

LEADERSHIP & MANAGEMENT RESOURCES

For principal investigators committed to
scientific excellence

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Be human first, a scientist second

Want to get the best research from your team? Take these six steps to invest in stronger relationships, urges Alison Antes.

“I was a human first, and then I learned to be a scientist. If I forget the human part, then that’s a problem.”

This is what I heard when I interviewed 52 scientists recognized as exemplary by their peers for their scientific accomplishments and conduct. Related themes come up in my work with scientists who have been referred to a formal remediation programme after lapses in research integrity.

I’m an organizational psychologist, specializing in the scientific workplace. What interests me are the decisions and behaviours that yield innovative, rigorous, ethical research.

The past few months have drawn attention to unhealthy working environments, especially bullying in academia. We should also focus on a related, widespread problem: mentors who have excellent intentions but limited knowledge of how to create a healthy workplace.

Many scientists whom I work with feel that they lack management and leadership skills. They want help with concrete tasks such as coordinating projects or facilitating meetings. But what comes up most emphatically is that conducting research requires them to establish and maintain positive relationships in the lab.

Many researchers in our remediation programme have had strained interactions with compliance officers and have struggled in their roles as supervisors. By contrast, exemplars resoundingly emphasize how they foster good team dynamics by being involved, approachable and aware of the workplace atmosphere. As one told me: “Rule number one in the lab is harmony. First and foremost, we have to get along, we have to respect each other, we have to trust each other, and that is the operating principle for everything else.”

Yet, given the choice between working on a scientific paper or broaching a difficult conversation, many researchers pick the former — the task that feels most directly connected to research goals. Principal investigators might need to work consciously against the feeling that ‘nothing is getting done’ during personal interactions. Because, whether it is mentoring a struggling trainee or celebrating a hard-won achievement, investing in strong, respectful relationships is an investment in effective science.

So, what to do? All principal investigators should add relationship building to their to-do lists.

Task one: put recurring one-on-one meetings with the members of your group on your calendar. Set up a notebook or spreadsheet and jot down anything you should bring up during these meetings. Set an alert for ten minutes before the appointment to decide how to approach the meeting. Does the team member need encouragement? Career guidance? Feedback on their project and direction for next steps? Are they behind on deadlines or lacking confidence? Try a respectful, yet firm, nudge. Have you expressed gratitude for their contribution? As

one exemplar noted: “I value what they do, and I tell them.”

Ask yourself whether it is time for a difficult conversation. If so, grasp the nettle. That is part of a leader’s job. Sometimes principal investigators worry that they will damage relationships by having challenging discussions. In the long-run the opposite is true. Use your ten minutes to list a few observations. State the specific behaviour of concern; describe how it affected you, the team or the project. Then, ask the person for their perspective. If there is discord in the lab, speak to the individuals involved, state your expectation of mutual respect, ask them to discuss and identify a solution.

Task two: invite people to share both complaints and highlights. Several exemplary scientists explicitly require their trainees to relate a concern or struggle at some point in one-on-one meetings. They want to help people to be comfortable enough to bring problems and mistakes to light, and so address issues early, while they are manageable. Several exemplars noted that researchers need outlets for discussing frustrations and anxieties. They know it is difficult to show up and do your best when plagued by worry. And they want to know what is working well in the lab, so as to leverage these successes.

Task three: walk the ‘shop floor’. Even when team members are welcome to visit your office, visibility supports approachability, impromptu brainstorming and immediate trouble-shooting.

Task four: model desired behaviour in team meetings. How you communicate will carry over into peer-to-peer interaction in your group. Ask questions, expect participation and

prompt people to share their thoughts. Find out where obstacles are. Encourage cooperation and mutual support. Explicitly state that you value a collaborative spirit in your group.

Task five: schedule a few social occasions for people to spend time together in a more relaxed way. Such activities might feel far removed from science, but they can ease tensions in the lab. Start small. Be sure to accommodate the needs of parents and carers, people with cultural or religious considerations and those on tight budgets.

Task six: advocate outside the lab. Talk about these practices in your department, share those that work and learn from people known to be great team leaders.

New principal investigators commonly adopt the practices of their own mentors without reflection, and often their role models were not ideal. Some relationship-building tasks will feel awkward at first; that’s okay. Showing that you care is more important than showing that you are perfect. ■

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Alison Antes is assistant director of the Center for Clinical and Research Ethics at Washington University School of Medicine in St. Louis, Missouri.
e-mail: aantes@wustl.edu

Cultivating the Human Dimension in Research

Alison L. Antes^{1,*} and James M. DuBois¹

¹Washington University School of Medicine, St. Louis, MO, USA

*Correspondence: aantes@wustl.edu

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According to “Research Exemplars,” research requires attending to matters of heart as much as mind. The human dimension in research—relationships, passion, resilience, and leadership—was the common thread in their advice for a successful career. We discuss strategies to cultivate intra- and inter-personal skills fostering these aspects of research.

Science must come from the heart. Treat everyone with respect. Listen. Be authentic. Ask for help. Don't be afraid to say you don't know. Communicate. Put your mentees first. Don't give up. Stay humble. Be honest with yourself. Give yourself time to think.

These are the messages we heard about being a successful researcher when we asked 52 well-respected principal investigators for their top career lesson during a recent interview study (<https://integrityprogram.org/exemplar-project/>). We contacted nearly 1,500 research administrators, academic deans, department chairs, and directors at the top 200 research institutions in the US, accredited US medical schools and schools of public health, and the NIH Intramural Research Program. We asked them to nominate “Research Exemplars”—researchers who conduct high-quality, high-impact, federally funded research in any discipline and who exemplify integrity and professionalism. We required each nominee to receive at least two nominations. A panel reviewed the nominations and the nominees' CVs to select finalists.

The Research Exemplars we spoke with were highly accomplished and had outstanding reputations for professionalism and integrity. They held an average lifetime grant funding of \$27 million and published, on average, 138 peer-reviewed articles. Nearly all Exemplars (90%) were full professors or senior investigators. Most (77%) worked at public universities, and the remaining at private universities (15%) and the NIH (8%). The majority were male (71%), 50 years of age or older (73%), and born in the US (73%). Exemplars conducted diverse types of lab, clinical, computational, and

field research in the life, health, social, physical, and earth sciences.

Recognize the Human Dimension in Research

We asked the Exemplars an open-ended question soliciting advice for early-career researchers. Most Exemplars offered several pieces of advice, which we organized by themes into “Keys to Success” shown in [Figure 1](#). Their guidance offers important messages for those training for a career in research, actively engaged in research, and mentoring junior researchers. They emphasized the human dimension in research—with the top themes of building lasting relationships, working with passion and resilience, and practicing effective leadership. We explain the keys in [Table 1](#) and discuss them below.

What was the biggest key to success? Relationships. Over half of the Exemplars considered good relationships foundational to success in research. The Exemplars remind us of the importance of “not going it alone” and the need to “let people see who you are...be human, which means communicate.” Investigators need trusted confidants from whom to seek feedback, to ask for advice, and collaborate with. It is not an unusual notion that researchers need mentors and collaborators. But often we think about these as most critical early in one's career. Exemplars see continuous engagement with the community of scholars around them as the most important element to their sustained success.

The Exemplars acknowledged the demanding nature of a career in research and the reality of frequent setbacks. However, many discussed how passion for one's work helps researchers remain

resilient in the face of challenges and find daily joy in one's work. They advised researchers to maintain a thirst for the discovery process and a drive to make an impact. Another key focused specifically on resilience. We heard about the need to use criticism as an opportunity to learn and move forward with renewed determination. Indeed, positive “psychological capital” (e.g., resilience and optimism) supports well-being among leaders working in challenging environments ([Roche et al., 2014](#)).

Similar to the need to build strong relationships outside of the lab, the Exemplars provided advice about leadership inside the lab. They emphasized building positive relationships with students, trainees, and staff through mutual respect and communication. They believe that transparent, respectful work environments are necessary to conduct the highest quality research. Thus, they encouraged researchers to be intentional when building their team and look for people who are team players. Exemplars also told us of the need to explicitly tell new members collegiality is expected and, as the leader, communicate in such a way to set a positive example.

The strategy key focused on the need to strategically pursue funding and research opportunities that will contribute to your long-term goals. One Exemplar noted, “You're not going to be able to envision every little detail about what's going to be happening in 5 or 6 or 10 years, but it's good to have a vision...take time to envision where you are going and set some goals and figure out how to get there.” Exemplars also noted the need to stay focused and to advocate for oneself. They advised researchers to learn to “say no” to opportunities that do not



fit with their priorities and noted how challenging this is early in one's career.

We also learned about the need to seek balance. This key focused on maintaining some interests in addition to work or simply allowing oneself time to step away from work. This was a matter of personal well-being for some. For others, it connected directly to doing good research: "Give yourself time to think...read outside your discipline...read fiction and poetry, in order to be a good researcher...." The Exemplars recognized the challenge of striking true balance, but urged researchers to maintain an awareness of it.

Several Exemplars also advised about upholding one's integrity. They spoke of the need to "stay grounded," be honest with oneself, and make an earnest commitment to the hard work required for success in research. In this key, some Exemplars explicitly told us about the need for humility as a researcher. We think it is notable that humility was also implied in several others' keys. Specifically, Exemplars described the need to acknowledge when you need help, learn from criticism, and listen respectfully.

Four Strategies for Developing Intra- and Inter-personal Skills

We were intrigued that the keys to great research and a successful career resoundingly emphasized the human dimension in research. In recent years, federal and private funding agencies have sponsored initiatives to increase the rigor, reproducibility, and impact of science. Achieving these goals will require so-called hard skills, including expertise in study design, standard operating procedures, and data analysis. However, if our research exemplars are correct—and we think they are—achieving these goals will also require a complementary series of "soft skills": intra-personal and inter-personal competencies that foster relationship building, leadership, and professional effectiveness.

Inter-personal competencies like communication, conflict resolution, moti-

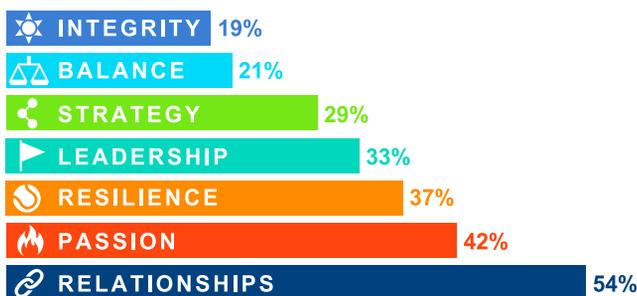


Figure 1. Keys to Success According to Research Exemplars

Percentage of 52 Exemplars mentioning each of the Seven Keys to Success when asked for advice for early-career researchers. Keys represent themes mentioned by 10 or more Exemplars. Percentages do not add up to 100% as most Exemplars offered more than one piece of advice.

vating and encouraging others, empathy, and building effective teams are at the heart of relationship building and leading. Intra-personal competencies are central to effective relationships and leadership, but more broadly to professional effectiveness. Intra-personal competencies include understanding oneself, for instance, knowing what one finds motivating, frustrating, and inspiring, and the ability to manage emotions, maintain composure in stressful situations, accept professional accountabilities that come with one's work, take initiative, and persist.

The need to actively develop these skills is familiar to corporate executives who complete leadership development programs. Principal investigators are the executives of research, and they too need these skills (Antes et al., 2016). We recognize that this may sound discouraging to some researchers who pride themselves on their introversion and analytic talents over their knack for striking up conversation or understanding what makes people tick. We encourage researchers to challenge themselves and step outside their comfort zones, and offer four strategies for developing the soft skills that underlie the keys to success:

(1) Set the Goal

Commit to developing the soft skills that will take your team and your science to the next level (Johnson et al., 2012). View these skills not as a luxury, but as a necessity. Setting a goal, writing it down, and announcing it to colleagues makes goal achievement more likely.

(2) Seek out Leadership Development Opportunities

Like other research skills, soft skills can be learned and refined (Day et al., 2014). Most people are not natural-born leaders or great communicators. Many people are not naturally aware of their stressors or emotional triggers. They benefit from guidance on strategies to help them thrive amid highs and lows in their careers. Even the simple act of stopping and taking a short walk, if done habitually, offers a strat-

egy to gain renewed perspective, manage frustration, and sustain enthusiasm. Leadership development activities such as participating in leadership development seminars, enlisting the help of leadership coaches or mentors, and reading about leadership can help you develop these skills.

Leadership development seminars often focus on inter-personal skills, like strategies for helping staff reach their potential, resolving workplace conflict, building effective teams, and making strategic decisions. Others focus on communication skills, emotional intelligence, or strategies for preventing burnout. Leadership development programs also encourage individuals to develop intra-personal awareness, such as an understanding of one's strengths and limitations. Many universities and medical centers now offer leadership training to employees who hold, or may hold, leadership roles. If possible, find a program specifically tailored to researchers (Seeliger, 2012).

Leadership development programs are appropriate for both early-career professionals and seasoned ones. Attendance at an effective leadership development program reinvigorates a sense of purpose and direction. Perhaps most importantly, these programs require professionals to do something they often fail to do: stop and reflect (Porter, 2017). That is, attendees of leadership development programs have a chance to focus on who they are as a professional, what they want to achieve, and how they are going to get there. It is easy for busy

Table 1. Explanation of the Seven Keys to Success in Research

The Key	Definition	Example Quotes
Relationships	Cultivate relationships and draw strength from others. Build a rich network of great colleagues and be willing to learn from others.	“...listen to your more experienced faculty colleagues...keep the best things that you can from everybody, and don't be shy about that. Put your ego on the back burner...assimilate what you learned into what works for you.” “...never be afraid to say I don't know, and always ask for help.... Never try and go solo on something if there's an opportunity to bring others in and collaborate.”
Passion	Do research you are passionate about and find joy in your work.	“Do something that makes your heart sing. Do research that you're passionate about, and that makes you want to get up and go to work every day.” “...follow your passion...if you believe that your research is interesting and worthwhile, and you're passionate about it, you will find a way to make it more relevant and useful and challenging, and it is that depth and rigor in your work that's going to bring it to a very high level.”
Resilience	Be resilient in response to criticism and failure. Learn from failures and do not take criticism personally. Believe in what you are doing.	“...when you have negative reviews on a paper or proposal...use those as learning experiences and [don't] take that personally...learn what you can from them as a way to improve and make yourself stronger.” “You have to deal on a regular basis with rejection of papers, of grants, of your ideas, and you have to believe in what you're doing...see through those hurdles.... It has to come from your heart.”
Leadership	Be an engaged, respectful team leader. Be deliberate about building your team, interact with your team members regularly, and take time to listen.	“Communicate, communicate, communicate with every single person that you interact with.... Treat people how you hope people will treat yourself. It is that simple....” “Listen—sounds kind of obvious, but a lot of senior people, because they're good and successful they tend to talk a lot. So listen, respect everyone in the lab, and communicate....”
Strategy	Stay focused, make strategic decisions with your goals in mind, and advocate for yourself.	“Focus.... There's just not enough time in the day...so learning to close your door, say no. That's the hardest part I think for early career people.” “...don't box yourself in. Think more about how can I set myself up to have resources today and resources two years from now and resources five years from now, and resources ten years from now”?
Balance	Have interests outside of work and give yourself time to think.	“Leave time for yourself to relax and have a life outside of work I think helps you be more productive and happier at work.... Even if it feels like you have too much to do and you shouldn't be doing anything else but working.” “Try, every morning, to just remind yourself to try and create balance.”
Integrity	Commit to the required hard work, be honest with yourself, stay humble, and remember that cutting corners never pays.	“There is a natural tendency to get the work out as quickly as possible and reap the glory from that discovery. But just be aware that we humans have a tremendous ability to deceive ourselves.... When you do put it out, you want it to be as solid and strong as it can be.” “In the end, just sort of stay grounded...stay humble throughout the process...it goes back to...integrity.”

professionals to think that they do not have time to attend a day-long seminar or a 3-day program. But researchers must invest in themselves just as they would a piece of scientific equipment.

We also encourage researchers to build a leadership library—find books on leadership lessons and strategies that resonate with them and try adopting some of the practices. Researchers should also consider a leadership coach—coaches provide support and advice for navigating challenges and achieving professional goals. Or, enlist help from someone with a reputation for being an outstanding mentor or lab leader. As the Exemplars

note, do not be afraid to ask for help and guidance.

(3) Invest Time

From the time they enter university to the time they become independent investigators, most researchers invest 12 or more years into studying and doing science. They think nothing of spending several months writing a grant application. Achieving the aims of a large research project may take 5 years or more. Building relationships and honing leadership ability similarly require a significant time investment. It takes time to listen to others. It takes time to communicate to members of one's team the importance of research

integrity or the reason for your passion about a topic. It takes a commitment of time to identify and adopt strategies to fend off burnout. It takes time, arguably a lifetime, to fully develop and refine the habits and strategies that allow one to be an effective professional and leader.

We heard Exemplars say, “...be in the lab...work with your own students...don't just sit in your office....” We also heard, “We'd just go, stop what we're doing, go have coffee...bring along graduate students....” Exemplars talked about informal, creative interactions that supported a “...less structured exchange of ideas” than traditional meetings. Others

said "...you have to know yourself, and if you find yourself being burned out...then go kayaking..." and "...make sure you do something else other than science once in a while."

Researchers would not think twice about investing an hour in reading an article that came across their desk about a surprising finding or a new technique. But an hour to have coffee with graduate students to get to know them and their goals? A lunch with students and staff to celebrate a recent accomplishment? An afternoon away from the office to enjoy a hobby?

It can feel challenging to commit to these opportunities for interaction and self-care. Not all investments in relationship building lead to lasting partnerships. Self-care can feel senseless when there are papers to write and emails to answer. These facts offer an especially tempting justification not to invest the time for those of us who feel most comfortable behind our computer, safely tucked in our office for hours on end. Researchers should remind themselves the only way not to miss out on a fruitful collaboration is to commit the time and see how it turns out. Inside their own teams, they should remember investing time in good relationships fosters a positive work environment (Paterson et al., 2014; Spreitzer et al., 2012). In turn, team members work better together, saving time when it comes to effectively executing work tasks. When it comes to allowing themselves time to think or reflect on what they love about their work, researchers should remember they must sustain their enthusiasm for an entire career.

(4) Adopt an Experimental Mindset

Try different approaches. The most powerful leadership development comes from learning through experience (Ashford and DeRue, 2012). Every day offers the opportunity to learn something about yourself or leading your team. Reflect regularly on what is working well, and do

more of it (Nesbit, 2012). Also, evaluate what is not working well, and try new strategies. Do you feel that team meetings are not running effectively? Perhaps you feel your strategy for onboarding new members could more effectively acquaint them with lab procedures and your lab's culture. Maybe you find yourself frazzled at the end of each day and might benefit from restructuring your schedule. Try a new approach and see how it goes. Adapt, adjust, and reevaluate. Scientists are trained to experiment, and they are fast learners. Apply these skills to leading your research team and managing your professional life.

As you do this, do not forget to ask your colleagues for advice and lab members for feedback and act on their comments. Perhaps they have ideas for more efficient meetings. Maybe the lab member most familiar with lab procedures could develop a written, standardized protocol for onboarding new members. Involve lab members—in doing so, you will be helping them develop their own leadership skills. And when setbacks or problems arise, these experiences are especially ripe for examination and experimentation. Failures and setbacks are the best opportunities for learning, particularly for learning about oneself and leadership.

Conclusion

We imagine that researchers did not set out to be scientists because of their love of either communicating persuasively or staffing and leading a research team. We expect most researchers are not encouraged to self-reflect or discover strategies for self-care so they may actively cultivate their passion and resilience. Nevertheless, researchers are the executives of research. We, like the researchers we spoke with, encourage them to attend to these important "soft skills." To do so, we think that researchers must set the goal, participate in leadership develop-

ment activities, invest the time, and adopt an experimental mindset.

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REFERENCES

- Antes, A.L., Mart, A., and DuBois, J.M. (2016). Are leadership and management essential for good research? An interview study of genetic researchers. *J. Empir. Res. Hum. Res. Ethics* 11, 408–423.
- Ashford, S.J., and DeRue, D.S. (2012). Developing as a leader: the power of mindful engagement. *Organ. Dyn.* 41, 146–154.
- Day, D.V., Fleenor, J.W., Atwater, L.E., Sturm, R.E., and McKee, R.A. (2014). Advances in leader and leadership development: a review of 25 years of research and theory. *Leadersh. Q.* 25, 63–82.
- Johnson, S.K., Garrison, L.L., Hernez-Broome, G., Fleenor, J.W., and Steed, J.L. (2012). Go for the goals: relationship between goal setting and transfer of training following leadership development. *Acad. Manag. Learn. Educ.* 11, 555–569.
- Nesbit, P.L. (2012). The role of self-reflection, emotional management of feedback, and self-regulation processes in self-directed leadership development. *Hum. Resour. Dev. Rev.* 11, 203–226.
- Paterson, T.A., Luthans, F., and Jeung, W. (2014). Thriving at work: impact of psychological capital and supervisor support. *J. Organ. Behav.* 35, 434–446.
- Porter, J. (2017). Why you should make time for self-reflection (even if you hate doing it). *Harvard Business Review*, <https://hbr.org/2017/03/why-you-should-make-time-for-self-reflection-even-if-you-hate-doing-it>.
- Roche, M., Haar, J.M., and Luthans, F. (2014). The role of mindfulness and psychological capital on the well-being of leaders. *J. Occup. Health Psychol.* 19, 476–489.
- Seeliger, J.C. (2012). Scientists must be taught to manage. *Nature* 483, 511.
- Spreitzer, G., Porath, C.L., and Gibson, C.B. (2012). Toward human sustainability: how to enable more thriving at work. *Organ. Dyn.* 41, 155–162.

Strategies for Professional Decision Making: The SMART Approach

STRATEGY	SAMPLE REFLECTION QUESTIONS
<u>SEEK</u> Help	<ul style="list-style-type: none"> • Where might I seek additional information or an unbiased, objective opinion? • Would it help to involve a mediator or consultant? • Do I welcome correction or input from others, including subordinates?
<u>MANAGE</u> Your Emotions	<ul style="list-style-type: none"> • What are my emotional reactions to this situation? Am I anxious, frustrated, or depressed? • How might my emotions influence my decision-making? • Would taking a “time out” or deep breath help?
<u>ANTICIPATE</u> Consequences	<ul style="list-style-type: none"> • What are the likely short-term and long-term outcomes of various choices? • Who will be affected by my decisions and how? • How might this decision impact my career and me?
<u>RECOGNIZE</u> Rules and Context	<ul style="list-style-type: none"> • What are the causes of the problems in this situation? Which causes can I change? • What ethical principles, laws, or regulations apply in this situation? • Does anyone have the power to control outcomes? If so, who and how?
<u>TEST</u> Your Assumptions and Motives	<ul style="list-style-type: none"> • Am I making faulty assumptions about the causes of the situation, alternatives, or others’ intentions? How can I find out? • What are my motives? Are they the same as the people I serve? • How will others view my choices?

NOTE: The strategies often overlap, e.g., testing assumptions is often a good way to manage emotions and it can lead to seeking help. Want to be SMARTER? Add “Evaluate” outcomes of your actions, and “Revise” your approach based on outcomes.



<http://integrityprogram.org>

Key Professional Habits for Professionalism and Integrity in Research

- Hold regular meetings
- Train staff and provide guidance
- Communicate expectations
- Be available and approachable
- Personalize leadership approach to individual needs and expertise
- Recognize different norms and assumptions arising from cultural backgrounds
- Reflect on what is and is not working and try new approaches
- Establish written standard operating procedures for data integrity, etc.
- Manage stress everyday
- Avoid becoming overextended
- Recognize your strengths and partner with people who complement you
- Communicate assertively: recognize others' needs, communicate your own, use "I" statements
- Learn how to hire and staff effectively
- Learn from researchers who are known for their integrity and best practices
- Ask to see work, ensure expectations are being met
- Empower yourself through knowledge of the rules and available resources

<http://bioethicsresearch.org>

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Lab Leadership and Management Best Practices – Checklist

Principal investigators are responsible for managing lab operations and leading research staff. They must also establish effective professional habits to support these activities. Using this checklist, identify areas of strength and opportunities for improvement. (Note regarding terminology: Research staff include junior faculty, post-docs, graduate students, undergraduate students, coordinators, research technicians and anyone else conducting research in your lab or team.)

		Check if practice is used	Check if an area for improvement
Managing Lab Operations			
1	Hold regular meetings with research staff.		
2	Utilize a written meeting agenda.		
3	Examine the research data that are analyzed in the lab (not just the results of analysis or output).		
4	Store all research data in a central location accessible by the principal investigator.		
5	Store all compliance materials in a central location accessible by the principal investigator.		
6	Store back-up copies of all research data in a secure location (e.g. on the cloud, an external hard drive, or use a data storage service that is backed up, etc.).		
7	Share data in a data repository that can be accessed by other researchers.		
8	Establish written scientific procedures (or checklists) for new scientific projects.		
9	Establish written standard operating procedures (or checklists) for matters of research compliance or integrity.		
10	Perform self-audits of compliance with lab protocols or standard operating procedures within your lab.		
11	Acquire additional resources before taking on new projects that extend beyond the lab's current capacity.		
Leading Staff			
12	Train research staff to ensure they have the skills to execute research protocols competently.		
13	Provide ongoing professional development or training for executing protocols effectively.		
14	Delegate tasks to staff when they can be delegated.		
15	Give research staff constructive feedback.		
16	Formally communicate expectations of research staff in your lab.		
17	Hold conversations in your lab about matters of research compliance or integrity.		
18	Communicate that you are available to help address problems or mistakes identified by staff.		
19	Adapt leadership or mentorship style to the individuals' skills and knowledge level.		
20	Communicate appreciation for the contributions of research staff.		
21	Celebrate milestones or successes in the lab.		
Professional Habits			
22	Be accessible by working regularly in the same physical location as research staff.		
23	Say "no" to good research or scholarly opportunities when overextended.		
24	Manage stress daily.		
25	Consult mentors or colleagues for advice.		
26	Have a strategy for immediately addressing frustration or anger at work.		
27	Collaborate with people who complement your strengths.		
28	Reflect regularly on what is and is not working and try new approaches.		
29	Set healthy work-life boundaries and follow through on them.		
30	Establish effective relationships with compliance offices (or other institutional resources).		
31	Regularly practice SMART decision-making strategies.		
32	Use assertive communication techniques (i.e., recognize others' needs, communicate your needs, use "I" statements).		

Time Management

Successfully managing your time allows you to accomplish what is most important to you. Time management requires techniques for prioritizing.

Myths About Time Management

Certain myths may contribute to poor time management and undermine your efforts to prioritize:

- **Myth:** External events and factors completely control your life. **Fact:** You can exert control in many facets of your life. To do so, you must accept personal responsibility for exercising control. It is also important to determine what is and is not within your control as you make choices and set priorities.
- **Myth:** Meeting the expectations of everyone else should determine your priorities. **Fact:** It is essential to recognize when the needs and demands of others are inconsistent with your own needs and priorities. Evaluate the expectations of others; they may come at a bad time, be unattainable, or distract you. Therefore, prioritize, delegate, or offload tasks appropriately.
- **Myth:** Having limitations is a personal flaw. **Fact:** Everyone has limits. Not permitting yourself to have limitations leads to unrealistic expectations, poor prioritization, and work overload. It can also cause perfectionism, which causes poor time management because seeking perfection undermines prioritization. It is commonly said, "The perfect is the enemy of the good."

Specific Techniques

Developing your own style for managing your time is important; however, consider incorporating some of the following techniques:

1. Stack the cards in your favor. For example:

- **Manage your energy.** Identify when your energy is at its highest and plan work activities accordingly. For example, if your energy is highest in the morning, plan your most important work during this time.
- **Optimize your work space.** Make your physical work environment favorable to concentration and health. Identify whether you work best in a quiet setting or with background music, among clutter or at a clean desk, etc. Also ensure that you have an ergonomically sound workspace.
- **Protect time blocks for focused work.** Set aside specified time blocks for specific work tasks. During these times, avoid other activities and interruptions. Interruptions are a two-fold problem: the interruption itself, and the expectation of further interruptions. Tell others you that are unavailable, close your door (and open it selectively), mark your schedule as busy, etc.

- **Utilize a special workspace.** Find a place where you especially work productively. For example, a library carrel, an alternative office, or a café, where others will be unable to find you.
- **Turn off your phone and stop checking email.** Accept your phone calls using voicemail. Return them when it is more convenient for you. Avoid the distraction of email; check it only during set aside times, for example, at the beginning and end of the day.

2. Prioritize the things that will help you to achieve your goals. Try these steps:

- **Create a list of everything you wish to accomplish.** Determine the timeframe for each of the items (years, months, weeks, days). Your list can incorporate work goals and personal goals.
- **Enter your items into a calendar or planner.** It is essential that goals are explicitly written down, viewed regularly, and put into calendars. Schedule intermediate tasks that will allow you to accomplish larger goals into your calendar as well. Also schedule time for important tasks that seem less urgent (e.g., writing a paper, exercising, having lunch with a mentor).
- **Organize your goals and the scheduling of your time according to priorities.** Stephen Covey (1989) suggests thinking of priorities in terms of two dimensions, **urgency and importance**. To achieve your goals, you will need to figure out a strategy to ensure the many urgent tasks that you have each day do not prevent you from achieving what is important.

3. Create a system of accountability for deadlines and goal attainment

- **Make your goals public.** Writing down goals increases the likelihood of achieving a goal. Sharing the goal with others—colleagues, team members, family members—also increases the likelihood of achieving goals.
- **Set up rewards (and other consequences).** If you complete a major task, reward yourself with time off, a small purchase, or reflection on the satisfaction that comes from finishing the task. If you do not meet a deadline, set up consequences to avoid procrastination. Get creative.

4. Experiment and evaluate

- **Try different approaches to maintaining task lists, prioritizing, and managing behavior.** Many approaches exist to managing time and tasks successfully, some will work better for you than others.
- **Talk to colleagues to see what works for them. Colleagues often struggle with similar issues.** Talking with them can be an effective way of identifying techniques that could work for you.
- **Schedule time to evaluate your progress.** E.g., schedule 30 minutes each month to examine your goals, your progress achieving goals, which time management strategies are working or not working, and make changes as needed. This is a life-long opportunity for self-improvement!

Additional Resources

Review resources to identify techniques that resonate well with you. For example, some popular books on this topic include:

1. *How to Get Control of Your Time and Your Life*. Alan Lakein. New York: Dutton, 1989.
2. *The 7 Habits of Highly Effective People*. Stephen R. Covey. New York: Simon & Schuster, 1989.
3. *Getting Things Done: The Art of Stress-Free Productivity*. David Allen. New York: Penguin, 2015.

Reference

Adapted from: Counseling Center at University of Illinois Urbana-Champaign. Time Management. <https://counselingcenter.illinois.edu/brochures/time-management>.

Effective Meetings

Utilizing an Agenda

- Purpose
 - To provide the meeting with direction and keep everyone on the same page
 - To provide an outline for taking notes
- Contents
 - In-progress items/projects
 - Updates on progress
 - Issues/concerns
 - New business
 - General discussion
- Tips
 - Allow everyone to contribute to the agenda and assign persons to the agenda items
 - Keep the agenda as short as possible, one page is ideal (no more than 1.5 - 2 if possible)
 - Meeting leader should send out an email the day before
 - Meeting leader should bring copies, or arrange for copies to be made & brought to the meeting

Running Efficient and Effective Meetings

- Start on time
- The meeting leader starts the meeting and keeps it progressing in a timely fashion
- Each person reports on their agenda items and issues are discussed
- Potential outcomes of discussion about issues
 - 1) The discussion should lead to ideas about the next steps to take. The group should quickly choose someone who will take on any potential new tasks.
 - 2) If the discussion gets off-track or leads to ideas that are not directly helpful, write the idea in the discussion section and follow up with discussion on that idea at a later time.
 - 3) If the discussion leads to conflict or points of contention, time limitations provide a great reason to temporarily end discussion and move on. This gives people time to think and cool off. Simply note that the issue will be returned to later, and add it to general discussion. Alternatively, address it at another meeting (or outside the meeting as appropriate).
- Take notes about decisions, action items, and people responsible for each item

- Leave time for new business and other general discussion at the end if possible

Delegating and Action Items

- When new tasks come up, it needs to be explicitly clear who is going to follow-up on that item. Otherwise, people will assume that others are taking care of it and it does not get accomplished.
- The person discussing the item, or the meeting leader, should ask if anyone is willing to take on the item. If there is not a volunteer, then the person discussing the item or the meeting leader can do one of two things:
 - 1) Directly ask someone if they are willing to help with the item (this works best for smaller tasks, but may not work as well for larger items)
 - 2) State that he/she will allow time for everyone to think about taking on the task and follow-up about it after the meeting, or at the following meeting (if time permits)
- Once a person has been identified to take on a task, action steps should be identified:
 - What needs to happen next to make this happen?
 - Action items should be continuously added and updated as the task progresses

Evaluate

- Evaluate how meetings are working, and consider whether revisions are needed to any of the following:
 - Who attends meetings? Are important people missing from meetings, thus depriving the group of needed knowledge and experience? Are too many people attending, thus preventing active participation, wasting time, or creating inefficient discussions?
 - How often are meetings held? If meetings regularly run over time, maybe more frequent meetings or working group meetings are needed. If little is accomplished at meetings, consider whether the meetings are needed at all.
 - Is required information available at meetings? If not, consider whether more planning is needed for meetings.

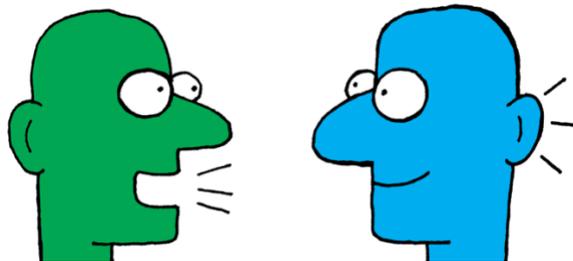
Guidance for Communicating Expectations

Effective managers communicate their expectations to staff. They are sure not to assume that employees already know the processes they want to have followed or the norms of the team. They are sure to discuss expectations and ask staff to restate what these expectations are so as to be sure they have been well communicated.

“The single biggest problem in communication is the illusion that it has taken place.”

–George Bernard Shaw

- Set high expectations that are also realistic
- Communicate expectations by considering the perspective, experience, skillset, and background of the individual(s)
- Indicate how meeting expectations and accomplishing set work tasks contributes to the overall success of a project or the team overall; help them see the big picture
- If there are major ongoing expectations for your research lab or team, put them in writing
(see example on side 2). Be sure to cover these verbally as well.
- Explain strategies and steps for achieving expectations, rather than just telling what the expectations are
- Reinforce stated expectations frequently to both individuals and groups, and acknowledge when people have done well
- If expectations are being met, consider encouraging staff to reach even further to develop their talents



Research Staff Job Tips

James DuBois

This guide sheet arose from the observation that new research staff and faculty members do not always share the same intuitions regarding job performance. The following are some ideas on what constitutes excellent service.

Meetings

1. Ordinarily, you will meet with your mentor or project manager at least once per week to facilitate good communication and progress toward aims and milestones.
2. Prior to a meeting, email an update and agenda—state what you have worked on since the last meeting, identify topics that need to be discussed, and propose the next steps in your project.
3. Make sure all key players have copies—electronic or hardcopies—of any documents that will be discussed at meetings.
4. Take notes at all meetings. Save these notes and consult them.
5. Never leave a meeting without clarifying:
 - a. What are the follow up tasks?
 - b. Who will complete specific follow up tasks?
 - c. When the next meeting should be scheduled?These items should be in your notes or meeting minutes.

General Communication

6. Communicate clearly and early when projects encounter obstacles or deadlines need to shift.
7. Save important emails. Create a filing or search system to help you locate them quickly.
8. Respond to emails that contain any important content. As a general rule, its good to know you received the email—even if you're not yet ready to send a full reply.
9. Be invested in your work, take ownership of projects, and show initiative; but, make sure that your work is consistent with project goals, is shared with the team, and is approved by your manager.

Data and Literature

10. Back up your data! Really. No excuses—ever—for lost data, which is difficult and expensive to obtain.
 - a. I use two back up systems—an external hard drive and a cloud system.
 - b. The cloud system backs up all of my data automatically every night at 1am. Unlike an external hard drive, it cannot be stolen or catch fire.
11. Protect the privacy of data. Only store data on encrypted or password protected systems (usb drives, servers, hard drives, back up disks). Know and control who has access to systems.
12. Make sure your mentor has a copy of the most recent version of databases or other documents. Consider creating shared server spaces where all project-related files can be securely stored and shared.
 - a. I create WUSTL Box folder for most major projects (or a Google site when necessary).
It's a great way to share data, and yet another data back up system. Always keep the most recent version of a document posted or use the sync app—failure to update versions can create messes.

13. View literature reviews as culminating in a package, including articles (hard or pdf copies—ask which is preferred) and Endnote entries, which are posted on a shared server space.

Development

14. Identify areas where you could use further training. Inquire about training opportunities.

NOTE: This example is from a research lab. Please adapt as necessary.

Strategies for Conflict Resolution

Conflict is a natural part of human interaction. Effectively resolving differences is essential to personal and professional relationships. Avoiding or ignoring conflict is a recipe for disaster, while resolving conflict in a meaningful way can be a chance to learn and grow as a team. Leaders are responsible for the environment they create and maintain around them. Taking the lead in resolving conflict is one big factor in creating a healthy, productive work environment.

-
- Determine “ownership”, or responsibility, for the conflict; take charge of initiating resolution
 - Define the Conflict:
 - Where does the disagreement truly lie?
 - Where do we agree?
 - Is the conflict substantive—is it a real problem, is it important and meaningful versus petty and insignificant?
 - Avoid Destructive Mindsets:
 - Victory mindset – it isn’t about winning! “Make it a sport, not a war.”
 - Who is right/who is wrong? – It isn’t about apportioning blame or being right!
 - “I versus you” – it is a joint process to resolve conflict!
 - Alternative ideas or approaches are threatening – be open to new and different ideas and solutions!
 - Encourage Productive Mindsets:
 - See differences in opinion or perspective that creates conflict as a chance for mutual growth, not as adversarial or threatening
 - Forget past issues and power struggles work together now – look at the road ahead; not in the rearview mirror
 - Take a time out or a deep breath before communicating. Do not initiate communication when negative emotions are running high
 - Communicate (and perhaps most importantly, Listen):
 - “Script” your thoughts
 - Use “I” messages about how you genuinely feel or think; not “you” statements
 - Avoid evaluative statements about ideas
 - Clarify perceptions and understandings of the situation
 - Check and re-check your emotions
 - Consider the time of day, the setting, the day of the week
 - Focus on facts and issues, not personalities

- Focus on goals and purpose
- Inject humor into decision making process (if natural for you)
- Truly HEAR what the other person is saying, even if it is difficult to hear
- Be sure you are actively talking WITH an individual not AT them
- Define solutions and alternatives:
 - Focus on individual and shared needs
 - Engage in conversation...not selling your "correctness" or ideas
 - Work together to devise a solution
 - Resolve issues without forcing consensus; but establish a sense of fairness and equity in the process
 - Think of multiple alternatives and adjust and adapt them to resolve the problem(s)
- Ask yourself:
 - Am I misunderstanding or misinterpreting any information?
 - Am I being flexible?
 - Is a change in attitude enough to overcome the conflict?
 - Am I allowing others to express their perspectives?
 - Am I taking statements as personal attacks?

ADDITIONAL RESOURCES

1. *Lab Dynamics: Management and Leadership Skills for Scientists*

Carl M. Cohen & Suzanne L. Cohen

2018. Third Edition. Cold Spring Harbor Laboratory Press.

2. *At the Helm: Leading your Laboratory*

Kathy Barker

2010. Cold Spring Harbor Laboratory Press.

3. *Making the Right Moves: A Practical Guide to Scientific Management*

for Postdocs and New Faculty

2006. Howard Hughes Medical Institute [[click here for free PDF](#)].

4. *Enhancing the Effectiveness of Team Science*

National Research Council of the National Academies [[click here for free PDF](#)].

5. Healthy Research Environments

Nature special collection [[click here to visit online](#)].

7. The lab management practices of "Research Exemplars" that foster research rigor and regulatory compliance: A qualitative study of successful principal investigators

Alison Antes, Ashley Kuykendall, James DuBois

In press. *PLOS ONE*.

8. Leading for research excellence and integrity: A qualitative investigation of the relationship-building practices of exemplary principal investigators

Alison Antes, Ashley Kuykendall, James DuBois

In press. *Accountability in Research*.

9. Team Science Toolkit

National Cancer Institute [[click here to visit online](#)].



CONTACT INFORMATION

Stay in touch!

Alison Antes

aantes@wustl.edu

314-362-6006

www.bioethicsresearch.org

