Carnegie Foundation Creates New 'Owner's Manual' for Doctoral Programs

By PAULA WASLEY

In his 1990 book *Scholarship Reconsidered: Priorities of the Professoriate*, Ernest L. Boyer, who was then president of the Carnegie Foundation for the Advancement of Teaching, analyzed the balance between teaching and research in the scholarly endeavors of that era. His conclusion that the university rewarded research at the expense of teaching set in motion a series of reforms that sought to re-emphasize teaching as an integral component of scholarship.

Seventeen years later, the Carnegie Foundation has again found academe lacking. This time, however, higher education's most prominent advocates for teaching and teaching reform say that the research has been overlooked.

Carnegie Foundation researchers, under the auspices of the foundation's departing president, Lee S. Shulman, have undertaken a project as ambitious as Mr. Boyer's: to take stock of the current state of doctoral education and how it has responded to, or ignored, the challenges of the 21st century.

Over a five-year period ending in 2005, the Carnegie Initiative on the Doctorate monitored 84 Ph.D.-granting departments in six fields—chemistry, education, English, history, mathematics, and neuroscience. The projects's researchers tracked the selected programs as they analyzed departmental goals and performance, and made changes to improve their own effectiveness in meeting their goals.

The group's findings have been summarized in a 200-page book, to be published in January, called *The Formation of Scholars: Rethinking Doctoral Education for the Twenty-First Century*.

Both the project and book come in the wake of two decades' worth of reports and blue-ribbon panels on the urgent need to reform doctoral education, says Chris M. Golde, associate vice provost for graduate education at Stanford University and one of the study's co-authors.

Despite the myriad recommendations produced by those efforts, says Ms. Golde, "a lot of times those didn't get into play at the local level." Focusing on just six disciplines and working directly with individual departments allowed the group to "drill deeply," says Ms. Golde, yet still provided participating departments enough context to consider how practices in other fields might apply to their own.

The study's authors found that while doctoral programs have made strides in recent years in preparing students to teach, universities have not given the same level of attention to how they prepare students to be scholars and researchers.

That's not to say academe's teaching problems are solved, says Mr. Shulman. But those ills, and their remedies, are already well defined. "I think the big surprise was when we shifted our attention to the areas that people didn't particularly think were problems," he says. "There were programs that prided themselves on the preparation of scholars that were often not doing anywhere near as good a job as they could and should have in preparing first-class researchers."

*Questioning Convention*

*The Formation of Scholars*
examines the processes by which universities and doctoral programs train students to be scholars (which the foundation defines not only as faculty members, but also those who practice scholarship in business, industry, government, and nonprofit settings). The book aspires to be a doctoral education "owner's manual," offering practical suggestions for promoting principles of progressive development, integration, and scholarly collaboration within Ph.D. programs.

The 43,000 Ph.D. candidates who graduate each year and the 400 institutions that train them face a new and unique set of challenges brought about by technological change: shifting demographics in both graduate and higher education, an increasingly global marketplace for scholarship, blurred boundaries among academic disciplines, and significant overlap among the academic, public, and commercial sectors.

"In short," says the study, "expectations are escalating, and doctoral programs today face fundamental questions of purpose, vision, and quality."

The solution is not to add more requirements and components to doctoral education, say the study's authors, but to investigate whether many of the traditions that have grown up within academe still serve their intended purpose. The authors question many conventions taken for granted in doctoral education, such as qualifying examinations, program requirements, and even the doctoral dissertation. Many of the origins and purposes of those practices are opaque or forgotten, they argue, and continue only through force of habit.

For example, they ask, with fields increasingly interdisciplinary, is it possible to devise a meaningful comprehensive examination? Are some humanities programs' longstanding requirements that students study two foreign languages still necessary? Do the traditional divisions between course work and research as discrete stages of doctoral study serve a useful function or simply delay the development of students' independence, initiative, and creativity?

"It's those kinds of questions that are either often not discussed because we assume or because they're difficult," says George E. Walker, vice president for research and dean of the graduate school at Florida International University.

Mr. Walker, who directed the Carnegie Initiative on the Doctorate, describes the project as a series of "thought experiments" designed to encourage "a kind of serious scholarly daydreaming" about how doctoral education might be radically reshaped. "That's where new people in the field like graduate students and beginning faculty members can be particularly empowered because they really can think about things de novo," he says.

**Engineering Change**

The report singles out particular doctoral programs that have re-examined or reinvented those conventions: The history department at Duke University, for example, redefined four of its core courses so that first-year doctoral students gain experience finding and using primary documents, which they then build upon to produce a summer research grant proposal and two research papers in their second year.

Some neuroscience programs encourage versatility and interdisciplinary research by having students prepare and defend a formal grant proposal in a field distinct from their dissertation. The University of Michigan chemistry program asks students to incorporate teaching and learning theory into their research and submit a dissertation covering both their experimental research and how they might go about teaching the subject to colleagues and undergraduates.

Trickier to address, the Carnegie authors say, are entrenched attitudes that define the culture of academe: the way the system values specialization over breadth of study, the traditional segregation of teaching and research, and atomized relationships-all of which, the authors contend, have fostered an academic culture that discourages risk taking, creativity, and collaboration.

Take, for example, the concept of apprenticeship, to which the Carnegie researchers devote an entire chapter. The faculty-master and student-apprentice relationship as the signature pedagogical structure of doctoral education dates back to the university's medieval roots. But, the Carnegie authors say, it's time that model was updated.

At worst, they argue, the traditional apprenticeship model is open to abuses of power by faculty members who exploit graduate students as research drones. At best, it contributes to a cloning of scholars and ideas, reinforcing a tradition of intellectual conformity.
The study recommends that doctoral programs adopt new structures that allow students to have several intellectual mentors and come to think of mentorship as less an accident of interpersonal chemistry and as more a set of techniques that can be learned, assessed, and rewarded. The study holds up as models programs such as one at Arizona State University that awards an annual $5,000 cash prize to an "outstanding doctoral mentor" or another at the mathematics department of the University of Southern California that places new graduate students in "mentoring triplets" with both a faculty mentor and a more experienced graduate student.

The book concludes with a "call to action," identifying five areas of "unfinished business" that merit further study: pedagogies of research, tensions between disciplinary and interdisciplinary scholarship, the culture of doctoral education, the changing backgrounds and identities of doctoral students, and methods of assessment.

"Forest fires occur because lightning strikes in about five or six different places, and little fires begin to hook up," says Mr. Shulman, who hopes the book will ignite sparks among groups of faculty members and students, and inspire them to answer questions posed in the book.

"I think there's a reason for optimism but also reason for a good deal of urgency," he says. "If this next generation of Ph.D.'s doesn't come out with a much-better-developed sense of what their role in an academic community needs to be, and especially why full-time, fully engaged faculty are absolutely essential for educational institutions to be responsive and responsible, then we'll see simply an increase in the proportion of part-time faculty, and a progressive decline of institutions of higher education as intellectual communities, and more virtual credit mills."

*The Formation of Scholars: Rethinking Doctoral Education for the Twenty-First Century* (Jossey-Bass), written by Mr. Walker, Ms. Golde, Laura Jones, Andrea Conklin Bueschel, and Pat Hutchings, will be available for purchase in January. *The Chronicle* published an excerpt online on Monday. For more information, visit the Carnegie Foundation's Web site.
Aquatint of a Doctor of Divinity at the University of Oxford, in the scarlet and black academic robes corresponding to his position. From Rudolph Ackermann's History of Oxford, 1814. A doctorate is an academic degree or professional degree that is conferred after a successful defense of the candidate's dissertation. Currently, there are approximately 2,151 postgraduate careers in the country, of which 14% were doctoral degrees. Doctoral programs in Argentina are overseen by the National Commission for University Evaluation and Accreditation, which is a decentralized agency in Argentina's Ministry of Education, Science, and Technology. The International Program at Carnegie Corporation, RUFORUM, and indeed other regional postgraduate training and research networks supported by Carnegie Corporation like Regional Initiative in Science and Education (RISE) and the Consortium for Advanced Research Training in Africa (CARTA) CARTA, are critical mechanisms for building the next generation of innovation-minded scholars in Africa. The grant will support 28 doctoral students, drawn from universities in Ghana and Nigeria as well as member universities in East and Southern Africa. The foundation's Higher Education and Libraries in Africa program seeks to strengthen postgraduate training in selected African universities and provide opportunities for individual scholars and scientists to excel.