

Insights from interviews

From time to time, students who are ready for third-level education ask me whether they should study science and if it offers more job possibilities than becoming an academic researcher. They are unsure about their life-long interests and want to keep their options open. It is indeed very tempting to present the BSc degree as the first step to a glittering range of exciting career possibilities, both inside and outside academia. But the reality is that at that early stage a young 'scientist' is not trained sufficiently to compete effectively with more experienced scientists for most job openings. A career in science writing, for example, requires retraining and additional experience before being able to perform at the same level as seasoned journalists. Another option is to become a teacher at secondary-school level, but this, again, is not possible without additional training. If an entry-level job in industry is found, significant promotion will probably be difficult. The prospects at the end of a first degree are therefore not so great.

As students consider different job possibilities, it becomes clear that they need a higher degree if they ever want to move away from the academic laboratory. Furthermore, graduate students have usually gained their first experience of laboratory work, a glimpse of the lifestyle that goes with it and a vision that their discovery might be beneficial to mankind. So the choice is made to proceed to a PhD degree. Many think that they will, without doubt, acquire that title and find an academic position within easy reach. If not, the PhD degree itself will surely enable them to choose from a wide range of alternatives. This is what most senior scientists will tell young students, it is what position papers from the Human Frontier Science Program and the European Science Foundation say, and what is suggested by the paradigm of a strong oak tree with lots of different career branches beyond the PhD (Wiesel T, Banda E

(2002) A tree full of the fruits of opportunities. *EMBO Rep* 3: 906–910). But is the choice of studying for a PhD really as simple and secure an option as that?

In addition to dispensing repackaged 'wisdom' to others, another task of a senior scientist is to conduct job interviews. This is when some feedback on how the job market looks in real life can be obtained. I recently went through this procedure when we had an opening for an editor at *The EMBO Journal*. We received more than 150 applications, mostly from postdocs, a number that already suggests that all is not well in the standard academic laboratory. We interviewed a subset of candidates who provided further insight into the true nature of scientific careers. Each applicant had different reasons for leaving the bench but some recurring themes emerged. All were successful at school and as undergraduate students and had varying fortunes during their PhD projects. In time, the degree was awarded, some publications were added to the CV and everything pointed to the next step in the linear model of a scientist's career. But then doubts emerged. Some applicants were not enthralled by the prospect of working for the rest of their productive life in a very narrowly defined research field, with no time to follow other interesting avenues of science. They wanted to escape from that straitjacket, which editorial work would allow.

Others wanted to leave the laboratory because they hated the pervasive pressure to publish. The arguments over who should be first author, the resentment of perceived favouritism, the excessive pressure—bullying is the real word—drained their motivation. They were sufficiently disgruntled to move away, even while they were unclear of alternatives. For others, a fair salary and job security became increasingly important. The reality is that fewer long-term positions are available in academia, and, compared with most other jobs, they are

poorly paid. Some scientists find this frustrating given their expertise and intellectual capabilities. They want to get away from long working hours with poor rewards, but they do so with regret.

Finally, there were those who had taken time off for their family. In addition, their partners' careers often meant a change of location and the combined effects made a return to the laboratory impossible. Children need intense care over the first years of their lives, or support if they move, and during that time, some parents—inevitably mothers—realize that there has to be an alternative to the research treadmill. In addition, parents who take time off from the laboratory often find it difficult to return and pick up where they left off. One male applicant who applied for the editorial job as an alternative to a successful research career felt that it would be an irreversible step, as it would be too difficult to return to the lab after years away. For him it was a one-way street, and he was surprised when he was reminded that this is not what we tell mothers who take time out for a different reason.

So there is a lot of unease close to the benches and not too many escape routes. The theory of unlimited choices of alternative careers is not readily met in practice. We interviewed great people and had the luxury of choice, but almost 150 are still wondering what to do with their lives. Perhaps we should work harder to ensure that this dilemma does not arise too late and after too much investment of time and self. Maybe we should be more honest with those who seek our advice on what to do next. We can tell them that there is a projected need in Europe for 500,000 scientists in many different job categories but those who we interviewed no longer believe in fairy tales, and cannot afford to wait until such a bonanza becomes reality.

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