# Finding a job may be the hardest nut for a new scientist to crack

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The typical biography of a scientist might look something like this.

At a young age, a boy or girl discovers a love for science. Their dream is to become perhaps a geologist, a chemist, or a marine biologist.

At school they work hard at math and science, and they supplement this with everything else they can get their hands on: books, documentaries, public talks and visits to museums. They take all the right courses at college and then embark on a PhD in their chosen field.

After many years of hard effort (including chunks of time racked with doubt and frustration), they complete a solid body of work that contains some genuinely new discoveries. They've had the chance to meet some of the big names they read about as a kid, and now actually know some of them on a first-name basis.

The day a young graduate receives his or her science diploma is the most thrilling and satisfying day of their life. They are finally, officially, a scientist.

But there's one thing that all those years of study and research has not prepared them for: the job market.

## Pounding the pavement as a scientist

No matter what your profession, job hunting is not fun. But for scientists and other researchers, it's a weird world of intense competition, painfully long time scales, and uncertain outcomes.

The strangest thing about a scientific career is that the application deadlines are often ridiculously early. Hoping to find a university position starting in September? If you wait until February or March to begin your job search, you've likely left it way too late. The application deadlines for some of the juiciest positions were way back in November and December.

Because of this advanced schedule, only the things that someone accomplishes a year or more before actually needing a new job will matter for their career prospects. Any amazing discoveries made after the application deadline are largely irrelevant.

The problem is that this is not always how science works.

For many important research topics, all the headline results emerge only at the very end. Students whose research is part of a massive longitudinal study or who are members of a big project team suddenly find themselves at a huge disadvantage, because they often can't provide instant evidence of the quality of their work a whole year before needing a job.

The other daunting thing is the intensity of the competition. For most specialized scientific topics, there are far more PhD degrees than job postings: across all of science, doctoral degrees outnumber faculty positions by a ratio of 12 to one. An advertisement for a fellowship or junior faculty position will routinely draw hundreds of applications, and only 1%-2% of graduates will eventually land a coveted professorship.

How to proceed, when the odds are so stacked against you? Inevitably, the only way to counter the competition is to apply for lots of positions. A budding scientist is expected to apply for a dozen or more jobs, spread all over the world.

This situation immediately creates some challenges and problems.

By increasing the quantity of applications, the quality suffers. In an ideal world, an applicant will provide a carefully wrought narrative, weaving a story as to how their skills and background perfectly dovetail with the interest of the department they hope will hire them. But there's no time for that. Instead one typically sends out a generic CV and research plan,

and then essentially just hopes for the best.

The process is also incredibly inefficient. Professors all over write endless careful letters of recommendation, most of which have little bearing on the outcome. Selection panels spend hundreds of hours reading huge piles of applications, but can only afford a scant 10-15 minutes considering the merits of each candidate.

What's more, not everyone can freely pursue jobs anywhere the market will take them. Young children, aging parents and other personal circumstances result in a large pool of outstanding scientists with strong geographic constraints, and hence limited options.

Overall, the harsh reality is that many applicants will simply not get any offers. A lifelong dream of being a scientist, combined with an advanced postgraduate degree, is tragically not a guarantee of a scientific career.

## Good scientists should be able to find jobs

The frustration, disappointment and disillusionment grow every year. Things need to change.

First, employers need to make much more of an effort to tell applicants what sort of scientist they are looking for. Instead of reducing the job searching process to the scientific equivalent of speed dating, advertisements need to set out a clear and detailed set of selection criteria, with lots of context and background on the role and working environment. By properly telling the community what they're looking for, labs and research institutes can focus their time on candidates with useful qualifications, and applicants can focus their energy on only those jobs for which they have a realistic chance.

Second, we need to create flexible career paths. Part-time positions,

"two body" hires for couples with both members in academia, and accommodation of career interruptions need to become *de rigueur*, rather than whispered legends we've all only ever heard about second- or third-hand.

And finally, a specialist science degree needs to move beyond the expectation that it offers training only in one particular type of science.

A good scientist graduates with passion, vision and brilliance, and also with persistence, organization, rigor, eloquence and clarity. A scientist can incisively separate out truth from falsehoods, and can solve complicated problems with precious little starting information. These are highly desired attributes. The scientific community needs not just accept but celebrate that the skills and values we cherish are the paths to a wide range of stimulating and satisfying careers – both in and out of academia.



Source: The Conversation