

# THE CHRONICLE OF HIGHER EDUCATION

## Commentary

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### We Must Prepare Ph.D. Students for the Complicated Art of Teaching

By Derek Bok

Graduate study for the Ph.D. in the United States presents a curious paradox. Our universities have developed thousands of distinguished scientists and scholars. More than half the winners of Nobel Prizes in the sciences and economics from 1997 to 2007 did their graduate work in this country, continuing a pattern that has persisted since the end of World War II. Students all over the world come here for graduate training, and universities in many other nations have expanded and reformed their doctoral programs to resemble our method more closely.

At the same time, graduate schools can justly be condemned as the worst-designed and worst-administered of any major academic program in our research universities. There are far too many Ph.D. programs, many of them of mediocre quality. Dropout rates are embarrassingly high. More than 40 percent of graduate students fail to earn doctorates within 10 years, a number far greater than in other advanced degree programs. Students take too long to finish, with almost 30 percent in the social sciences and 40 percent in the humanities lingering for more than seven years before earning their degrees.

The most glaring defect of our graduate programs, however, is how little they do to prepare their students to teach. Doctoral candidates have long had the chance to assist professors in large lecture courses by leading weekly discussions among small groups of undergraduates. Yet only a minority of those assistants report that they receive adequate supervision by the faculty member in charge of the course. In fact, professors often tell their graduate students not to spend much time on their teaching duties, lest it distract them from the all-important task of writing a thesis.

Some improvement has occurred in recent years with the spread of centers to help graduate students learn to be teaching assistants. Still, participation in those centers is typically voluntary and rarely offers graduate students

more than an orientation program, an occasional workshop on a specific topic, and perhaps a chance to have their teaching videotaped and critiqued by a member of the center staff. Although such assistance is helpful, it is far from adequate to prepare aspiring professors for the challenges they are likely to face once they embark upon an academic career.

There are reasons that departments have been unwilling to do more. Most professors are not convinced that teaching is a skill that requires formal preparation. Rather, they are inclined to regard it as an art that one acquires naturally and improves through practice over time. After all, that is how they learned to teach. Besides, with Ph.D. candidates already taking so long to complete the programs, why add new requirements to existing programs?

These reasons have never been convincing, but they have gradually become increasingly untenable. Over the past two or three decades, research about learning has yielded useful insights about teaching that graduate students need to know. Much has now been discovered about cognition, motivation, and the relative effectiveness of different methods of instruction.

New research about the behavior of students has also revealed compelling reasons to make full use of this knowledge. Among the recent discoveries, investigators have found that college students are not making as much progress as most people have assumed in mastering essential skills such as writing and critical thinking. Other findings suggest that undergraduates are less engaged by their courses, and that they are spending much less time studying than they did 40 years ago. Those problems will not be solved by simply continuing to teach in the same way as in the past. Professors will need to make use of the growing body of knowledge about teaching and learning in order to succeed.

Meanwhile, more than six million undergraduates are taking at least one course per year online. Carnegie Mellon University has developed computer-assisted courses in several subjects that allow students to master the subject matter in much less time than in regular classes. The emergence of massive open online courses (MOOCs), enrolling huge numbers of students, is causing many prominent professors to take an interest in teaching online. Graduate students clearly need training in the uses and misuses of technology to be adequately prepared for the classrooms of

tomorrow.

Technology changes the nature of teaching in several ways. Developing an online course is a collaborative venture in which instructors work with technicians and media experts. Teaching, then, becomes less intuitive and more of a collective, deliberative activity. In addition, technology can produce a record, not just of what instructors say, but of how students respond to questions and homework problems. As a result, professors can discover what material gives students difficulty and try to adjust their teaching accordingly. Once again, however, professors will have to know more than they have in the past to make the most of these intriguing developments.

In short, pedagogy has become a much more complicated process that has evolved from an art that one can acquire by oneself to a subject requiring formal preparation.

The need for such training is all the more urgent because of the conditions that many graduate students will encounter in their professional careers. Only one-quarter of the recent Ph.D.'s seeking academic careers are finding jobs in research universities. Most of the others obtain positions in institutions with students who tend to be less motivated and less prepared for college than the undergraduates their teachers knew, and teaching them successfully will be a greater challenge.

Many students today are also multitasking, looking at their email during class and listening to music or texting friends while they study.

Undergraduates are using much of the time previously spent on homework communicating via social media, surfing the web, and playing computer games. Therefore, whether they know it or not, professors everywhere are now competing with Twitter, smartphones, computer games, and much else for the time and attention of their students. In this environment, doctoral candidates planning on an academic career will need to know more to figure out how to engage their students in the learning process.

Graduate students are unlikely to receive the preparation they need if academic departments continue to have almost complete control over Ph.D. programs. The problem is not just that faculties resist change. Professors in departments of English literature or economics or chemistry are simply not trained to offer instruction on the applications of cognitive

psychology and motivation theory, or the findings of researchers concerning the relative effectiveness of different methods of instruction, or the skills required for developing online courses. If such material is ever to become a part of preparing graduate students, then provosts and deans will have to take the initiative, not only to persuade the faculty that change is needed but also to recruit instructors from across the university who are capable of teaching graduate students what they need to know.

It is not entirely obvious just when and where the necessary instruction should take place. One's instinctive response is to make room within the graduate program itself. The problem with this approach, however, is that one-third to one-half of all new Ph.D.'s do not pursue academic careers but find jobs in industry, government, or some other field of employment. So it is hardly fair to force all graduate students to take instruction in pedagogy. Graduate schools could and should require prospective teaching assistants to receive enough training to carry out their assignments effectively. But any further preparation for teaching will have to be offered on a voluntary basis.

Some graduate students may not choose to acquire all the training they need, while other successful candidates for faculty positions will have received their doctorates from universities that offer little preparation for teaching. As a result, institutions wishing to equip their new recruits properly for duties in the classroom and as members of the academic profession will not succeed by merely offering a day or two of orientation.

Instead, to prepare their professors properly, colleges may need to give them a course that includes material dealing not only with pedagogy but also with ethical problems in teaching and research, the history of higher education, the principal schools of thought on the undergraduate curriculum, and the organization, financing, and governance of universities. If beginning instructors are thought to have too much else to do, they could be given a reduced teaching load for their first year. Any short-term costs should be more than compensated for by the improved preparation given to new recruits to fulfill their responsibilities as teachers and faculty members.

It would be hard to overestimate the importance of instituting these reforms. One of the legitimate complaints against colleges and universities is that they have been exceedingly slow to change their methods of

education. Lecturing is still the most common way to teach, even though it has long been shown to be ill-suited to the task of developing the capacity for critical thinking, a competence that almost all professors regard as the most important goal of undergraduate education. Feedback to students continues to be skimpy and late in coming despite its importance to learning. The basic division of the college curriculum into majors, electives, and general education has likewise remained pretty much the same over many decades despite its many weaknesses and unsubstantiated rationales.

Critics often say that the reason instructional methods change so slowly is that professors do not care about teaching and prefer to spend their time on research. This explanation is hardly convincing. International surveys regularly find that professors in America care more about teaching and education than do their counterparts in virtually any other country in the world. Even in research universities, faculty members spend much more time on teaching than on research when classes are in session. Studies also have found that prolific researchers are no less successful or conscientious in the classroom than are their colleagues who rarely publish.

A more plausible reason for the sluggish pace of reform is the scanty preparation given to graduate students for their role as educators. Lacking such training, newly minted Ph.D.'s naturally begin their teaching by trying to emulate the professors they respected most during their student days. While there is something to be said for this practice, it hardly encourages innovation in the classroom. Rather, it tends to produce an uncritical, conservative attitude toward teaching, quite at variance with the way most faculty members go about their research.

Continuing this approach is likely to prove even more costly in the future than it has been in the past. President Obama has called for a significant increase in the number of Americans graduating from college by enrolling hundreds of thousands of new students every year. Many of these young people will be less prepared for college work than the average student today and, hence, more difficult to teach.

Even if colleges manage to meet the president's goal (and that will be a tall order indeed), America will never regain the huge lead in educational attainment that helped to make it the world's most prosperous nation from 1870 to 1970. Now that a dozen or more countries have made the

transition from an elite to a mass or nearly universal system of higher education, it will be all that we can do simply to keep up.

If the United States is ever to regain a significant economic advantage from the education of its people, it will have to come through the quality of instruction that our undergraduates receive and not just from the quantity of college degrees being offered. Such instruction will surely be slow to arrive without a faculty trained to bring to its teaching the same ample store of background knowledge, the same respect for relevant data, and the same questioning, innovative spirit that professors have long displayed in carrying out their research.

Derek Bok is a former president of Harvard University, where he is now a research professor. His most recent book is *Higher Education in America* (Princeton University Press, 2013).

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patbowne • 4 hours ago

While I agree that teaching deserves more respect in graduate schools, what is the point of preparing graduate students for it if we at the same time allow it to become a predominantly part-time profession? How many full-time teaching jobs will still exist by the time the students you're training have graduated?

We're supposed to be intelligent and highly educated professionals! Are we going to sit around blithely discussing how we ought to train people for a job that is melting away under our feet? Are we satisfied to be the last generation of full-time tenure-track faculty in US higher education? Perhaps we can do something -- like, for instance, gather data on how the switch to part-time workers has immiserated our faculty and impacted the education our institutions claim to offer, and make sure every college's accrediting agency receives third-party comments detailing these issues.

If we aren't willing to defend the existence of our profession, adequately preparing graduate students to enter it will be worse than counterproductive. It will just create a larger class of people competing against each other for part-time jobs, maintaining the 'buyers' market' that educational institutions currently exploit.

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99Luftballons • 2 hours ago

The article strangely states:

"Dropout rates are embarrassingly high."

The embarrassing part is that at least 75% aren't given the boot in the first 2 years.

But that is directly related to:

"There are far too many Ph.D. programs, many of them of mediocre quality."

Which is directly related to the financial incentives to admit, retain and graduate which all seem to get increasing pressure. Along with traditional empire building.

Probably 2% or less of bachelor degree holders should get a PhD. The PhD should be an original research degree. "The B.A.-Ph.D. Nexus" with William G. Bowen as a co-author provides a historical basis for thinking even 2% is way too high given the increase in B.A. degrees and the decline in quality since in 1974 the PhD Proclivity had dropped to 1.7%. The authors determined that the elimination of Vietnam War draft deferments was a key driver in PhD proclivity's rise and fall.

<http://www.jstor.org/stable/19...>

The article should be calling for funding to be slashed correct the situation.

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Avatar

navydad • 2 hours ago

I would suggest some training in testing and measurement, especially for STEM faculty, many of whom seem to think that failing lots of students and giving out almost no As is a sign of rigor.

