The inside track from academia and industry

A question of supply and demand

Simply having a PhD may not be enough — you need to marry scientific expertise with the right skills.

Michael Alvarez

During the past few decades, the demand in the labour market for scientists and engineers educated to doctoral level has been a matter of considerable uncertainty and debate. Some say that the number of trainees being produced is too low to keep pace with demand, whereas others believe there are too few opportunities for jobseekers once they have completed their training. So why the discrepancy, and which view is correct? In fact, it is likely that there is some truth in both arguments, and putting them in a broader context helps to reconcile the differences.

PROBLEM: Labour-market projections are complex and, thanks to unforeseeable political and economic changes, must include wide margins of error. For the science and engineering sector, there are significant differences in the supply–demand equation across the various disciplines. This makes it difficult to generalize about future demands for labour.

The picture is further complicated because some employers achieve short-term gains by claiming that there is a shortage of supply. Stating that more PhD trainees are needed, and so encouraging more people to follow that career path, leads to a downward pressure on labour costs and gives employers greater choice when they come to recruit.

WE NEED MORE!
"Unemployment rates for PhDs consistently register below the national average."

In other words, even the most well-intentioned labour-market projections are informed by inherently tenuous data and groups with vested interests.

University laboratories, for example, rely heavily on doctoral and postdoctoral trainees to produce research and share teaching responsibilities, and few departments or principal investigators are eager to volunteer their own labs as a place to make cuts in trainee personnel.

But a strong case can be made for increasing funding and continuing the positive growth in supply, as long as the training experience is tailored to meet actual demands for skills. Put another way, the focus of the supply–demand debate has historically centred on quantity, but to realize the long-term macroeconomic potential for sector growth and to increase employment opportunities for PhD trainees, more qualitative factors must be considered.

SOLUTION: In the past, becoming a good researcher served as adequate preparation for a career as a scientist. Now, although solid research skills are as essential as ever, in many cases they are insufficient when it comes to contributing in a given work setting or advancing one's career. Additional insight into how and where scientists can best use their skills is becoming increasingly necessary, along with opportunities to develop the adjacent skills that will enable a more practical application of a researcher's training.

It is useful to know, for instance, how literature reviews and the formulation of dissertation topics are akin to certain types of market research; to see how the grant-writing process shares similarities with developing project proposals within a business setting; and to recognize the critical roles scientists can have in the exchange of information between researchers and non-scientists in many environments.

Individual trainees may feel, understandably, that they are on their own when it comes to learning new skills and developing professional opportunities in these domains. Most training environments are focused on research, and pay little attention to the practical requirements of the labour market, perhaps owing to the fear that time spent by trainees thinking about something other than their specific discipline might detract from productivity. So, to ensure their own career success, the smartest trainees are beginning to look for evidence that the PhD or postdoctoral experience will offer both excellent research training and career preparation before selecting where to go. And those institutions that adapt to these demands will produce the most capable and competitive scientists of the future.

WE NEED FEWER!
"The annual number of new PhDs that will be needed is much smaller."

Exposure to the various applications of science and an introduction to aspects of other fields is invaluable in the job market and worth pursuing. Trainees with this background can differentiate themselves from other candidates who bring only research skills to the table. It is clear that the job market will benefit if institutions enhance training so that scientists are prepared to contribute in various employment settings, and are assisted in making informed decisions about their career choices and pursuits.

In the bigger picture, this is beneficial to the individual trainees, the organizations that employ them and, in an overall sense, to society for the way it helps ensure people get work that is meaningful, satisfying and necessary. ■

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