their careers. Help them find ways to help each other and build the network of mutual respect. Yes, empathy is a skill that can be practiced and sharpened and honed and we as mentors need to put in the work to develop this skill as it is for any other aspect of our jobs.

Andrés J. García
Georgia Institute of Technology

Balance in Research

Over the past 20+ years, I have led an interdisciplinary research group on biomaterials, regenerative medicine, and mechanobiology. My focus has been on (1) research that generates fundamental insights and innovative technologies to positively impact society and (2) training the next generation of bioengineers that will contribute significantly to society. I have learned that research productivity and success are intimately coupled with physical and mental well-being. To be a successful researcher, and a functioning member of a scientific team and society, one must lead a balanced life. Guided by the idea that "science is a people activity", I apply several guiding precepts:

- Understand and embrace the need for solving the problem.
- Diverse perspectives solve complex problems. No one person has all the answers.
- Connect with your trainees at a deep level. Understand what drives them, what they are passionate about.
- Understand the individual—grow and develop the strengths and identify and work at addressing the weaknesses.
- Apply critical thinking and have an open mind. We learn a lot from experiments that do not turn out as expected.
- Research is like running a 10K race; it is not a 100 m dash, but at times you need to sprint.
- Life (and research) are a journey; enjoy the ride!

Tara Deans
The University of Utah

Teamwork and Inclusion Lead to Success

When I started my faculty position, I was advised by my mentors to purchase Kleenex at Costco. I didn't really appreciate this advice until my second year running my own lab. The truth is, life happens in graduate school, and as a mentor, you are an essential part of your trainee's support network. From these experiences, I can only advise students that the decision to pick a lab should balance exciting research with a supportive lab environment and a PI that can guide you through tough experiments in addition to tough life experiences.

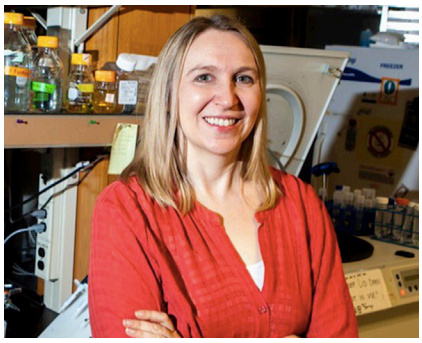
My relationship with new lab members begins with the end clearly in sight. I learn early on what my trainees need to accomplish during their time in the lab so that I can help them reach their own professional goals. My lab has a culture of life-long learning where we embrace mistakes and unexpected results because we view them as opportunities to learn. This is reinforced by a lab environment that shares a clear vision and, as a result, cultivates a sense of teamwork and inclusion that generates the opportunities and research success that is needed to meet these goals. This shared vision and effort

was evident in my lab when we wrote our lab's diversity and inclusion statement because every member of the lab contributed at least one sentence or theme. This exercise demonstrated that our accomplishments are driven by open communication and collaboration between lab members and that communication may be as simple as troubleshooting experiments, or it may be something that requires a box of Kleenex.

Kasper Lage
Harvard University

Fostering Mutual Respect and Collaboration

I'm fortunate to lead a cross-disciplinary research group that develops models of human neurons from stem cells, does proteomics on these cells, develops computational tools for data integration, and uses the resulting datasets to functionally interpret genetic data in complex diseases such as schizophrenia. The team spans undergraduates to senior postdocs to scientific advisors and experts in stem cell biology, proteomics, computational biology, analytics, and genetics. I genuinely believe that everyone in the group is of central importance to the success of our research and critical in our efforts to impact patients with very severe disorders, and I try to communicate that earnestly to the team and back it up with specific actions. Indeed, we've always strived to have frequent meetings to clearly communicate priorities, progress, analyses, and next steps. Mutual reinforcement of research and psychological safety comes from the effort to ensure alignment, synergy, and respect between all of the group's members, and I encourage everyone to participate in the discussions and bring their views to the table. One mechanism is to ask everyone to set the agenda for the meeting. Another is that we write articles and develop slide decks for conferences as a group using, for example, Google docs. This means that all team members can see the work develop in real time, which fosters ownership and buy-in and creates transparency and synergies, and it is a training mechanism for more junior members. Often, we get very insightful valuable comments from junior members of the lab stressing the benefit of inclusiveness and importance of tapping into all the brainpower and training backgrounds of the group.



Patricia Wittkopp
University of Michigan

Put People First

My love for science drew me into research, but interacting with my mentors and fellow lab members showed me it was the career I wanted. Whether discussing new ideas, troubleshooting failed experiments, or celebrating new findings, the people I did science with were as important to me as the science I did. To foster this atmosphere in my own research group, I seek lab members that are passionate about their scientific interests, but also eager to interact with and support others. I am intentional about creating time and space for lab members to build connections within and outside of the lab. I share not only my successes, but also my failures and challenges to normalize setbacks as part of science. Research projects are developed in close collaboration with lab members to try to make sure that each person has a project they are excited about and intellectually invested in. Additionally, I strive to make sure these projects are distinct enough to minimize competition while also being close enough for collaboration. Communicating with lab members to know when they are stuck, losing motivation, struggling personally, or considering changes in career paths is also key. When challenges arise, supporting the person is a necessary prerequisite to advancing the science. The bottom line is that science is hard—experiments you've spent weeks on fail, papers you've poured your heart into are rejected—and having a supportive community around you filled with people eager to help you succeed makes it easier to overcome these challenges and move ahead toward the next discovery.