The key to a happy lab life is in the manual

A well-crafted set of guidelines and advice can save time, reassure trainees and promote a positive lab culture, argues **Mariam Aly**.

A year and a half ago, as I was preparing to launch my own laboratory studying cognition at Columbia University in New York City, I kept returning to a particular concern: I would soon be responsible for the scientific advancement of trainees. How could I help them be the best scientists they could be, while also protecting their well-being?

I found the answer on Twitter. Two principal investigators in my field, Jonathan Peelle at Washington University in St Louis, Missouri, and Maureen Ritchey at Boston College in Massachusetts, shared their lab manuals. These laid out expectations for themselves and their trainees, as well as resources and tips to guide trainees through their time in the lab. I decided to follow in their footsteps by writing a lab manual to introduce my trainees to my philosophy for research and work–life balance. This required a great deal of time and thought, but it is something I would recommend to anyone leading a research group.

In the final few months of my postdoctoral studies, I thought about what had worked well and not so well for me as a trainee, and how to create best practices for my lab. Then I put into writing things that are usually transmitted informally. For example, that it doesn't matter to me whether trainees arrive at 9 a.m. or 1 p.m. or work from home, as long as they get their work done and honour their commitments. And I explicitly encouraged trainees to talk to me if they need to vent or feel they are foundering: academia can be stressful, and I want to help.

I addressed concerns that I imagined trainees would have: what if I make a mistake in my experiment? (It's OK, we all do; tell your collaborators right away so that you can start to discuss the next steps.) Do I have to work 80 hours a week to succeed? (No.) How do I ensure my results are reproducible? (Double-check your code, add explanatory comments, document every step of data analysis and use version control.) How do I participate in open science? (Publicly share stimuli, code and data when you submit a manuscript.)

I supplemented my lab manual (go.nature.com/2c1dxdt) with a wiki (go.nature.com/2pti9kj), a website of resources for lab members. This included everything from tools for learning the programming languages R and Python and how to do neuroimaging analyses, to tips on keeping up with the research literature (by using RSS feeds and Twitter) and where to find the best bagel in Manhattan (a ten-minute walk from the lab). My goal was that any newly accepted lab member could read the manual and wiki and then strut into the lab knowing what to expect.

I try hard to keep myself accountable for what I have written. For instance, I promised weekly meetings with each trainee, and I stick to that, although it's a challenge with teaching obligations and travel. I hope that the consistency between my actions and my words helps lab members to understand that I meant what I wrote, even if they have yet to experience everything I promised.

I ask every trainee to read the lab manual. I make a point of referencing it and the wiki, along with repeated, not-so-subtle examples of their utility. My lab members now contribute to the wiki without prompting. When I checked in with them to see whether these resources were useful, the answer was a resounding 'yes'. Their actions also suggest that they internalized what they read. Some share struggles with me, ask for advice and take days off for mental health — as I hoped they would, and as I wish I had done when I was a trainee.

Here's another example: my lab manual states that trainees are entitled to read my grants, and my lab members have requested to see them. That's something I never asked my previous advisers; I worried it would be presumptuous. I realize now that my thinking was almost certainly wrong, but my own uneasy feelings as a trainee just drive home how important it is to put into writing that something is OK — otherwise, trainees might assume it is not. That goes double for the areas that trainees are most sensitive about: I've written down in black and white that it is OK to make mistakes and to maintain a work–life balance.

MY TRAINEES DO NOT **HAVE TO STRUGGLE** TO FIND ANSWERS TO **COMMONLY ASKED** QUESTIONS.

Putting together a lab manual and wiki takes time, but there are several examples to use for inspiration. My lab manual and wiki are publicly available for anyone to use as starting points. Once the wiki has been written, the entire lab can help to maintain it; if everyone pitches in, any particular update will often take only a few minutes.

The initial effort of writing a manual saves enormous amounts of time in the long run. I no longer have to repeatedly search my e-mails or the Internet to find the answer to a problem I previously solved but have forgotten. Likewise, my trainees do not have to struggle to find answers to commonly asked questions (for example, 'how do I get after-hours access to the building?'). More importantly, having a lab manual requires you to be explicit and transparent about your expectations and what you promise to do for your lab — every trainee reads the same expectations in the same words, putting everyone on equal footing.

A year after writing the lab manual, I re-read and revised it. That process reminded me of all that was at stake: all that I promised my trainees and all that I needed to do to ensure a healthy, happy and safe lab environment. It also led me to reflect on how pleased I am with my lab. My trainees are hard-working, sociable and supportive of one another. I love walking in and seeing them working together on a problem, or laughing and dancing when they've solved one. I might have written the lab manual, but my trainees brought it to life. ■

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