



# Scientists at Breaking Point

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**Australian researchers are finding their careers more difficult to manage, with job security, uncertainty of funding and workload at the top of their concerns.**

**A**ustralian researchers like their work, but not the system in which they work. It's the lack of employment certainty, the overly-competitive race for grants, fellowships and jobs, and (for more senior people) the onerous burden of teaching and administration.

The best thing about their work in research, they say, is working on interesting and important issues, and working in a stimulating environment. To counter that, researchers have to put up with systems that are often opaque, wasteful and frustrating.

These insights come from a new study where 1203 researchers participated in an online survey and focus group discussions.

Respondents generally agree about what makes a career in research attractive irrespective of gender, age, career stage, employer or discipline, although they did disagree on how attractive such a career is. "Attractiveness" increased in almost a linear fashion with seniority, from graduate student to late career researchers.

The Australian Council of Learned Academies was commissioned to conduct the survey and eight focus groups by the Commonwealth Department of Innovation. The aim of the final report, *Career Support for Researchers: Understanding Needs and Developing a Best Practice Approach*, was to identify the pressure points in the research career pathway and identify possible solutions.

Nearly half the respondents to the survey came from the broad field of science, engineering and medicine. Most were from universities, but national research institutions, CSIRO and private industry were also represented.

On the positive side of the ledge, respondents appreciate the PhD program, which supports students as they work through their training; they feel encouraged to take up postdoctoral appointments; and they value the mentoring provided formally or informally by their institutions or their workplace.

But respondents identified four times as many bad features of the Australian system. Job security, uncertainty of funding and workload topped the complaints. For many the reality of a research career is a frustrating round of chasing grants and fellowships while trying to write papers and (for some) manage a heavy teaching load.

*Compared to other professional vocations, research careers are high stress (long working hours, travel, publication, technically challenging), high risk (in the sense that research outcomes are not assured), and low pay.*

Top of the list of complaints was an over-reliance of short-term contracts, identified by 83% of all respondents and over 87% of scientists as a poor aspect of the research system in Australia.

*I have had three jobs at three different universities across three states in 2 years. I have fixed-term contracts and I have had to move states to find jobs. This is very expensive and setting yourself up with networks and friends is*

*difficult. Every time you move and start a new job you have lost the ability for a while to write up past work as in a new job you're busy trying at getting your head around that. There is a lot of discontinuity.*

But other issues focusing on career opportunities were close behind. A constant theme was how difficult it was to start and sustain a career in research, with short-term contracts, highly competitive funding systems and an under-resourced system with increasing workloads.

*Job uncertainty is appalling, we are the most educated people in the country and we can barely provide for our family and have at most 3–4 years job stability. This is extremely stressful.*

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Thirteen per cent of respondents nominated “work load” as the worst thing about a career in research. This is a sharply increasing concern with age and seniority, barely mentioned by young researchers but nominated by more than one-quarter of late career researchers. Excessive workloads and job expectations meant they had to juggle teaching, supervising, maintaining an active research profile, managing projects and complying with administrative requirements. This was exacerbated by a low (and decreasing) level of administrative support.

*It is almost impossible to carve out time to do research as the teaching workload is horrendous. I coordinate, lecture on and provide many tutorials for large courses (800+ students). The institution keeps playing with our workload model so that more and more teaching is dumped on us and our attempts to do research are not recognised within the model. It is sad and disheartening.*

Other issues were identified: the lack of a clear career pathway or assistance with career development, and salaries (particularly by junior researchers, much less so by senior ones). Long work hours, the pressure of trying to write publications while carrying out a demanding full-time job, and the invidious choice of starting a family or following a career raised questions about work–life balance.

Participants reported a cultural resistance to industry experience. This sort of experience is valued in the US, but participants said they were “looked down on” because they had built a career outside academia or received qualifications from an unconventional source. One said his years of research in industry were “pretty much discounted by academia” and that he was not considered a “real” researcher because he did not have a PhD.

*Commercial work is contrary to working up the academic ladder. If you do stuff that is practical and applied to the industry, it is seen as lesser than something that is esoteric.*

The cultural resistance is reinforced by a systemic resistance, in that a strong publication record is an important factor in determining appointments, promotions and grant applications. One person who gained a PhD at the Garvan Institute found it hard to become established as an independent researcher because an industrial background meant a “less impressive publication record”. The system of measuring “quality” primarily through publications was criticised for being too narrow.

While the PhD system was praised, the view that too many PhD students are being accepted by universities for the available research and teaching positions was a persistent sub-theme. Respondents said that too many people were competing for a limited number of positions and grants.

Participants questioned the motivation of universities in recruiting students, believing that students attract government funding and are a source of cheap labour in the laboratory or field. These incentives lead university staff to encourage more students to undertake PhDs to “crank out” graduates even though the employment outlook in research was bleak and the Australian economy currently lacks the capacity to absorb these graduates. How many PhD graduates does Australia need?

Perhaps existing resources should be concentrated on fewer students. This would allow them extra time to publish papers, develop teaching experience and acquire the skills required to compete for positions. One supervisor said he told his students not to be in a hurry but to get some publications while doing their PhD. Others pointed to the benefits of the American system:

*The entire American education system is focused on getting PhDs competitive in the US market. They graduate with a bunch of publications. They have whole conference sessions on getting ready for the job market. We have nothing like that. The people Australians are up against aren't local people but international scholars.*

While respondents were quick to identify problems, they also had solutions. While many had a solution that lay in increased funding, others would be relatively cheap to apply:

- better advice on career prospects and career developments;
- mentoring;
- reduced audit and reporting requirements;
- simplified applications for grants and fellowships;
- a new look at the research–teaching nexus in universities;
- more flexible and responsive grant programs;
- encouraging collaborations and transfers with industry;
- stronger higher degree research training; and
- greater job stability through longer contracts and more tenured positions.

They identified many overseas programs and practices that could be incorporated into an improved Australian system.

Toss Gascoigne is PLEASE CONCLUDE SENTENCE.