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SUPERVISION

Clear direction

Managing laboratory members as well as a research strategy can be difficult for early-career principal investigators, but help is at hand.

BY BOER DENG

Vivek Kumar admits that he has not always been the best manager. Routinely, the neuroscientist would fail to provide important details about his expectations to junior colleagues, then lose his temper when they did not meet those expectations. In the laboratory where he conducted his postdoctoral research, for example, Kumar tasked the technician with cloning cells but did not give her a deadline. She had not completed the work when he demanded the clones, and she later told him that her blood pressure would rise whenever she heard him approaching.

The comment might have been difficult to hear, but it helped Kumar to realize that he needed to improve his management skills. When he set up his own lab in January 2015 at the Jackson Laboratory in Bar Harbor, Maine, he was determined to receive training in how to be a good leader, mentor and manager. A few months later, Kumar attended a workshop on leadership at the Cold Spring Harbor Laboratory in New York. There, he learned about the communication and negotiation skills that would help him in his role as principal investigator (PI). But almost one year on, that role can still feel uncomfortable. Managing people remains one of his biggest challenges, Kumar acknowledges — especially when it comes to having difficult conversations with colleagues about expectations. However, the course did teach him new skills and tactics. "I came away from the workshop with a clear sense that it's part of my responsibility to make the whole lab a success."

Many junior researchers say that they feel poorly prepared for managerial roles. "Knowing how to do good science, that's the price of admission for being a researcher," says Jeff Gustafson, an organic chemist who has led a lab ▶

for three years at San Diego State University in California. "But when I started my own lab, there were other things that I just had no idea how to do." Juggling the challenges of teaching and administrative duties while guiding the members of his lab was a mixture for which he had not been prepared.

Graduate students, junior researchers and their institutions have been awakened to the fact that, early in their careers, they need to develop the interpersonal skills that lab leaders require. "Over the past ten years, the interest in learning management as scientists has gone from a trickle to a small stream," says Carl Cohen, an executive coach for scientists who, in 2011, helped to start the leadership programme that Kumar attended at the Cold Spring Harbor Laboratory. In fact, a number of institutions have launched workshops and seminars to teach management to postdoctoral researchers and junior faculty members (see 'Learn to lead').

One reason for the increase in management-training options for early-career researchers is that although universities are producing more researchers, many will not remain in academia. Former trainees often enter fields in which management skills comprise a significant component of their jobs. "Students and their PIs know that they may not have the same careers," says Cohen, who taught and led research in molecular haematology at Tufts University in Medford, Massachusetts, before holding executive positions at several biotechnology companies.

AVOID CONFLICT

Academic scientists have also realized the importance of good management for success. For example, it is easier to attract talented researchers to a lab that has no conflicts, points out Markus Seeliger, who leads a cancer and ageing research group at Stony Brook School of Medicine in New York. Junior faculty members can highlight this selling point to potential recruits, who might otherwise want to work for more established researchers.

"Over the past ten years, the interest in learning management as scientists has gone from a trickle to a small stream."

Kathy Barker, a microbiologist turned author and management consultant in Seattle, Washington, has noticed that an increasing number of scientists now mentor each other and address the cultural and interpersonal aspects of science. "In the first lab I worked in, no one talked to me for three days because I asked the wrong person how to use the autoclave," recalls Barker, who in 2001 published *At the Helm* (Cold Spring Harbor Laboratory Press), a management guidebook for inexperienced PIs. Her experience spurred her to write about the importance of management and crafting a comfortable culture in which to do science. These days, many institutions pay attention to making their labs more welcoming, she says.

The field of research, number of members and culture of each lab bring their own predicaments for new PIs. "Issues can be quite different depending on whether you are working in a narrow field versus a field with lots of collaborative projects," says Justin Cotney, a developmental biologist at the University of Connecticut Health Center in Farmington. In small labs, interpersonal relationships between PIs and lab members are often more important — and potentially thorny — than in larger labs. Because PIs are able to spend more time and work more closely with postdocs and students in a small group, issues such as a communication problem or something not working are harder to ignore.

PIs can help by setting expectations and developing lab protocols that make negative feelings less likely to crop up. A month or two after setting up his lab at Georgetown University Medical Center in Washington DC, neuroscientist Patrick Forcelli received complaints from his disgruntled lab manager, who was upset about mess left in the lab and incomplete paperwork. Forcelli has since assigned a specific responsibility for lab upkeep to each member of his group, and devotes the beginning of the lab's weekly meetings to reviewing whether tasks have been completed. Making lab members accountable to each other has united everyone behind a shared standard — and has also made the lab a nicer place to work.

But sometimes the problems are not so easy to fix. As in any other workplace, the personalities and moods of individuals affect the overall lab environment. PIs must be attuned to how each member behaves in and perceives the work environment. "Knowing the people you work with and figuring out what each member of the lab will respond to helps you to know when a conflict might arise or escalate," says Cotney. He learned the lesson firsthand while he was a postdoc. When a colleague who had been struggling with personal issues snapped at a new junior researcher, Cotney stepped in to defuse the tension. He reminded his colleague not to direct unreasonable anger at another lab member. "It was good to be proactive, and is something I do as a PI." Forcelli says that in small labs, it is especially important for PIs to play an active part in handling conflicts. "I've seen cases where the PI will just be hands-off, which makes the environment miserable for several people in the lab for an indefinite period of time," he adds.

Kumar thinks that training can help researchers to appreciate the importance of good management. He says that the workshop he attended helped him to better understand his role and responsibilities. For PIs like Kumar, it can be a relief to know that they can learn discrete skills for resolving management challenges. Perhaps the most important lesson is learning to view difficulties as normal and tractable. "One thing I take away is that it's OK that something falls through — that you don't have to be perfect all the time. You realize that everybody is facing these things," says Cotney. "It's nice to know you're not alone." ■

Boer Deng, *a former* Nature *intern, is the Washington DC correspondent for* The Times.

LEARN TO LEAD

Management resources abound

Management science has existed for more than a century. In 1911, engineer Frederick Taylor outlined the principles of 'scientific management', which aims to improve productivity in the workplace through collaboration. Management resources for early-career researchers are increasing. Here are a few.

- The Leadership in Bioscience workshop at the Cold Spring Harbor Laboratory in New York runs for 3.5 days every February or March. Aimed at postdoctoral researchers who are about to take leadership of a lab, as well as early-career principal investigators, the workshop accepts around 25 students, from a pool of about 40 applicants.
- The European Molecular Biology Organization (EMBO) in Heidelberg, Germany, holds a comprehensive series of workshops for early-career scientists. When they began in 2005, the workshops were offered only five or six times a year. Now, they take place 20 times a year, with each workshop of 16–20 participants filling quickly. There is a waiting list for EMBO's lab-management courses for principal investigators and postdoctoral researchers.
- The UK-based Vitae online resource offers career-development advice for researchers. Registered members around the world can access tools to learn about conflict management and coaching for researchers, as well as other areas of professional growth.
- The Jackson Laboratory in Bar Harbor, Maine, offers a course called The Whole Scientist, which helps graduate and postdoctoral researchers to make the leap from acolyte to doyen. Georgetown University in Washington DC holds a similar course for early-career researchers.
- And this year, the Van Andel Research Institute in Grand Rapids, Michigan, began a series of workshops in leadership and management skills for scientists that it plans to continue yearly. **B.D.**

Scientists must be taught to manage

Young scientists need more help to set up and run research labs, says **Jessica C. Seeliger**.

Starting an academic lab is like launching a small business. But does scientific training really prepare us for success? As a young investigator just over a year into my job, I feel pressure — much of it self-generated — to produce results, attract funding and ultimately to make a name for myself in my chosen field of bacterial pathogenesis.

As researchers, we are trained to work within a rational and methodical framework. But when it comes to running our labs and managing people, we have to rely on our gut feelings, our limited know-how from mentoring a few students or our observations of our previous advisers. We can often feel ill-prepared.

Take dealing with a difficult co-worker or motivating students. As scientists, we must be honest with someone about faults in data or reasoning. But while striving for this scientific objectivity, we can forget the importance of body language and of directing discussion at a problem rather than a person. And even something as apparently straightforward as having a meeting can be problematic. The many collective hours spent around conference tables can feel like lost time when agendas wander and goals are not met.

Would we do any better if we received formal training that gave us a logical framework for lab management? Some young investigators would no doubt argue that such training is inefficient and ineffective. The classic method is to work from your own experience in your mentors' labs. Although this is a valuable starting point, building a new lab and serving as its sole head is a very different prospect from working in an established lab with senior students and support staff. So my current support network consists mainly of a handful of other young investigators, all of us amazed by the universality of the challenges we face. We trade tips and anecdotes about recruiting and retaining, motivating and negotiating, and we agonize over mistakes.

So, we need help — or at least, some of us do. Yet funding agencies offer no routine management training for people at my level. This is despite the many career-progression programmes and workshops now available for graduate students and postdocs.

The Burroughs Wellcome Fund and Howard Hughes Medical Institute did create a course for people at my stage of a scientific career, called 'Making the Right Moves'. But the course ran only twice — in 2002 and 2005. What endures is a book based on the course, which, along with Kathy Barker's *At the Helm* and *Lab Dynamics* by Carl Cohen and Suzanne Cohen, constitutes almost the entire reference library available to new investigators.

Recognition of this training void has come recently from an unexpected corner: the American Express Foundation, which last year started to fund an annual 'Workshop on Leadership in BioScience' at Cold Spring Harbor Laboratory in New York.

Last month I went on the course, alongside my husband — Markus Seeliger, also a young investigator — and 25 scientists from around the world at a similar stage of their careers, for three days of lectures, role-playing exercises and case studies.

Everyone has their own story of poor management. The major advantage of the workshop we attended was that it was away from our home university, so that we could discuss sensitive personal situations in confidence. Some of the toughest problems are those that you might not feel comfortable about discussing with your principal investigator, your mentor or your chair.

We practised the difficult issues — how to manage meetings, for example, from distributing the agenda in advance and keeping everyone on task, to ending on a note of consensus. And through role plays, we learned how to structure negotiations as a problem-solving process rather than a battle of wills.

THROUGH ROLE PLAYS, WE LEARNED HOW TO STRUCTURE **NEGOTIATIONS** AS A PROBLEM-SOLVING PROCESS RATHER THAN A **BATTLE OF WILLS.**

Except in cases of misconduct, criticism need not be personal, particularly when one is trying to motivate students. Being honest does not mean that one need be brusque or unsympathetic; we can preserve scientific integrity and encourage trainees positively.

I would strongly recommend such training. And although it is useful for postdocs, it is more crucial for young faculty members. The workshop was appealing because it was tailored to our situations by people familiar with both the academic domain and the biotech world, where such training is more common.

Academic institutions must recognize the value of this pioneering effort and support or create such programmes for their own faculty members. They make multimillion-dollar investments in us, and, to protect their interests, should invest as seriously in leadership skills as in the progress of science.

I am already using what I learned. When I notice that I am dominating group discussions, for instance, I try to be more patient and to allow others to consider and voice their opinions. I like to think that, as a result, quieter members of my lab are becoming more confident, and that we all benefit from increased intellectual exchange. My husband has put the ideas into practice too: we wrote this article together, but were then told we could put only one name on it. Luckily, the workshop covered how to resolve authorship disputes. ■

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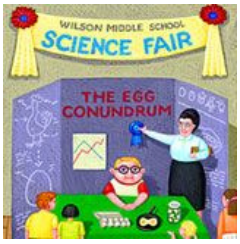

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Career Advice

Learning to Lead a Lab

By Lucas Laursen
February 21, 2014

Firing a member of your lab is difficult. Fortunately, it's also rare. The first and only time cell biologist Samara Reck-Peterson had to do it, in her laboratory at Harvard University, she felt prepared. She had practiced the difficult conversation during a lab management course she'd taken in 2009, and she had a script ready. "Practicing is really the most important thing," she says. It helped her anticipate which parts of the conversation were likely to trigger emotional responses so she could head them off in the real conversation.

"If you have a startup package, instead of buying a whatever—a microfuge—spend a few thousand dollars on [the training] instead." —Samara Reck-Peterson

Reck-Peterson is one of many aspiring and established principal investigators (PIs) who have participated in formal lab management or leadership training courses. Such courses were once rare, and they're still not widely available. Access depends on your location and ability to pay. But if you can find one, attending such a course is well worth the effort. Most scientists who did find one say they came back with helpful people skills and a network of colleagues with whom they can share difficult situations and discuss solutions. "I think it's a mandatory course for young PIs," says molecular biologist Raz Zarivach of Ben-Gurion University of the Negev in Beer-Sheva, Israel, speaking of a lab management course offered by the European Molecular Biology Organization (EMBO)—one of two he has attended.

A growing trend?

CREDIT: Chen Guttman

Raz Zarivach

Offering courses to PIs in management or leadership is not new. In the United States, neuroscientist Michael Zigmond began offering "survival skills" workshops including those topics for researchers at the University of Pittsburgh in Pennsylvania, in 1985, in connection with a National Institutes of Health training grant; Beth Fischer joined him in the "Survival Skills and Ethics Program" in 1993. Biologist Carl M. Cohen and his wife, psychologist Suzanne L. Cohen, have been conducting training workshops for researchers since the 1990s. (The Cohens are the authors of several *Science* Careers articles.) Carl Cohen believes that "there's a growing recognition of the need of this" kind of training. In 2002, the Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI), with help from AAAS (publisher of *Science* Careers), launched a course in scientific management for postdocs and newly appointed PIs. BWF and HHMI repeated the course in 2005, adding a "train the trainers" component to help other organizations offer such training to their scientists. The University of California, San Francisco implemented a 2-day Scientific Leadership and Management course and continues to offer it most years; about

100 people participate each time it is offered. The course was expanded in 2011 to include clinical and translational junior faculty. Organizations such as Harvard Medical School, Cold Spring Harbor Laboratory, and Oak Ridge National Laboratory have all hired consultancies to deliver such courses, and at the University of California, Berkeley, grad students have organized their own SLAM: Science Leadership and Management seminar series.

A similar picture emerges in Europe. Courses on leadership and management training remain sparse, but those offered are popular. EMBO reports that the 15 laboratory management courses it announced for 2014 were fully subscribed within a week of their announcement; the organization added three more. This year, it counts more than 250 registered participants, up from 62 in 2005, when the courses were first offered. One of the training companies it hires—hfp consulting, which taught the 2009 course Reck-Peterson attended—has tripled the number of courses it offers since 2005, its first year of operation. Starting in 2009, Vitae, the U.K. organization for the professional development of researchers, launched a 2-day Leadership in Action course. Institutions including the University of Zürich and the University of Cambridge also offer leadership training.

Scientists, not managers

Courtesy of Carl M. Cohen

Carl M. Cohen

The main reason lab management and leadership training courses exist is a gap in traditional scientific training curricula, Carl Cohen says. PIs often rise to their positions based on the excellence of their research, their publication records, and the fellowships they win. Yet, they go on to become managers, needing to distribute their lab's workload, motivate junior colleagues and defuse tensions, keep the lab on budget, and ensure that everyone is working toward common goals, among other daunting challenges, according to trainers and senior scientists *Science* Careers interviewed for this story.

These days, most doctoral programs and university career offices supplement scientific training with transferable skills, says Anne-Marie Glynn, program manager for EMBO courses. But to get that training you need to be "fortunate enough to work at one of these institutes"—and those programs often lack the basic financial accounting and people-management skills required of PIs, Glynn adds.

Many early-career scientists recognize the need for that extra training; feedback from young scientists prompted BWF and HHMI to design such a course in the first place. Today, early-career scientists are recognizing this need earlier in their training, Glynn says. While EMBO first developed courses for scientists who had already been appointed as research group leaders, lately more postdocs—and even doctoral students—have been signing on, Glynn says. In 2007 EMBO started offering 3-day courses for younger scientists in addition to the beefier, 4-day courses for research group leaders.

What will you get from the course?

CREDIT: EMBL Photo Lab/Marietta Schupp

Anne-Marie Glynn

Lab management and leadership courses range from on-campus classes organized by your university, to off-site courses delivered by consultancies with participants from a range of research institutions. Dedicated courses tend to be an immersive experience lasting between 1 and 4 days.

The range of topics varies. The 2002 and 2005 BWF/HHMI courses offered training in grant writing and collaboration, for example. But courses typically cover people skills, setting and meeting goals for the lab, and project and finance management. Carl Cohen says the most popular element of his workshops is the part on negotiations. "At the young PI level there are issues like, 'How do I deal with my department chair who wants me to take on more responsibility than I'm ready for?' " This includes taking on extra teaching and committee work. During the workshops, he helps young PIs learn to balance departmental responsibilities with time spent on research. Participants also learn how to agree on an appropriate balance with department chairs and senior advisers.

One of the ways instructors teach these and other leadership skills is through role-playing. They set up scenarios that allow attendees to practice together; this is followed by discussions of how the scenarios played out. The idea is to prepare them for similar situations, which are bound to arise in their labs.

Such training proved useful for Zarivach, who says he used to push his staff too hard. Recognizing this, at his

Further reading:

The BWF and HHMI's *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty, Second Edition*

At the Helm: Leading Your Laboratory, Second Edition by Kathy Barker

Lab Dynamics: Management and Leadership Skills for Scientists, Second Edition by Carl M. Cohen and Suzanne L. Cohen

"Building Leadership among Laboratory-Based and Clinical and Translational Researchers: The University of California, San Francisco Experience" by C. Wides, *et al*.

Vitae's booklet The Leading Researcher

second course Zarivach asked his instructor and fellow participants how he might change his approach. They suggested that a lighter hand might stress his staff less and help them learn to work more independently. Zarivach has since begun to trust his junior colleagues more, giving them enough space to make their own mistakes while letting them know he's around when they need help. The combination of advice from course mates and trial-and-error in the lab has worked, he says.

Another strength of the courses is that they help researchers prepare for hiring decisions, alumni say. Zarivach says he learned "to give more time for the interviewed person to talk" during job interviews and to ask unconventional questions to learn more about their personalities. Reck-Peterson, who took the BWF/HHMI course before she took an hfp course, says she learned to follow up on letters of recommendation with telephone calls to get more nuanced verbal recommendations. She also learned to adjust interviews to accommodate different personality types.

Both Zarivach and Reck-Peterson say that the networks of fellow PIs they formed during the courses continue to provide support. Zarivach now heads a forum of young scientists, some of whom have taken part in leadership courses at his university, who continue discussing lab management issues via email or over coffee. Reck-Peterson and other alumni of lab management training in the Boston area get together from time to time, too, since they trust each other and have a common approach to addressing lab issues.

Choosing a course

In choosing a lab management course—assuming you have access to more than one—important aspects to consider are the time commitment and the format. Some courses bring instructors to a university for an afternoon seminar, for example, or even for a couple of days. Zarivach did a 2-day on-campus lecture-heavy course organized by his university, followed by a 3-day EMBO course in Heidelberg, Germany. At the second course, "we could discuss more," he says. There was enough time for all the participants to share their experiences and propose solutions.

Another consideration is whether to take such a course alongside institutional colleagues: Do you feel you can open up? Or would you be better off attending an off-campus course and building a remote support network? Because the topics discussed are often sensitive—dealing with recalcitrant colleagues, perhaps—an off-campus course allows you to speak more openly, Glynn says.

Some universities offer free training in lab management and leadership, but other courses cost money. If you are a Ph.D. student or postdoc, perhaps it can be covered by fellowships—but you may have to convince your PI to pay. You can help your case by offering to share what you learn with other group members.

If you are a PI, you can set your own priorities. "If you have a startup package, instead of buying a whatever—a microfuge—spend a few thousand dollars on [the training] instead," Reck-Peterson recommends. "It is well worth the investment."

Examples of current or recent courses and consultancies

Cold Spring Harbor workshop on biosciences leadership

University of California, San Francisco's Scientific Leadership & Management course

Postdoc Leadership Program at Cornell University

Scientific Management Course for Postdoctoral Fellows at Thomas Jefferson University

University of Pittsburgh Course in Scientific Management and Leadership

University of Southern California's Managing a Scientific Laboratory course

The New York Academy of Sciences' From Scientist to CSO: A Leadership Prep Course for Scientists in Business, Academia, Government and Research Institutes

The University of Ottawa's graduate diploma in scientific management and leadership

EMBO Laboratory Management Courses, including one for Female Leaders in Science

Vitae's Leadership in Action

The University of Zürich's courses on Leadership, Management, Negotiation and Moderation

The University of Cambridge's Leadership and Management Development courses

Skill Assist in Pennsylvania

Science Management Associates in Massachusetts

The Leadership Edge in California

hfp consulting in Germany

ProSciencia in Germany

True Colours in Belgium

Leadership Sculptor in Germany

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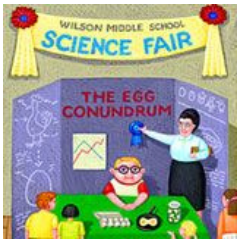

Career Advice

Lab Management Courses: Becoming a Trainer

By Lucas Laursen
April 21, 2014

Hilde Janssens currently works as a lab manager in the laboratory of a junior principal investigator (PI) at the Centre for Genomic Regulation in Barcelona, Spain—except when she's teaching other scientists how to manage their own laboratories. In 2009, Janssens participated in her first lab management course, offered by her institution through the Heidelberg, Germany-based training and coaching company hfp consulting. A year later, the company recruited her as a part-time instructor.

"I saw a huge unmet need among scientists for this type of training and ... as [a] scientist I thought I had the responsibility and credibility to address this need." —Carl M. Cohen

Today, Janssens is one of a small but growing number of scientists who train others in the skills of managing a laboratory. Lab management and leadership instruction is a very small niche on the current job market, with many of the trainers doing it part-time (like Janssens) or even as volunteers. But the scientists who decide to pursue this avenue say it offers a satisfying complement to their primary careers.

What it takes

Traditionally, trainers have come into the job from a consulting or management background, says Anne-Marie Glynn, the program manager for the European Molecular Biology Organization's (EMBO's) laboratory management courses. But as more scientists are exposed to formal lab management training, some discover an interest in becoming a trainer themselves, and they feel better prepared for the new activity, Glynn adds.

Becoming a trainer requires a blend of skills. It helps if you're a scientist, familiar with the practicalities and challenges of running a laboratory. You also need good communication and interpersonal skills because they are at the core of what the courses are teaching. hfp consulting's trainers must teach participants—mainly future and established PIs—to establish two-way communication in the lab, making their needs clear to lab members while also listening to them, Janssens says. The course puts great emphasis on empathizing with team members, balancing supervision with autonomy, and negotiating conflicts.

It also takes good communication and interpersonal skills to run the courses. Much of the training is delivered via guided conversations and group exercises, managing personalities and guiding interactions among the participants, Janssens says. Instructors also need to keep track of how each participant is doing, by observing and listening, Janssens says.

Biologist Carl M. Cohen began teaching workshops on leadership in the 1990s and has co-written a book (*Lab Dynamics: Management and Leadership Skills for Scientists*) and several *Science* Careers articles on the subject with his wife, psychologist Suzanne L. Cohen. Every workshop, Carl Cohen says, includes a person with a strong personality who could easily dominate the discussion; to be a good facilitator, you need to involve other

CREDIT: EMBL Photo Lab/Marietta Schupp

Anne-Marie Glynn

participants.

Trainers must be prepared to tailor their teaching to varied audiences, taking a group's specific needs and background into account, Glynn says. Courses that were originally offered to all scientists holding or anticipating a leadership or management role are now tailored to thinner slices—e.g. to senior postdocs, specialized lab managers supporting a PI, women in leadership positions, or PIs.

Training to train

Currently there is no official credential you can earn to qualify to work as a lab management trainer. This may change in the future, as hfp consulting (for example) is planning to offer a certificate program, Janssens says. In the meantime, scientists interested in teaching lab management courses should seek out relevant training and experience wherever they can find it.

A good first step is to take a lab leadership or management course, as Janssens did. (See "Learning to Lead a Lab" for examples of current or recent courses and consultancies in the United States and Europe.) Glynn also refers anyone interested in becoming a trainer to online resources from the Burroughs Wellcome Fund and the Howard Hughes Medical Institute: *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty* and *Training Scientists to Make the Right Moves*.

CREDIT: Hilde Janssens

Hilde Janssens

Teaching experience can also be very helpful. Janssens picked up a teaching diploma when she was an undergraduate. Before joining hfp consulting, she taught or assisted teaching on a range of topics including genetics, database management, and basic interpersonal communication skills.

If hired, instructors can expect to receive on-the-job training and to attend and observe lab management courses taught by others, Glynn says. In addition to such training, hfp consulting provided Janssens with preplanned exercises, information on moderation methods, and checklists of subjects to cover. Janssens had to master a core curriculum, she says, adding that it takes a year to 18 months to become a "full" trainer at hfp consulting. In her spare time, she also read psychology books.

Making your own way

Like so many nontraditional jobs done by Ph.D.-level scientists, there is no well-marked path to becoming a lab-management trainer. No matter what preparation you have for becoming a leadership trainer, Glynn says, "you need an entrepreneurial spirit."

Carl Cohen began by taking a general management course at Harvard University's extension school to address problems he was encountering in leading his own lab at Tufts University. "I saw a huge unmet need among scientists for this type of training and … as [a] scientist I thought I had the responsibility and credibility to address this need," he says. He mentioned this to Alice Sapienza, a leadership and research management expert (and the author of *Managing Scientists: Leadership Strategies in Scientific Research*). She encouraged him to run a 90-minute workshop for PIs at his home institution. That first workshop "was so much fun and so interesting," Carl Cohen says, that he began looking for other venues. At first it required persistence and creativity, he recalls. The first professional society he approached, the American Society for Cell Biology, rejected the proposal. The following year, he persuaded the society's Women in Cell Biology Committee to sponsor the proposal. Things have grown from there, and today Carl Cohen runs a consulting company called Science Management Associates as his main professional activity.

To find a job in lab management training, Janssens recommends getting to know the people behind existing courses, as she did, and talking to a broad range of potential employers including outfits such as hfp consulting, university career offices, and large labs that need a one-time instructor.

Professional and personal rewards

Those who teach lab management and still run a lab say that teaching the courses is helpful in their own labs. Janssens values in particular the interpersonal skills she picked up as an instructor. For example, she says, she used the course's conflict-management lessons to solve an issue with colleagues regarding flexible working arrangements.

Jobs in lab management training are hard to find. While hfp consulting and EMBO are adding to their course list to meet demand, job opportunities in both Europe and the United States remain scarce. But despite the limited

Courtesy of Carl M. Cohen

Carl M. Cohen

financial opportunities, Carl Cohen says, teaching scientific leadership has been "possibly the most gratifying thing I've done in my life."

Lucas Laursen is a freelance science journalist in Madrid, Spain.

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