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Investing in Our Future

Virginia McGovern

At its best, the relationship between scientists and their trainees is rich and mutually fulfilling. The current pressures of academic science may be eroding this relationship, however. Trainees at the postdoctoral level provide a growing pool of inexpensive labor that fuels the laboratories of more-established researchers. Training time has increased over the past two decades: Scientists now enter their first nontraining job when they are in their mid-30s. Newly trained scientists are facing problems not confronted by their elders. They are entering midlife without stable jobs, without retirement savings, and, too often, without health insurance. These aging trainees have good reason to weigh the costs and benefits of their training to their families and to their futures.

The finance of science has played a significant role in degrading the training experience. When trainees are more economical for laboratories than other classes of workers, they turn into de facto technicians, working on projects that are not their own. Too many of them miss the chance to develop true independence. Science suffers when this happens. If trainees become "cheap hands," science loses the chance to integrate vital new ideas and outlooks.

Trainers must respect the trainee's curiosity, intellect, and personal development

Trainees have a duty to their laboratories, institutions, advisers, and themselves to accept control of their careers and destinies. But advisers, institutions, and funders of science have important roles to play in helping trainees achieve that control.

Engaged advisers must encourage and facilitate their trainees' entry into intellectual circles where their ideas can develop and thrive. Training institutions must use their own strengths—administrative structure, diverse resources, and flexibility—to provide an environment that draws trainees into participation in a thriving intellectual community. Funders committed to fostering the development of a strong new generation must provide significant opportunities for trainees to gain their own grant support, freeing them from dependence on advisers' ideas and money. These investments of established scientists, academe, and funders have long been essential components of an effective training system. The career paths of scientists have changed, though, and these fundamentals are no longer enough.

Institutions, individuals, and funders concerned about science's future need to do more if they want to keep attracting the best young minds. Institutions can follow the evolution of new career tracks and can adjust formal and informal education to prepare trainees for jobs that are significantly different from those of their advisers. Institutions can also create administrative mechanisms for handling postdoctoral affairs, such as those for providing formal channels for ensuring quality training and addressing salary and benefits issues.

Advisers can allow and encourage their trainees to pay attention to the many career options available. In this regard, trainers must respect the trainee's curiosity, intellect, and personal development, which often now draw talented researchers away from the bench and into new career paths. Furthermore, those engaged in training postdoctoral fellows should work against institutional policies that place standard benefits out of the reach of their trainees.

Funders can use their resources to ask formally what training the next generation of scientists is worth and to demonstrate, with funding, their answers to this question. Those who invest in science should take a leading role in bringing the wages and benefits of young scientists into line with their value. Funders can help raise standards by ensuring that young awardees are in supportive training environments. Pressures that encourage labs to use trainees in positions more appropriate for salaried workers must be removed.

This is a remarkable and exciting time to be a scientist. But the maturing cadre of young researchers needs hope of finding personal stability within this revolution. It would be a devastating mistake to let workplace conditions erode science's investment in human capital.

The author is program officer at the Burroughs Wellcome Fund in Durham, NC.