

Is Graduate Education in Need of Reshaping?

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A joint committee of the National Academy of Sciences (NAS), the National Academy of Engineering (NAE), and the Institute of Medicine (IOM) has issued a report indicating that higher education may no longer be producing PhDs compatible to today's job market and could be in need of some retooling.

"All three primary areas of employment for PhD scientists and engineers—universities, industry, and government—are simultaneously experiencing enormous changes," said the Director of the Institute for Advanced Study Phillip A.

Griffiths. "This suggests that new scientists and engineers must be prepared not only to be flexible in their work, but also to change positions and even careers more than any previous generation," added Griffiths, who chaired the committee that produced the report.

The report, *Reshaping the Graduate Education of Scientists and Engineers*, says that changes both in science and in the needs of the employers now require a PhD who is more diversified in his or her field and experience. The supply of PhDs is at risk of overwhelming the demand. Psychology, though, seems to be at less of a risk than other fields. Statistics in the report indicate that the number of PhDs in psychology has stayed fairly constant from 1983 to 1993, whereas the number of doctorates awarded in other fields—especially engineering, biological sciences, and the physical and mathematical sciences—has increased markedly. While many psychologists and department heads agree that change is inevitable in the psychology PhD program, it is not determined just how and where change will occur.

According to APS Charter Fellow Emanuel Donchin, of the University of Illinois-Urbana Champaign, the very diversity that exists already within the field of psychology has kept the field competitive without creating a glut of Ph Os. He added that change in PhD programs will occur, though mostly in terms of what financial support is available to researchers and universities. Others, like APS Member Roy Herrenkohl, believe that it is time to take a close look at the needs for psychology PhDs within the workforce and reevaluate opportunities for positions outside the standard academic career path.

"I think there needs to be a serious look at what society needs that psychology can deliver. Then shape programs more to meet those needs," said Herrenkohl, vice provost for research and dean of graduate studies at Lehigh University. "If people are going to get jobs, they will have to look at where the needs are and begin to address those needs as well as the on-going possibilities for academic careers."

Either way, in light of the evolving global economy, the across-the-board shrinking of financial resources, and an increasingly competitive job market, *Reshaping the Graduate Education of Scientists and Engineers* demands attention from all concerned with the scientific community.

The Report's Recommendations

“The PhD of the future should be a new and improved version of the current degree,” said Griffiths. “It would retain the existing strengths while substantially increasing the information available, the potential versatility of the students, and the career options afforded to them by their education.”

According to the report, the market for psychologists and other scientists-already affected by the end of the Cold War, the rapid growth of international competition in industrial-based countries, and constraints on research spending- is now being influenced by a rapid increase in the number of foreign students, widespread federal budget cuts, and a potential slowdown in the growth of university positions. Traditionally universities have been the primary employer of psychology PhDs. Additionally, the growth of managed care and health maintenance organizations will have an effect on the job market for psychologists and medically-based scientists.

Currently, many universities are having to suspend department growth and even cut back on positions due to lack of funding.

“It is not that we can’t train the students or that we can’t place them,” said Donchin. “The reason [departments are cutting back] is because many universities have cut the budget and reduced the funding for graduate support.”

The committee noted, and Herrenkohl agrees, that PhDs are spending more time now in postdoctoral positions before securing an academic post. “I think we are seeing more people with postdoctoral experience,” said Herrenkohl. “Thirty years ago, people got jobs even though they hadn’t finished their doctorates.” To achieve a better alignment between the number and quality of graduates and the realities of the job market, the report recommends that PhD programs, especially at the department level, maintain what is at the heart of the PhD. Specifically, the report applauds the original research that has been the hallmark of doctoral training. However, it recommends that educational facilities, with help from federal agencies, develop greater versatility both in students and the career options available to them. Specifically, the report recommends that PhD-producing institutions offer a broader range of academic options to students and provide better information and guidance through a cooperative effort between universities and federal scientific agencies. Third, the report further recommends, again through a cooperative effort, devising a national human-resource policy for advanced scientists and engineers.

In psychology, where options run the gamut from adolescent and applied to quantitative and social, the first recommendation is almost a mute point. But the report indicates that versatility can be achieved on several levels.

“On the academic level, students should be discouraged from overspecializing,” wrote the committee. “Those planning research careers should be grounded in the broad fundamentals of their fields and be familiar with several sub-fields. Such breadth might be harder to gain after graduation.”

The report also suggests that the government and other federal assistance agencies readjust their support mechanisms to include an increased emphasis on education and training grants that include a proposer’s plan to improve the versatility of students- both through curricular innovation and effective faculty mentoring to familiarize students with a range of employment options. To the extent that grant proposals included such plans, they would be more favorably evaluated.

To facilitate the second recommendation, the committee suggested the establishment of a national database of employment options and trends information, including data on career tracks, graduate programs, time to degree, and placement rates. NSF would coordinate federal participation in the database, which would ideally be available on the Internet, making it readily available to students and faculty. The more information that is available to students, wrote the committee, the more careful and informed career choices the students can make.

“In preparing our last report ... we found that no coherent national policy guides the education of advanced scientists and engineers, even though the nation depends heavily on them,” wrote the committee. “At present there is neither the conceptual clarity nor the factual basis needed to support a coherent policy discussion.”

The committee suggested that in beginning a national human resource policy for scientists and engineers, an agenda should include issues such as national goals and policy objectives and the relationship between the process of graduate education and employment trends.

“I think the word ‘versatility’ is a good, appropriate word because I think psychologists are trained in ways that make what they do relevant across a larger spectrum of issues than they may be thought of as addressing,” said Herrenkohl, who added that employers and even psychologists themselves who are in the job market may not be fully aware of what psychologists are able to offer. “I think we need to simply open up a wider spectrum of opportunities for them, and I think there are many more opportunities out there than we are currently aware of.”