The Transferrable Postdoc

Now more than ever, experts say, postdoctoral fellows need to cultivate a broad base of beyond-the-bench skills and capitalize on transferring them to the next stage of their career to be as competitive as possible. In today’s competitive job market, it is vitally important for postdocs to accumulate skill sets on their CVs right alongside their publications—whether their next career move is research-based or not. Postdocs who repackage their lab leadership and project management skills into star candidate qualities have an advantage when looking to step into their next position. By Kendall Powell

When an infectious disease fellowship at the Centers for Disease Control and Prevention in Atlanta turned out to be a poor fit for Melissa Ramirez, she moved on to other postdoctoral opportunities where she picked up skills in grant writing, student mentoring, and teaching. Her last stop was as a postdoctoral teaching scholar at North Carolina State University in Raleigh, where she was immersed in teaching and curriculum development for the campus’s undergraduate microbiology students.

At each stage of postdoctoral development, Ramirez gained valuable skills that have now successfully translated into a new career as a teaching assistant professor at NC State. Her success was not a given, but came after several years of gathering broad expertise across areas and matching those skills to her interests. Ramirez’ approach should make her postdoctoral colleagues sit up and take note—no matter which direction they take next, it’s a tough job market out there. Almost every sector of the science and technical labor market has tightened since the Great Recession began in 2008.

“It’s very hard to find research positions, in general,” says Paula Stephan, professor of economics at Georgia State University in Atlanta and a research associate at the National Bureau of Economic Research. “Postdocs, for the last couple of years, have had particular difficulty because of a soft economy.”

Universities in both the United States and Europe are hiring more contract-based faculty or faculty in tenure-track positions that have no salary guarantee and require outside grant funding. Stephan notes that a combination of factors have hit biomedical job candidates especially hard, including the flattening of the U.S. National Institutes of Health budget and the consolidation, downsizing, and off-shoring of jobs among pharmaceutical firms. Some of the largest chemistry labs in the United States, such as DuPont, are also downsizing. “Once we get updated data from the Survey of Earned Doctorates and Survey of Doctorate Recipients, I think we’ll see that industry is hiring fewer Ph.D.s for research positions as well.”

Compounding the problem is the expectation gap that exists among the roughly 56% of postdocs who believe they will continue on to tenure-track academic positions and the 21% who actually did in 2012 (scim.ag/XWZwhv). In addition, the definition of a successful academic job candidate has also shifted in the last decade. Beyond stellar research and publication records, faculty candidates must also collaborate across disciplines and the globe, and have a sharp talent for fundraising.

Although this might all seem bleak, Doctorate-holding scientists are highly employable in many arenas. While postdocs tend to put their heads down and toil to collect data, Stephan and others urge them to periodically step away from their research to make sure they collect transferrable skills, too.

“Actually many of the skills we need for academic careers are the same for non-academic careers,” says David Bogle, chemical engineer and pro-provost of the Doctoral School at University College London. Strengths in analytical thinking, problem solving, written and oral communication, and collaboration make postdocs universally attractive. “No employer wants somebody that is narrow-minded” or too narrowly focused, say Bogle.

Got skills?

A variety of self-assessment resources can help postdocs track their progress. “Young scientists need to periodically sit back and think, what skills do I have? What skills do I need for my project? And what am I lacking?” says Bogle. He recommends the Researcher Development Framework created by Vitae (scim.ag/1lVhLtb), a career development organization based in Cambridge, United Kingdom.

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The framework covers four domains scientists need to be effective: intellectual knowledge, personal effectiveness, professional standards, and working with others. Similarly, the myIDP website (myIDP:sciencecareers.org) is particularly well-suited to helping biomedical scientists explore careers and set goals for career development. Sibby Anderson Thompkins, director of postdoctoral affairs at University of North Carolina (UNC), Chapel Hill, advises using the National Postdoctoral Association’s Core Competencies document and the checklist at the end of it (scim.ag/1pmZp9l) as a concrete way to discuss professional development and specific skills goals with postdoctoral advisors.

A skills frame-shift

The core skills that every postdoc needs to transition to a successful academic career are well known. Professorships go to those who exhibit clever experimental design and efficient research project management, who can deliver persuasive scientific arguments, and who are able to write clear, concise, and winning publications and grant proposals. But many postdocs may overlook that those same skills—with a slight tweak in frame-of-mind—make them highly marketable for other positions as well.

Anderson Thompkins says postdocs have to shift their own thinking about their acquired skills and how best to present them to potential future employers. “Postdocs are, in fact, mini project managers,” she says, and should describe themselves as such. “Think more broadly—can you manage people, manage time, meet deadlines, and organize? All those skills are really useful in any job. Any job.”

Bogle points to another skill that is highly valued in the work-place, but often undervalued by scientists: “The communication of complex ideas in a clear, transparent way. It’s difficult to deliver complex messages quickly.”

Joe Hardy adds that problem solving, analytical thinking, and understanding how to run proper experiments translate beautifully in today’s companies operating within Internet-based commerce. “Right now, the way companies think about developing and marketing products is essentially an experimental model,” says Hardy, the vice-president for research and development at Lumosity, a cognitive-training software company based in San Francisco.

Web-based and technology firms often take the approach of an A-B test, he says, with different customers exposed to different experiences. Then, companies measure behaviors like clicking links or purchasing in response. Postdocs understand the importance of random assignment of conditions, good experimental controls, and how to process the data coming back.

“In this world of the Internet, millions of experiments are happening simultaneously. Experimental design and analysis are big players now,” Hardy notes.

Another invaluable skill postdocs must possess to succeed in almost any later venture is writing clearly and concisely. Doing three paleontology postdocs in France, Berlin, and New York—and writing multiple fellowship applications to fund them—prepared Faysal Bibi for pursuing the large grant he needs to secure a permanent faculty position. Now in a five-year “habilitation” post as an assistant professor of paleontology at the Museum für Naturkunde in Berlin, Bibi says he has the confidence to write a proposal for the €1–2 million grants necessary to sustain a research program.

When it dawned on Christine Gould that she actually enjoyed the process of writing up her thesis and postdoctoral work, she investigated scientific writing careers. As a medical writer for Health Interactions in San Francisco she prepares manuscripts, slide presentations, and abstracts for biotechnology clients. Careers that employ scientific writing skills include science communications and journalism, medical writing, regulatory affairs, and continuing medical education (or CME). Jeff Sfakianos even found that his manuscript-writing skills were extremely handy when filing patent applications for his therapeutics startup company. Sfakianos, who did a postdoc at Genentech, found that the back-and-forth with patent examiners mirrored the process of peer review. “Writing my own papers was more important than I imagined,” he says.

Even though writing clearly, presenting complex ideas, and successful completion of projects comes with the postdoc territory, job seekers might need to spell these abilities out for employers. Hardy of Lumosity stresses that if postdocs are transferring outside of their immediate research field, then they must describe in detail (and perhaps in a profession-matched vocabulary) their accomplishments and what useful, relevant skills they have attained.

Gould did this by flipping her curriculum vitae on its head. She listed all of her writing experience at the top—including contract editing work, blogging, and courses in science writing—and de-emphasized her research. “I described myself as a medical writer who happens to have eight years of experience in cancer biology.” Later, was told her resume stood out to the human resources department.

Missing from the toolkit

Most postdocs make good project managers, shepherding multiple lines of research into a coherent final publication, but they often lack other types of management training. Fiscal, personnel, and time management are critical for careers both inside and outside academia. These skills, along with teaching and business know-how, should top the list of anyone heading out on the job market, but obtaining them requires extra effort.

As a senior postdoctoral researcher at Uppsala University in Sweden, Grzegorz Wicher has acquired an impressive list of technical skills from specialized mass spectrometry to microdissection and primary cell culture. But when it came to starting up his own cell culture company, PrimeCell, he took advantage of the Uppsala Innovation Centre, which helps researchers commercialize their ideas.

Through the center, he took the three-month Business Lab program to gain some business, marketing, and legal knowledge and to get connected to experts in those areas. He also attends “business pub” meetings every couple of weeks to chat with others starting companies and “exchange knowledge with a beer in your hands.”

Chris Blagden, director of CME development and strategy for HealthmattersCME in New York notices continued>
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— Joe Hardy

Featured Participants

Georgia State University
www.gsu.edu

Health Interactions
www.healthinteractions.com

HealthmattersCME
healthmatterscme.com

Lumosity
www.lumosity.com

Museum für Naturkunde
www.naturkundemuseum-berlin.de/en

National Bureau of Economic Research
www.nber.org

North Carolina State University
www.ncsu.edu

PrimeCell
www.primecell.se

University College London
www.ucl.ac.uk

University of North Carolina, Chapel Hill, Office of Postdoctoral Affairs
research.unc.edu/offices/postdoctoral-affairs

Uppsala University
www.uu.se/en

Additional Resources

American Society for Microbiology's Teaching Fellows Program
www.asmgap.org/index.php/asm-science-teaching-fellows-program

National Postdoctoral Association's Core Competencies
www.nationalpostdoc.org/competencies

Preparing for Academic Practice Program, Oxford University
www.apprise.ox.ac.uk

Uppsala Innovation Centre
www.uic.se

Vitae
www.vitae.ac.uk

Running a successful marketing campaign

Regardless of whether postdocs transfer skills to a permanent professorship or to another field entirely, they must think broadly about how to market themselves when the time comes. Much like a presidential bid, running a successful self-marketing campaign requires starting years ahead.

Anderson Thompkins says that postdocs who come to the UNC office early realize they must have a clear sense of their end goal to maximize their postdoctoral time. The most successful postdocs, she says, consider different options, having multiple “plan Bs” and do not bank on one particular career path.

Bogle suggests that trainees ponder career choices at two special times: research highs and research lows. “Take a break and look around. Go to the pub with friends and talk about it. Explore, get out there and find out what's on offer. Make all the connections you can and make use of all the external contacts you can.”

Young scientists have things backwards if they research intensely for 10–12 hours per day and then only spend 15 minutes on a job search, says Hardy. “You should spend significant amounts of time investigating, networking, and understanding what people like you have gone on to do.”

Although self-promotion doesn’t always come naturally to scientists, postdocs need to think strategically about how best to position themselves in the research enterprise. In his various postdoc posts, Bibi soaked up cutting-edge techniques, such as evolutionary meta-analysis and genomics, and made valuable personal connections.

“What paid off is that I liked to be a bit of the odd one out, surrounded by people who worked on different things or in different [geologic] time periods.” This way, he gained both innovative technical skills and expanded his network well beyond his subfield. As an academic job candidate, he says, “this is something I think I can sell much better than simply saying that I study fossil antelopes.”

Bibi has landed on the exact right word: “sell.” Job searching in today's market is fundamentally about selling yourself, your ideas, and your skills and convincing a potential employer of your value. Luckily, that's one skill many postdocs have already unwittingly mastered. After all, how many times have you given a seminar and successfully persuaded the crowd to believe you and your data?

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