The Formation of Scholars

Rethinking Doctoral Education for the Twenty-First Century

George E. Walker . Chris M. Golde . Laura Jones
Andrea Conklin Bueschel . Pat Hutchings

THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING

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Foreword by
Lee S. Shulman

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Published by Jossey-Bass

A Wiley Imprint

989 Market Street, San Francisco, CA 94103-1741—
www.josseybass.com

Library of Congress Cataloging-in-Publication Data

The formation of scholars: rethinking doctoral education for the twenty-first century / George E. Walker . . . [et al.]; foreword by Lee S. Shulman.—1st ed.

p.cm.

“Carnegie Foundation for the Advancement of Teaching.”

Includes bibliographical references and indexes.

ISBN 978-0-470-19743-1 (cloth: alk. paper)

1. Doctor of philosophy degree. 2. Universities and colleges —United States—Graduate work. I. Walker, George E.

LB2386.F67 2008

378.24—dc22

2007035493

The Carnegie Foundation for the Advancement of Teaching

Founded by Andrew Carnegie in 1905 and chartered in 1906 by an Act of Congress, The Carnegie Foundation for the Advancement of Teaching is an independent policy and research center whose charge is “to do and perform all things necessary to encourage, uphold, and dignify the profession of the teacher and the cause of higher education.”

The Foundation is a major national and international center for research and policy studies about teaching. Its mission is to address the hardest problems faced in teaching in public schools, colleges, and universities—that is, how to succeed in the classroom, how best to achieve lasting student learning, and how to assess the impact of teaching on students.

FOREWORD

Academics are very careful with words. The title of this book, *The Formation of Scholars,* embodies two key terms that call for explanation and interpretation. Why *formation?* Why *scholars?* The answer is that the juxtaposition of these two ideas captures the essential character of the work reported in this volume. Doctoral education prepares scholars who both understand what is known and discover what is yet unknown. They conserve the most valued knowledge of the past even as they examine it critically. They invent new forms of understanding as they move their fields ahead. Yet the more they understand, the heavier their moral obligation to use their knowledge and skill with integrity, responsibility, and generosity. They are thinkers and actors, intellectual adventurers and moral agents. The idea of formation, borrowed from religious educators, refers to the kind of education that leads to an integration of mind and moral virtue that we often call character or integrity.

When I first began working in teacher education, I was admonished by insiders never to use the phrase "teacher *training.*" Training implied mindless, routine practice more appropriate to an assembly line than to a classroom. It also reinforced the rampant behaviorism that dominated the fields of teacher preparation and teacher evaluation. The correct term was "teacher *education,*" which more aptly captured the fundamentally intellectual, strategic, and thoughtful functions associated with teaching. I took this instruction to heart. Indeed, when I delivered my presidential address to the American Educational Research Association in 1984, I concluded my remarks with a revision of Shaw's "Those who can, do; those who cannot, teach," changing it to "Those who can, do. Those who *understand,*

teach.” Teaching must be understood as an intentional act of mind for which a rich educational experience is necessary. Yet this move may not be enough.

In recent years, my colleagues and I at The Carnegie Foundation for the Advancement of Teaching undertook our comparative studies of education across the “learned professions” of law, engineering, the clergy, teaching, medicine, and nursing. In parallel, we initiated the study of doctoral education that is described and analyzed in this book. We recognized early on that doctoral education could be examined as a form of professional preparation. Those with PhDs are prepared both to know and to do. Holders of the PhD are prepared to profess their disciplines and their fields of study, not only to understand them deeply but also to take upon themselves the moral responsibility to protect the integrity of their field and its proper use in the service of humanity. We found the term *formation*—used extensively in the field of religious education and the preparation of clergy—to be particularly appropriate for describing this integration of the intellectual and the moral in preparing for the many roles of the scholar—discovery and synthesis, teaching and service. Thus we had evolved from training to education and from education to formation.

The PhD is the monarch of the academic community. It is the very highest accomplishment that can be sought by students. It signals that its recipient is now ready, eligible, indeed obligated, to make the most dramatic shift in roles: from student to teacher, from apprentice to master, from novice or intern to independent scholar and leader. The PhD marks its holder as one charged to serve as a steward of the discipline and profession. If this language sounds mildly ecclesiastical, it is no accident. We do not choose the language of “formation” or “stewardship” capriciously. The doctorate carries with it both a sense of intellectual mastery and of moral responsibility. That the entire process

concludes with all members of the community dressed in religious robes and engaged in an act of ordination of the novice by the master with a priestly hood is no accident.

So is the PhD to be understood as just one more learned profession, the academic parallel to engineering, law, or medicine? Not really. I remember my surprise at the scheduling of commencements at my alma mater. When completing graduate study at the University of Chicago, I saw that the undergraduate commencement was to be held on Friday, when all of the baccalaureate degrees would be awarded—including the degrees of MD and JD. The graduate commencement for recipients of master's degrees and PhDs was scheduled for the following day. When I expressed my confusion over this placement of the medical and law degrees, I was informed that both of these degrees were inherently "undergraduate." Indeed, we regularly refer to the four years of medical school as "undergraduate medical education." Outside the United States, the first medical degree has traditionally been the Bachelor of Medicine; only recently has the first law degree changed from an LLB to a JD, without any alteration in curriculum requirements or standards. These degrees did not prepare their recipients for lives of scholarship and teaching. True graduate degrees are special.

What accounts for the mystique of the PhD? It is the academy's own means of reproduction. In a Darwinian sense, the academy invests most heavily in its own means of reproduction and sustainability. The denouement of the doctorate, the dissertation, is not only a piece of original research intended to set its writer apart from all who preceded her. It is also a celebration of the scores of scholars on whose shoulders any piece of individual scholarship rests. Even as the candidate writes the dissertation—the contribution to knowledge, the evidence of scholarly innovation and invention—the text is peppered

with footnotes and references, citations and bibliographies, acknowledgments and attributions. Each of these bears witness to every scholar's debt to her predecessors in scholarship. References and footnotes also acknowledge the work of contemporaries who live in the same professional and disciplinary community as the candidate, or in a closely neighboring field of study. Scholarship is a social and communal activity. Thus candidates give recognition to the continuing presence of their extended intellectual community as the scaffold that supports and sustains their research work, whether present in the teachers and colleagues of one's own program, or ever helpful in the whispers, hints, proof texts, and challenges of scholars long dead but still audible through their published work. It is also why, we argue in this volume, nothing is more critical to the quality of a doctoral program than the character of the intellectual community created by its teachers and students.

We at the Carnegie Foundation elected to devote five years to the study of the PhD and its possible futures because we felt strongly that the academic profession bridges past and future in the context of each individual doctoral program. The doctorate as an institution provides the stability and tradition that renders scholarship a human activity that transcends generations, cultures, and contexts. It is both a paragon of innovation and a defender of the faith. The doctorate is both transformation and impediment; it preserves what is enduring, but can also paralyze—hardening categories and freezing traditions into empty rituals. The best doctoral programs attempt to discover the "sweet spot" between conservation and change by teaching skepticism and respect for earlier traditions and sources while encouraging strikingly new ideas and courageous leaps forward. As readers of the late Thomas Kuhn can aver, scholars are evaluated and rewarded by how faithfully they

labor within the existing paradigms, but they are celebrated and venerated for scientific revolutions that shatter old paradigms and create new ones.

Also decided, unlike most previous studies of the doctorate, to treat doctoral education as domain- and field-specific, not as a generic activity at the all-university level. Both scholarship and teaching in any field reflect the character of inquiry, the nature of community, and the ways in which research and teaching are conducted in that particular discipline or disciplinary intersection. We therefore elected to distribute our efforts across a set of fields selected to represent the full extent of the academic enterprise.

This kind of work is complex and labor intensive. Working across six fields—chemistry, education, English, history, mathematics, and neuroscience—demanded the efforts of a remarkably diverse and multitalented team. Since I write both to introduce the volume and, as president of the Foundation, to express my gratitude to my colleagues, the scholars who made this work possible, I conclude by turning to them and acknowledging their creative leadership.

Leading the team was George Walker, a theoretical physicist by training and scholarship, who served for many years as graduate dean and vice president for research at Indiana University. A national leader in graduate education, George has been an energetic and charismatic leader of this work. Coaxing him to leave Bloomington to come west and lead this project was no small challenge. Fortunately, he is a lifelong San Francisco Giants baseball fan, which made the “pitch” far easier than it might have been.

Chris Golde began her academic career at Stanford University with a pioneering dissertation study of the complexities of doctoral education and continued this work as a faculty member at the University of Wisconsin. As director of research for the Carnegie Initiative on the

Doctorate (CID), she coordinated the several research functions associated with the effort and was a central figure in designing the many convenings that brought together participants both within and across disciplinary communities.

Laura Jones, trained as an anthropologist and archaeologist, joined the project to add strength to the research and convening programs of the CID. Andrea Conklin Bueschel, a higher education scholar with special interest in the unique role of community colleges, was a key member of the team.

Pat Hutchings, vice president of the Foundation, coordinated the final critical stages of writing this book, leading its transformation from a rich and varied array of insights and hypotheses into the tightly argued and gracefully presented monograph we have before us.

The project was counseled by a wise advisory committee chaired by Donald Kennedy, former president of Stanford University and editor-in-chief of *Science* during the entire period of the study.

I am particularly grateful to the hundreds of faculty members and doctoral students from more than forty institutions that participated in the work over its five-year lifetime. They were the engines of reform, the experimenters as well as the experimented-upon. If this work makes the future impact that we intend, it will be through their efforts, past and future.

Doctoral education is a set of experiences that incorporates training, education, and formation. It is a process led by faculty and brought to life by students. It is the key experience upon which the future of global higher education rests. We hope that this volume will support the many ways in which the formation of scholars can be effected through the transformation of graduate education.

Lee S. Shulman

Stanford, California

ACKNOWLEDGMENTS

The Carnegie Initiative on the Doctorate (CID) and this resulting volume are products of much hard work, commitment, and the dedication of many, many people. The CID team was particularly fortunate to have had the opportunity to work closely with and benefit from the talent of many staff members. Amita Chudgar and Kim Rapp were research assistants for the CID, contributing important ideas, analysis, and feedback. Sonia Gonzalez, Leslie Eustice, Ruby Kerawalla, Tasha Kalista, Emily Stewart, and Lydia Baldwin all provided invaluable administrative support to the project, not only ensuring that the trains ran on time, but doing so with good cheer and great skill.

The Carnegie Foundation is a highly collaborative setting and many additional colleagues played major roles in the work as well, providing support, critical feedback, generous collaboration, and contributions to everything from convenings to manuscript suggestions. In particular, Mary Taylor Huber, Gay Clyburn, and Sherry Hecht read drafts of this manuscript several times and gently guided its direction. And of course Lee Shulman's influence on the work was front and center throughout, as it is in all of the work of the Foundation.

We are also fortunate to have many colleagues beyond Carnegie who have influenced the work of the CID and therefore shaped this volume. The essayists who provided initial "grist for the mill" for each discipline helped provoke and encourage our participants—and us—to consider ideas and directions that were in many ways "unnatural acts." Their work, collected in *Envisioning the Future of Doctoral Education,* is an important foundation for this book. We have also benefited from the input of many people who

contribute daily to graduate education, including graduate deans, staff members of disciplinary societies, interested observers who participated in our convenings, and funding agencies. We are also grateful to our anonymous external reviewers for their helpful comments.

The Atlantic Philanthropies was Carnegie's major financial partner in this work. We are grateful to them for several decades of support of graduate education and our work in particular.

In addition, our advisory committee offered crucial and thoughtful advice throughout the project. The committee was chaired by Donald Kennedy, president emeritus and Bing Professor of Environmental Science and Policy emeritus, Stanford University, and editor-in-chief of *Science* magazine. The other members were Bruce Alberts, former president of the National Academy of Sciences and professor of biochemistry and biophysics, University of California, San Francisco; David Damrosch, professor of English and comparative literature, Columbia University; Michael Feuer, executive director of the Division of Behavioral and Social Sciences and Education, National Research Council; Phillip Griffiths, professor of mathematics and former director of the Institute for Advanced Study, Princeton University; Dudley Herschbach, Baird Professor of Science in chemistry, Harvard University; Stanley Katz, professor of Public and International Affairs and director of the Center for Arts and Cultural Policy Studies at Princeton University; Joshua Lederberg, Sackler Foundation Scholar and professor emeritus, Rockefeller University; Kenneth Prewitt, Carnegie Professor of Public Affairs, Columbia University; Robert Rosenzweig, president emeritus of the Association of American Universities; Henry Rosovsky, Lewis P. and Linda L. Geyser University Professor emeritus, Harvard University; Lee S. Shulman, president of The Carnegie Foundation for the Advancement of Teaching; and

Debra W. Stewart, president of the Council of Graduate Schools.

We are also grateful for the support of the disciplinary and professional societies that represent the six CID disciplines. They have provided multiple opportunities for us and our campus participants to share the work of the CID—at conferences, in newsletters and journals, and in meetings with leadership. In many ways, they are one of the keys to ensuring that the excellent work begun by campuses in the CID continues and becomes part of their regular discussions and activities.

- The American Chemical Society (ACS)
- The American Educational Research Association (AERA)
- The American Historical Association (AHA)
- The American Mathematical Society (AMS)
- The Association of Departments of English (ADE)
- The Association of Neuroscience Departments and Programs (ANDP)
- The Council of Graduate Schools (CGS)
- The Modern Language Association (MLA)
- The Society for Neuroscience (SfN)

Finally, none of the work of the CID would have been possible (or nearly as much fun) without the tremendous investment of time, energy, and imagination of our campus participants. The graduate students, faculty, and staff of the CID departments *were* the project. Their hard work was what made the CID successful. Their challenges, struggles, and successes taught us about what, in fact, is possible in doctoral education. Their collaborative spirit and willingness to take risks provided a valuable response to the many indictments of graduate education. Their commitment to improving the education and lives of doctoral students was the greatest reward. It is to them that this work is dedicated.

ABOUT THE AUTHORS

George E. Walker is currently vice president for research and dean of the University Graduate School at Florida International University. From 2001 to 2006, he served as senior scholar and director of the Carnegie Initiative on the Doctorate at The Carnegie Foundation for the Advancement of Teaching. Dr. Walker is a theoretical nuclear physicist who obtained his undergraduate education at Wesleyan University, his graduate education at Case Western University, and his post-doctoral education at the Los Alamos National Laboratory and at Stanford University. Most of his scholarly career was at Indiana University, where he was vice president for research and dean of the Graduate School for many years. He was twice honored by physics graduate students with the "Outstanding Contributions to Graduate Education" award, and by his peers through election as a Fellow of the American Physical Society. He led the establishment of a Nuclear Theory Center at Indiana University. He is also chair of the Physics and Advanced Technology Directorate Advisory Committee, and chair of the Nuclear Division Advisory Committee, both at Lawrence Livermore National Laboratory. In addition, he is a member of the National Advisory Board of the Center for the Integration of Research, Teaching, and Learning (CIRTL). Among many other boards, Walker has served as president of the Association of Graduate Schools of the Association of American Universities, as chair of the Board of the Council of Graduate Schools, and as member of the National Advisory Board of the National Survey of Student Engagement. He is coeditor, with Chris M. Golde, of *Envisioning the Future of Doctoral Education: Preparing*

Stewards of the Discipline—Carnegie Essays on the Doctorate (2006).

Chris M. Golde is associate vice provost for graduate education at Stanford University. From 2001 to 2006, she served as senior scholar and research director for the Carnegie Initiative on the Doctorate at The Carnegie Foundation for the Advancement of Teaching. Before joining Carnegie, she was a faculty member at the University of Wisconsin-Madison. Her research and writing have focused on doctoral education, particularly the experiences of doctoral students and doctoral student attrition. She is the lead author of *At Cross Purposes: What the Experiences of Today's Doctoral Students Reveal About Doctoral Education,* the 2001 report of a national survey funded by The Pew Charitable Trusts (www.phd-survey.org). She is coeditor, with George E. Walker, of *Envisioning the Future of Doctoral Education: Preparing Stewards of the Discipline—Carnegie Essays on the Doctorate* (2006). She holds a PhD in education from Stanford University.

Laura Jones is an applied anthropologist practicing in the areas of archaeology, public history, heritage preservation, and community planning and outreach. Her geographical areas of research interest are California and Oceania. Currently she holds the position of director of Heritage Services and University Archaeologist at Stanford University. She was senior scholar and director of the Community Program at the Carnegie Foundation from 2000–2006. In addition to publications in anthropology, she is the author of an upcoming article giving a comparative view on educational practices in the sciences and the humanities, "Converging Paradigms for Doctoral Training in the Sciences and Humanities," to appear in *Changing Practices in Doctoral Education.* She holds a doctorate in anthropology from Stanford University.

Andrea Conklin Bueschel is currently senior program officer with the Spencer Foundation. She formerly served as research scholar with the Carnegie Foundation, where she worked on the Carnegie Initiative on the Doctorate and the Strengthening Pre-collegiate Education in Community Colleges projects. She has conducted research and written on policy links and disjunctures between K–12 and higher education, with a focus on the high school to college transition, especially for students who hope to be the first in their families to attend postsecondary education. In addition, she has served as researcher and managing director for an educational consulting firm, and has held various administrative posts in higher education. She is coeditor of the forthcoming *New Directions for Community Colleges* volume *Policies and Practices to Improve Student Preparation and Success.* Dr. Bueschel has a PhD in education from Stanford University.

Pat Hutchings is vice president of The Carnegie Foundation for the Advancement of Teaching, working closely with a wide range of programs and research initiatives. She has written widely on the investigation and documentation of teaching and learning, the peer collaboration and review of teaching, and the scholarship of teaching and learning. Recent publications, both drawing from Carnegie's work, include *Ethics of Inquiry: Issues in the Scholarship of Teaching and Learning* (2002) and *Opening Lines: Approaches to the Scholarship of Teaching and Learning* (2000). Her most recent book, *The Advancement of Learning: Building the Teaching Commons* (2005), was coauthored with Mary Taylor Huber. She holds a doctorate in English from the University of Iowa and was chair of the English department at Alverno College from 1978 to 1987.

CHAPTER 1

MOVING DOCTORAL EDUCATION INTO THE FUTURE

> Even if you are on the right track, you'll get run over if you just sit there.
>
> —Will Rogers[1]

AS YOU READ THESE WORDS, some 375,000 men and women are pursuing doctoral degrees in institutions of higher education in the United States. Most are young adults—many with family commitments, and some juggling careers as well—but PhD programs are also populated by the occasional octogenarian and precocious teen. Some are in their first semester of work; others have been toiling for twenty years. Over 43,000 will graduate this year from the 400-plus institutions that offer the degree.[2]

Many of those who receive PhD's will assume positions of leadership and responsibility in arenas that directly shape the lives we lead. A remarkable number of Nobel laureates from around the world received degrees at U.S. universities. Four of the ten most recent secretaries of state have been doctoral degree holders, as are five of the six current members of the Federal Reserve Board,[3] and numerous world leaders. PhD's develop life-saving medical interventions, shape social programs and policies, and turn their talents to entrepreneurial ventures in the global economy. Approximately one-half of those who receive doctorates this year will join the ranks of college and

university faculty who educate today's undergraduates, some of whom will become teachers themselves, in the United States and beyond, shaping the futures of our children and grandchildren. And some will prepare new PhD's, so the effects of doctoral education ripple out across nations and generations.

The importance of doctoral education to this country's current and future prospects can hardly be overestimated. The questions are: What will it take to ensure that the United States continues to be, as many have observed, "the envy of the world"? What will it take to meet the challenges that doctoral education faces today and to make the changes those challenges require?

Some of the challenges are long standing and well known. About half of today's doctoral students are lost to attrition—and in some programs the numbers are higher yet. Those who persist often take a long time to finish and along the way find their passion for the field sadly diminished.[4] Many are ill-prepared for the full range of roles they must play, be they in academe or beyond, and often the experience is marred by a mismatch between the opportunities available to students as they complete their work and their expectations and training along the way. In most disciplines, women and ethnic minorities are still underrepresented among doctoral students. And what makes all of these challenges yet *more* challenging is that few processes for assessing effectiveness have been developed in graduate education, and it is difficult to muster ambition or urgency for doing better in the absence of information about what needs improvement. Thus, one finds attitudes of complacency ("Our application numbers are strong and so is our national ranking, so where's the problem?"), denial ("We don't have problems with gender or ethnic diversity here"), and blame ("Students these days just aren't willing to make the kinds of sacrifices we did to be successful").

Complicating matters is a set of newer challenges, many of them emerging as we write, and only partly recognized and understood. New technologies are altering and accelerating the way knowledge is shared and developed. And the marketplace for scholars and scholarship is now thoroughly global. Much of the most important, pathbreaking intellectual work going on today occurs in the borderlands between fields, blurring boundaries and challenging traditional disciplinary definitions. The need for firmer connections between academic work and the wider world of public life is increasingly clear, as well. And graduate education, like higher education more generally, faces shifting student demographics, new kinds of competition, growing pressures for accountability, and shrinking public investment. In short, expectations are escalating, and doctoral programs today face fundamental questions of purpose, vision, and quality. The Will Rogers quip that opens this chapter seems made to order: “Even if you are on the right track, you’ll get run over if you just sit there.”

The Carnegie Initiative on the Doctorate

The good news is that doctoral education is, by its nature, in the business of asking hard questions, pushing frontiers, and solving problems, and over the past several years the five of us have been privileged to work closely with faculty and students from doctoral programs that have made the decision to not “just sit there.” The Carnegie Initiative on the Doctorate (CID) has involved eighty-four PhD-granting departments in six fields—chemistry, education, English, history, mathematics, and neuroscience (for the full list of departments, see Appendix B). Our emphasis in this book,

and in the Carnegie Initiative on the Doctorate, was on the PhD, although many of our participating education departments also grant the EdD.[5] By concentrating on a limited number of disciplines and interdisciplines rather than on doctoral education in general, the CID aimed to go deep and to work very directly with faculty and graduate students from the ground up. Thus, although the support and assistance of administrators, graduate deans in particular, and disciplinary societies was vital, the work was done by departments on matters within the control of departments—which is, after all, where the action is in graduate education.

Over the five years of the program, participating departments made a commitment to examine their own purposes and effectiveness, to implement changes in response to their findings, and to monitor the impact of those changes. Many used their participation to continue plans and activities that were already begun but would benefit from the structure, prestige, and interaction provided by a national initiative. Our role, in turn, included visiting the departments, interviewing campus team members, and bringing project participants together (sometimes by discipline, sometimes by theme) to report on their progress, learn from one another, and help us make sense of their experiences in ways that others can build on. (See Appendix A for a summary of the CID project.) In addition, both faculty and students participated in projectwide surveys, the results of which served as rich grist for discussion and debate about the preparation of scholars in the broadest sense, whether they work in industry, government, or academe. (See Appendix C for an overview of the CID surveys.)

Certainly there was much to discuss. Not surprisingly, in a project sponsored by The Carnegie Foundation for the Advancement of Teaching, an organization whose mission is

to “uphold and dignify the profession of the teacher,” a recurring theme was the need for practices that will better prepare tomorrow’s PhD’s to be teachers, equipped with the knowledge and skills to convey their field’s complex ideas to a variety of audiences, not only in the classroom, but in the many other settings in which doctorate holders work. This is an arena in which higher education has made notable progress over the past several decades. Many institutions today—and most of those participating in the CID—offer training programs for graduate teaching assistants, sometimes through a campus-wide teaching center, but often through special opportunities housed in the department as well. And fields in which opportunities to teach have traditionally been limited (for example, neuroscience graduate programs often have no corresponding undergraduate program) are now finding creative ways to provide experience in the classroom. But what the CID has made clear is the need for much greater attention to the sequencing of these opportunities and to the need not only for more teaching but for better, more systematic feedback and reflection that can turn pedagogical experience into pedagogical expertise.

The same diagnosis holds, we believe, when it comes to preparation for the research role. Ironically, this aspect of doctoral education—the sine qua non of the doctorate—has largely been taken for granted and therefore ignored in reports and recommendations on graduate education that have appeared in the past several decades. Our view, in contrast, is that what might be called “the pedagogy of research” (and its different embodiments in different fields) is badly in need of attention. Most graduate faculty care deeply that their students learn how to ask good questions, build on the work of others, formulate an effective and feasible research design, and communicate results in ways that matter. But these outcomes are often more hoped for

and assumed than designed into instruction. Although education at other levels is being reshaped by new knowledge about how people learn, these same insights seem to have washed over graduate education with little effect. For instance, whereas undergraduate education now embraces a host of strategies to engage students in research, those approaches have received less attention in doctoral education settings—even though the same faculty members may teach both undergraduate and graduate students. As a consequence, the central tasks and assignments that doctoral students encounter on the long road to research expertise, and the model of apprenticeship that shapes their interactions with faculty, have gone pretty much unchanged from generation to generation, the product of long-standing arrangements and rites of passage that work well for some students but poorly for others.

Even more distressing, CID participants told us, the rationale for program requirements has often been lost in the mists of history: students may well not understand why certain elements are required or toward what end, and faculty, if pushed, will acknowledge that there is no unified vision underpinning many of the experiences students are expected to complete. Departmental deliberations undertaken as part of the CID often uncovered inconsistent and unclear expectations, uneven student access to important opportunities, poor communication between members of the program, and a general inattention to patterns of student progress and outcomes. More alarming, the pressures of funded research may work against the kinds of risk taking, creativity, and collaboration that are increasingly the hallmark of cutting-edge intellectual work in today’s world. And worse yet, students may be treated as cheap labor in the service of an adviser’s current project and personal advancement.

Both doctoral students and faculty suffer under these circumstances. The life of a tenured faculty member may appear to be one of privilege and intellectual reward, but many are torn by increasing and competing demands for scholarship, fund raising, teaching and mentoring, community engagement, and family life. Their doctoral students, in turn, often feel burdened by debt, exploited as lab technicians or low-paid instructors, and disillusioned by the disgruntlement of overworked faculty mentors. The passionate zeal with which many students begin their studies is unnecessarily eroded, a loss that faculty decry as much as students do. It is hard, in short, not to be disheartened by the waste of human talent and energy in activities whose purpose is poorly understood. Serious thinking about what works in doctoral education, and what no longer works, is an urgent matter.

In the chapters that follow we will have much more to say about these and other very real challenges to doctoral education, and the ways in which today's approaches fall short of what is needed as we move into the twenty-first century. But we will have much to say about creative solutions and approaches, as well, for we have had a marvelous perch for observing and learning through our work. What will be clear along the way is that no single set of best practices or models can fit the diverse settings that constitute the landscape of graduate education. What works in one field or on one campus may be quite wrong in another. What *does* work in all settings, we argue, and what is distinctly absent from most doctoral programs, are processes, tools, and occasions through which both faculty and graduate students can apply their habits and skills as scholars—their commitment to hard questions and robust evidence—to their purposes and practices as educators and learners.

Mirror, Mirror

The power of this process and its benefits are illustrated in the experience of Columbia University's English department, where graduate students and faculty have worked together to bring about a number of immediate improvements as well as a renewed sense of intellectual community in which future improvements can take shape and thrive.

Long considered a premier graduate program in the field, consistently ranked in the top ten and home to a number of high-profile faculty stars over the years, Columbia's Department of English and Comparative Literature is large and intellectually lively. Approximately eighteen new PhD students are admitted each year, all of them receiving five full years of funding. In addition to traditional areas within literary studies, graduate students can explore interdisciplinary interests through the Center for Comparative Literature and Society and the Institute on Women and Gender. Admission is highly competitive (around 5 percent) and the student-to-faculty ratio is an impressive five-to-one.

In August of 2001, Jonathan Arac, a member of the department during the 1980s, was invited to return from his position at the University of Pittsburgh to assume the role of chairperson. The department had undertaken a major overhaul of the graduate program a decade earlier, and when the opportunity arose to participate in the CID, Arac and his colleagues seized the moment. Though the doctoral program was in good health, a number of what Arac calls "stress points" had developed, including a sense that advising could be stronger and opportunities for graduate students to teach literature more abundant. As in many humanities departments, the "culture wars" of the 1980s and 1990s had taken a heavy toll, creating what the *New York Times* called "intellectual trench warfare" (Arenson,

2002, p. 1). A sustained focus on strengthening doctoral education was a welcome opportunity, Arac recalls, “to come together around substantive issues involving our work together” (J. Arac, interview with the authors, August 30, 2006).

As a participant in the Carnegie initiative, the department turned to its standing Committee on Guidance and Evaluation, which included David Damrosch, then director of Graduate Studies, several faculty members, and graduate students. Working in consultation with others in the department and with Arac, the committee created and administrated a survey of students, examined peer programs elsewhere, and eventually issued a report detailing fifty-four recommended changes in what Damrosch termed a “major review and overhaul of our graduate program’s requirements” (D. Damrosch, e-mail to the authors, March 11, 2004).

Although some of the proposals and subsequent changes were fine tunings, others required substantial changes. Oral examinations were redesigned to provide “a stronger and clearer structure, so that students and faculty will have a better idea of what they are setting out to do” (Department of English and Comparative Literature, 2004, section 4-A). The roles of dissertation committees were also rethought. An ambitious set of procedures for advising “at every stage of the program” was put in place, aimed especially at improving time to degree (Damrosch, 2006, p. 43). And, in response to the “stress point” about teaching, new opportunities were created for graduate students to teach introductory literature courses.

At a more general level, the experience of careful self-study raised awareness of possibilities for greater collegiality and communication among faculty and graduate students. “For students who are committing themselves to our profession, we can surely do a better job of consultation