

戦略的研究プロジェクトシリーズ I

大学院教育の現状と課題

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Graduate Education and its Changes in the U.S.

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Change in graduate education in the U.S. emerges from the bottom up; from individual departments or programs and not from a ministry or a central agency that initiates reform. In fact, there is no ministry of higher education or ministry of science and technology in the U.S. Graduate programs and Graduate Schools—the latter are the administrators, advocates and catalysts for graduate education at a university—receive impulses and input from different constituencies and sources. These include professional associations, public and private funding agencies, employers, trends in student enrollment, and, particularly, program reviews. U.S. graduate education, as well as all of U.S. higher education, is market-driven; responding to supply and demand of student enrollment, labor market needs, funding possibilities, and accountability requirements. Globalization has increased the intensity and speed with which higher education is responding to market forces. Globalization has also affected doctoral education in the U.S. and worldwide as doctorally-trained persons, particularly in science and engineering, are perceived as sources of innovations in the employment sector, contributing eventually to economic growth (National Academies 2007)

1. The Context of Globalization in Doctoral Education

Since the 1990s, globalization has become a central phenomenon for all of society, as well as graduate education, particularly doctoral education. Globalization cannot be avoided, but institutions of higher education can respond proactively in preparing doctoral students adequately for societies that are increasingly based on a knowledge economy. For all countries this means graduate education needs to educate its doctoral students to create new knowledge, but also to prepare them to translate this knowledge to defining and solving societal problems at home and abroad and collectively in trans-, multi- and interdisciplinary and international groups. Universities are increasing their international dimensions by forming more international research and graduate program collaborations and by actively welcoming international graduate students on their campuses.

This paper contextualizes graduate education within globalization. Starting from a common definition of doctoral education's characteristics that is accepted worldwide, it illustrates how U.S.

doctoral education, without central reform agencies, changes and strives to stay abreast of current and future trends. It does so by undertaking institutional and national research, trying out and adopting promising practices suggested by professional associations and by peers, undertaking on-going formative and summative assessment activities, and by cyclical institutional departmental reviews. Albeit slowly, U.S. graduate education is accepting the changed reality of career outcomes of doctoral education—that not all doctoral students want to become, and are becoming, professors. In particular, the Graduate Schools, the advocates for graduate education on campus, are confronting outdated assumptions about the doctoral job market, and offering workshops that adjust, improve, and prepare graduate education for the future. This paper will close with describing national initiatives that speak to staying competitive in times of globalization. These initiatives include: increasing the enrollment of women and minorities in the graduate student population, particularly in science and engineering; introducing innovative, theme-based, multi- and interdisciplinary doctoral programs; understanding and increasing student retention and establishing national information on doctoral retention rates; and refining local and national doctoral program assessment criteria.

2. Definition of Research Doctorate

In 2007 an international network of experts in doctoral education canvassed definitions of the research doctorate.¹ They found that there is an accepted characterization worldwide which includes three components: 1) a PhD is a degree which contributes through original research to knowledge; 2) people who hold a PhD are expected to have substantial knowledge in their area of study; and 3) doctoral education should include the development of transferable skills and competencies (Nerad and Evans forthcoming). The third component is increasingly included in the description of a doctoral degree in more and more countries around the globe. It implies a proactive stance on the part of graduate education policymakers as they respond to pressures from the employment sectors, particularly sectors outside the academy that are hiring graduates.

3. Characteristics of U.S. Graduate Education

A peculiarity of U.S. graduate education is its five distinct characteristics that allow for on-going change in doctoral programs. Due to these characteristics U.S. doctoral education can adjust to changed realities more readily than doctoral programs in systems of central control and funding. These same characteristics also make U.S. doctoral education more vulnerable to external forces. The five distinct U.S. graduate education characteristics and their effects are: (a) the decentralized

¹ This network was created by the Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington and is called the Forces and Forms of Change in Doctoral Education Worldwide network.

nature of graduate education allows for relatively fast and fairly uncomplicated changes of a doctoral program by the faculty of a doctoral degree program; (b) The market-driven higher education system requires constant adjustment to changes in student enrollment, the job market, and the funding situation; (c) The nature of graduate education in the form of a structured program enables the incorporation of new learning elements into the curriculum without too many bureaucratic hurdles; (d) A variety of quality assurance mechanisms at the national, institutional, and program level encourage on-going self studies, national comparisons, and formative and summative evaluations of innovations; that if well done, lead to on-going renewal and program improvement.

a. Decentralized Graduate Education

Unlike Japan or Europe, U.S. graduate education is decentralized. There is no national ministry of education or other centralized unit which designs reform policy for doctoral programs. A major influence on change or resistance to change comes from a discipline's norms and traditions and its professional association, whose thinking influences the structure and restructuring of doctoral programs in universities.

The primary locus of graduate education is in the department, in its master's and doctoral programs. It is the academic staff in the department, the tenure-track and tenured professoriate—in the U.S. called the faculty—who make the major decisions regarding a graduate program. In designing a new program or deciding to change a program, the faculty need to comply only with their departmental and university-wide standards and policies in terms of graduate student admission, student progress, and degree requirements. These standards are set by a university-wide faculty committee, the Graduate Council, and administered by the Graduate School. In comparison with countries with a more centralized governing system, faculty in U.S. graduate programs have a high degree of autonomy.

Graduate programs receive impulses and input from many different constituencies and sources. These are the national disciplinary professional associations, public and private funding agencies for research grants, alumni, trends in student enrollment, and particularly the individual university's cyclical program reviews undertaken by the Graduate Council; all are drivers of change in graduate education on each campus. Further, an important driver for change at the department level is the campus Graduate School. This administrative unit, which oversees all master's, doctoral and postdoctoral education, can play an important catalyst role for individual graduate programs at a university.

b. Market-driven Higher Education System

Another characteristic of U.S. graduate education is its market-driven behavior. Enrollment of

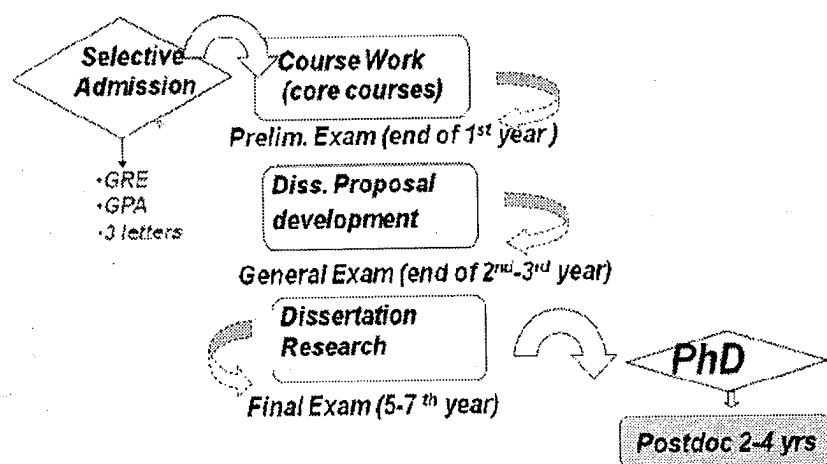
graduate education in both master's and doctoral programs as well as employment perspectives influence the size of graduate programs, particularly of master's degree programs, and provide impulses for rethinking graduate education. Further, financial support for research influences doctoral education. In the U.S., governmental agencies, such as the National Science Foundation (NSF), the National Institutes of Health (NIH), the Department of Agriculture, the Department of Energy (DOE), the Department of Defense (DOD) and a number of private foundations—the Alfred P. Sloan Foundation, the Ford Foundation, and the Andrew Mellon Foundation to name a few—are major research grant-giving agencies. These agencies influence the research direction by announcing research grants in certain areas. In return, faculty who receive these grants employ their doctoral students to work with them on these grants. Therefore, particularly in science and engineering, doctoral students' dissertations research often focus on aspects of these grants. Further, these agencies also influence the structure of doctoral education by prescribing within the grants structural changes such as interdisciplinary teaching and research and the offering of professional activities. One such governmental funded research grant that targets the increase in multi-/interdisciplinary doctoral research is the National Science Foundation funded Integrated Graduate Education and Research Traineeship programs (IGERT). They will be discussed in a later section of this paper.

c. Structured Process with a Developmental Curriculum

One U.S. doctoral education characteristic which is perhaps most difficult to comprehend for countries that have unstructured graduate programs, is that each doctoral program in the U.S. has its own curriculum and is designed around a learning process based on developmental learning theory and sequencing of how students best acquire the necessary research skills and expert knowledge in their particular fields. It is within this structured program at the departmental level that most changes in doctoral education occur. While the overall components of doctoral programs—course work, written and oral examinations, dissertation research, and the writing of a dissertation thesis—have not changed, structuring, sequencing, attention to learning, advising, mentoring, and preparation for future employment have brought about many changes in individual curriculums and resulted in a number of additional offerings geared to the professional development of graduate students. Doctoral programs can be conceptualized as a process of five phases (see Graph 1). However, what has changed, and is still changing, is how these phases are organized to not only result in learning how to do research, but also in becoming a professional in one's field, including learning how to teach.

One of the changes we see occurring in many graduate programs is increased attention to the admission process. Due to the competition among top graduate programs for the best applicants, departments and Graduate Schools have refined their admission processes to improve the decision making of applicants and increase the odds that an applicant will not only apply, but once admitted,

also enroll (In the U.S. applicants can and do apply simultaneously to several universities). Graduate programs, with financial support from the Graduate School, invite potential (domestic) applicants for a campus visit to provide an opportunity for a personal interaction between faculty and applicant and between applicant and advanced students in the program. This allows for an improvement in the decision process for both the candidate and the admitting committee. In such a practice, both parties can base their decision on face-to-face meetings in addition to the application documents, such as grades and test scores, personal essays, goal statements of the applicants, and letters of references.



Source: M. Nerad Chapter 13, "Doctoral Education in the United State," in: Nerad, M and Heggelund, M, (eds.) 2008. *Towards a Global PhD? Forces and Forms in Doctoral Education Worldwide*. Seattle: University of Washington Press. 2008.

Graph 1. Basic Structure of US PhD Programs in Physical, Life Sciences and Engineering

Over the last twenty years many promising practices on how to better socialize graduated students into their field of study have emerged. Graduate schools have taken the lead in offering special workshops for graduate students, but also for faculty and program administrative staff on how to successfully complete or run a doctoral degree program. Such workshops range from preparing for and presenting at national conferences, applying for grants, writing for publication, teaching undergraduate students, preparing for employment, working in interdisciplinary groups, and managing time and projects. Graduate schools work with department chairs, graduate students, and administrative staff to make these "generic" workshops fit disciplinary and program particulars. The workshops for students are now more commonly referred to as professional skills development workshops and are recent additions to U.S. doctoral education.

One particular emphasis in these professional skills workshops that have sprung up all over U.S. graduate programs is a focus on broad career development strategies as well as concrete placement skills. Graduate Schools, in conjunction with campus career centers, offer day-long career symposiums, preparing students and postdocs for the world of employment. Finding employment

becomes increasingly complicated for students who are partnered or married with someone who has invested similarly in advanced graduate education and ideally need to find employment in the same geographic location. This area of career preparation has received the most attention throughout the U.S. during the last 15 years. These workshops respond to national and local surveys of doctoral recipients and postdoctoral fellows who have found that doctoral students lack knowledge and information of life after the PhD as well as life outside academe, and need strategies on how to transition from doctoral study to employment. Section five of this article on "the reality of U.S. employment" reports on findings from national PhD recipient surveys on their desire for better employment information.

d. Quality Assurance in U.S. Doctoral Education

Drivers of change of U.S. doctoral programs are also the various mechanisms of quality assurance. Four major quality assurance strategies are presently used in the U.S. (Bernstein, Ortega, Nerad 2007): 1) institutional or program accreditation; 2) regular cycles of university program review; 3) national assessment of doctoral program quality conducted by the National Research Council and by the U.S. News and World Report; and 4) surveys of career outcomes of degree recipients by research organizations such as the Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington (Nerad *et al.* 2007). Together, these various quality assurance mechanisms push graduate education at the program level to renew itself and stay relevant both in its disciplinary content as well as in its organizational structure. In turn these assessment organizations periodically refine their assessment criteria (NRC 2003).

Accreditation of institutions and programs

In the U.S., accreditation refers to the external review process that institutions of higher education voluntarily use for quality assurance and quality improvement. In contrast to other countries, where accreditation and quality assurance activities are generally conducted by governmental bodies, in the U.S., periodic external quality review of higher education is a non-governmental enterprise that is decentralized and complex (Eaton 2000). There are two principal categories of accreditors that apply to the U.S. universities that award doctoral degrees. Regional accrediting bodies are private, nonprofit organizations that review entire institutions. There are six regional accrediting groups in the U.S., with each corresponding to the institutions of higher education within specified regions. Specific standards vary from one regional accreditor to another, but all review areas such as expected student achievement, curriculum, faculty, services and academic support for students and financial capacity (CHEA 2006). A characteristic of regional accreditors is the expectation that each institution can demonstrate the presence and effectiveness of internal planning and quality control processes. U.S. accreditation is, in essence, an audit system.

A regional accreditation review typically involves the preparation of an extensive institutional self-study, which includes a site visit by a team of higher education faculty and administrators as well as practitioners and members of the public, a written report by the site visit team, and a decision on accreditation made by a decision-making body elected or appointed by the regional accrediting organization. Regional accreditation of an institution is necessary for access to federal funds such as student aid and facilitates the transfer of courses and programs among institutions. Regional accreditation does not commit, convey or imply any funding for the institution.

The second category of accreditors that applies to some U.S. doctoral programs is that of specialized and professional accreditors. These specialized accreditors review professional programs such as undergraduate engineering programs, undergraduate and graduate business programs, law, professional nursing, medicine, and other health profession programs. In professions such as psychology, completion of a program accredited by the appropriate body is one prerequisite for a student to gain a professional certification or licensure. Review criteria change in accordance with the national association of accreditation.

Program Review

Graduate program reviews in the U.S. take on varied forms. Often they are mandated to occur at regular intervals by state laws or university governing board policies, but they are initiated and administered by the universities themselves. Typically, the program review process begins with a self-study, which consists of a descriptive and an evaluative component. The descriptive component includes data assessing the input into a graduate program, its throughput process, and its output. Program input data is information such as depth of applicant pool. Program throughput measures are the levels of graduate student support, faculty research productivity, structure of program, professional development offerings available to students, and curricular or pedagogical innovations. Output measures are student completion, placement rates, and career path information. In addition to factors such as these, each university has its own particular emphasis. For example, in recent years, the University of Washington has paid closer attention to interdisciplinary collaborations, diversity of graduate students and faculty, mentoring of junior faculty and graduate students, and how programs are assessing graduate student learning outcomes. The evaluative component includes consideration of how data gathered can and do inform future planning and program improvement efforts.

Typically, the self study is followed by a site visit and review, conducted by a team composed of local faculty and administrators, as well as distinguished external experts in the field. This team provides an overall evaluation of the strength of the program, and may identify areas where strategic investments by the university could significantly improve the stature, prestige and quality of the program. When the program review process is functioning at its best, results provide the foundation for a continuous quality improvement process at the program level and that process, in turn, is linked

to the larger institutional budgeting and planning process.

National Assessment of Research Doctoral Programs: Rating and Ranking Studies

There are a number of commercial graduate program ratings, such as the rating done by the US News and World Report, a commercial weekly magazine. The most accepted evaluation of doctoral program quality is the assessment by the National Research Council (NRC) of U.S. research doctorate programs. These assessments take place about every 10 years and create benchmark data designed to improve the quality of doctoral programs. The last assessments completed in 1983 and 1995 were criticized for relying almost exclusively on faculty reputational rankings. Therefore, the current NRC assessment takes a multidimensional approach to program quality. It includes indicators beyond the faculty scholarly productivity, particularly throughput and output measures, such as information on the institutional research infrastructure and the student experience, including financial support levels, availability of professional development workshops, information on the proportion of students who entered doctoral study who complete, time-to-degree information, student publications and placement rates. This information is being assessed through four types of questionnaires: an institutional, a program, a faculty, and a student questionnaire (see NRC website at <http://www7.nationalacademies.org/resdoc/Questionnaires.html>). These expanded assessment criteria will provide graduate program administrators and faculty with critical comparative information about the quality of their program. It is expected that this new NRC study of doctoral program quality, in which approximately 200 U.S. research universities voluntarily participated², will contribute to a major renewal of doctoral programs in the U.S.

Doctoral Placement and Career Surveys

Ever since the last National Research Council assessment of doctoral programs in 1995, and an influential report on graduate education in science and engineering commissioned by the National Academies of Sciences the same year, criticism has been voiced that little is known about the relationship between doctoral education and PhD career paths (COSEPUP 1995). Without such information, valuable input for updating doctoral programs to meet the needs of the present and the future (under forces of globalization and knowledge economies) are missing. National career path surveys of PhD recipients create a feedback loop of information from those who have completed their studies and who have applied their education in various employment sectors back to current doctoral programs. Such national alumni surveys assure that doctoral programs adequately prepare their students for the present and the future.

The most comprehensive source of such information is the Survey of Doctorate Recipients (SDR), a follow-up survey of the annual National Science Foundation funded Survey of Earned

² Participating institutions provide the financial support necessary to make the assessment possible.

Doctorates (SED). This survey however does not allow for an analysis at the institutional nor at the departmental level. The Survey of Earned Doctorates, collected annually upon graduation, however, only provides information on immediate employment or career plans right after degree completion.

A number of universities conduct exit surveys for doctoral alumni that capture some of the relevant career data, such as post-degree employment or postdoctoral plans. The obvious shortcoming of this approach is that data collected at the time of graduation is not informed by actual career experience. Furthermore, exit data have been maintained locally (only sometimes posted on university or program websites) and thus are not collected or reported in the kind of common format that would make it useful to prospective students, administrators, or researchers for comparison with peer institutions.

National PhD career path and retrospective doctoral program evaluation surveys are undertaken by the Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington. To date the center staff has undertaken three national surveys that were funded mainly by private foundations (the Andrew Mellon Foundation, the Getty Grant Foundation, the Ford Foundation, and partially the National Science Foundation): "The PhDs—Ten Years Later" study surveyed PhD recipients in biochemistry, computer science, electrical engineering, English, mathematics, and political science ten to fourteen years after degree completion, including postdoctoral appointments; (Nerad and Cerny 1999); "Art History PhDs—a Decade Later", included a focus on the relationship between family and career to the understanding of the career outcomes (Sadrozinski *et al.* 2003); "Social Science PhDs – Five + Years Out" survey continued the collection of empirical data on career paths, program evaluation in light of actual careers, and the intersection of family and career for PhD holders (Nerad *et al.* 2007). Such national studies allow for benchmark data by disciplines and for peer comparison.

The following section presents a summary of research findings from these career path studies followed by descriptions of major initiatives during the last 15 years that aim at improving graduate education in the U.S. and assuring that it stays competitive in times of globalization.

4. The Reality of U.S. PhD Employment

Findings from the three earlier mentioned national PhD career path and retrospective doctoral program evaluation surveys undertaken in 1996, 2001, and 2005/6 respectively allow the following conclusions (Nerad 2009):

1. Not all students who study for a doctorate want to become professors.
2. Not everybody who sought an academic career realized their career goals.
3. It is not always the very best doctoral recipients who succeed in becoming professors.

4. The career paths of PhDs who end up in academia are not straight forward and smooth.
5. Many who successfully complete the PhD are not in a situation to pursue the very best academic job offer as they need to consider relationship and family concerns.
6. PhDs employed in business, industry, government or in the non-profit sectors enjoy as high, or sometimes higher, job satisfaction than professors.

These career path analyses show that doctoral degree itself is put to uses in many employment sectors, and that the university as a workplace is not the most attractive destination. These results indicate doctoral education in the U.S. must be modified to prepare students for a broad range of careers, include professional skills and career development, and prepare PhDs for developing strategies that include career and family building. All three studies found that a far larger percentage of women than men PhDs were partnered or married with someone who also had a PhD, a JD or an MD (75% of all women the sciences) and a far smaller proportion (24%) of men PhDs in natural science fields were partnered with someone who had as high an education as they did. Further, more men were partnered with someone who did not work fulltime. The three studies indicate that many PhD holders make career choices constrained by relationship and family considerations.

These national career path study analyses also reveal that, on the average, it takes four years for PhD recipients to settle into more stable employment—a warning that exit surveys do not provide accurate career and educational outcome information. Albeit slowly, this information is absorbed by doctoral programs and is leading to changes during and after self-studies and program reviews.

5. Major National Projects Aimed at Change in Doctoral Education

Changes in doctoral education in the U.S. not only evolve because of the various quality assurance mechanisms and its decentralized and market driven system, but also through emulations of peer institutions and incentives provided through funding. Important agencies for supporting change in doctoral education are the National Science Foundation (NSF) and the Council of Graduate Schools (CGS), the professional association of graduate deans in the U.S.

a. National Science Foundation Integrated Graduate Education and Research Traineeship Program (IGERT)

Probably the most important change and initiative in moving towards an innovative doctoral education are the NSF funded IGERT programs. These are problem-oriented, theme-based doctoral programs with a multi- or interdisciplinary research and teaching approach. The funding of the student is not tied to an individual professor, but to the program. Through this mechanism, the program hopes for dissertation topics that are interdisciplinary. The programs try to provide access

for doctoral students to network with professionals in their field who work outside academia. These innovative programs try to assure that during the duration of doctoral studies students acquire the necessary professional skills such as working in interdisciplinary teams, team teaching, grants management, etc. Further these programs place a greater emphasis on the learning environment and on building a learning community. They also encourage international collaboration with peers from other countries who are working on the same topic. For example, the Urban Ecology IGERT at the University of Washington in Seattle, U.S. worked closely with the Urban Ecology program at the Humboldt University, Berlin, Germany. Students and faculty from both programs published a textbook on Urban Ecology, held annual conferences and organized field trips together to urban centers in countries other than the U.S. or Germany.

These IGERT programs have become catalysts for change at individual campuses, providing positive examples of interdisciplinary approaches to doctoral education. Presently there are over 195 such programs at over 96 universities that have been funded for five years, each with about 2.5 million dollars.

b. Alliances for Graduate Education and the Professoriate (AGEP)

Another important national project initiated by the National Science Foundation is the Alliance for Graduate Education and the Professoriate (AGEP). This federal grant project aims to increase the number of historically underrepresented groups who want to become professors. In the U.S. these groups includes African-American, Chicano/Latino, women, and Asian-Americans. Institutions which apply for such a grant need to spell out concretely how they would go about creating "a pipeline for historically underrepresented groups from entrance to higher education, up to the professoriate" and need to name the indicators of measuring success.

c. PhD Completion Project (CGS)

The Council of Graduate Schools, the professional association of graduate deans in the U.S., is another agency that support change. It applies for funding to public and private agencies and then encourages individual universities to join these projects by providing supplemental funding for the participating universities.

Until recently only individual universities reported completion rates (Nerad and Cerny 1991). No national average of doctoral completion is currently available. The U.S. Council of Graduate Schools, with funding from Pfizer Inc., is collecting completion rates from graduate schools around the country. Currently 29 institutions have joined this project. The project also encourages the dissemination of strategies to increase the completion rates. It is now possible to construct a cumulative ten-year PhD completion rate by citizenship in broad fields. Overall about 60 percent of

PhDs in all fields have completed their degree before or at year ten (CGS 2008)

d. Professional Master's Project

The "Professional Master's Program" initiative helps universities develop and provide master's degree for people who are interested in pursuing careers in the business, government, and non-profit (BGN) employment sectors. This initiative responds to employers' need for an entry-level work force that has stronger skill sets than workers with bachelors' degrees, as well as students' need for a degree that helps them compete successfully for jobs in the BGN sector (Nerad 2008). The program is funded by the Alfred P. Sloan Foundation and the Ford Foundation and supported and coordinated by CGS. This project intends to match the career options and the career opportunities of graduate students in the sciences and social sciences. It responds to the criticisms of doctoral education—time-to-degree, high attrition rates, the limited academic job market, and students' desire for non-faculty positions—by providing an alternative route to a terminal science master's degree.

e. Responsible Conduct of Research

A fifth project with a national scope is the Responsible Conduct of Research, also called Scholarly Integrity and Research Ethics. This CGS initiative stems from a growing recognition that students, postdoctoral fellows, technicians, and faculty, must be better informed about the norms of science and scholarship, the ethical responsibilities of research, or the policies and regulations that govern research in the U.S. Many situations in which ethical issues arise are complex, and demand distinct skills for identifying and assessing problems and solutions. This project aims at educating scientists and their students about the professional norms and ethical standards for responsible conduct of research.

To advance the development of such skills, CGS promoted the creation of model programs that integrate research ethics and scholarly integrity into the structure and the climate of the entire graduate school research experience. CGS initiatives have been made possible with funding from the Office of Research Integrity (ORI) and the National Science Foundation (NSF).

f. Foundation Supported Research

Starting in 2000, a number of private foundations launched initiatives that drew attention to doctoral education. Re-envisioning the PhDs, funded by the Pew Charitable Trust Foundation canvassed the various stakeholders in doctoral education about their opinion and gave an overview of what is needed in doctoral education (Nyquist, Woodford 2000, Nyquist 2002). This project have been completed in 2002. Its website, "Re-envisioning the PhD," with its many valuable resources is still accessible.

Another project, the "Re-thinking the PhD" initiated and funded by the Carnegie Foundation for the Advancement of Teaching focused on improving teaching and learning in selected disciplinary doctoral programs. This initiative resulted in two books: *The Formation of Scholars: Rethinking Doctoral Education for the Twenty-First Century* by George Walker, Chris M. Golde, Laura Jones, Andrea Conklin Bueschel, Pat Hutchings (2008) and *Envisioning the Future of Doctoral Education: Preparing Stewards of the Discipline* by Chris Golde and George Walker (2006).

A further project which received national attention was The Responsive PhD initiative funded by the Woodrow Wilson Foundation. This project focused on the humanities and introduced students who were interested in exploring employment beyond the university professorship to the world of the public humanities. Students engaged in diverse practices of community-based cultural research, teaching, and engagement through week-long Summer Institutes held at universities by their Humanities Centers. For example, the Simpson Center, the Humanities Center at the University of Washington, offers such a Summer Institute and a series of continuing workshops in community-based course design and project development that hone students' capacity to imagine and enact collaborative culture work across multiple sites inside and outside the university, and to represent their own aspirations and abilities as publicly-engaged scholars.

g. Forces and Forms of Change in Doctoral Education Worldwide

Until recently the U.S. has focused mainly on its own doctoral programs. The U.S. higher education system and particularly U.S. doctoral education, has been held in high esteem worldwide and higher education policy makers and academics have visited US universities to learn about their success. However, globalization has changed the landscape of graduate education and no country can afford to have a sole national perspective (Nerad 2008).

To facilitate the understanding of forces and forms that shape doctoral education worldwide and interpret the emerging trends, the Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington brings together experts from around the world to synthesize research and policy and to speak about the effects of globalization on doctoral education. Funded by the National Science Foundation, in a series of biannual meetings this network exchanges information and stimulates cross-national research in doctoral education. Each meeting results in a publication on changes in doctoral education worldwide (*Forces and Forms of Change in Doctoral Education Worldwide* workshops). The first book in this series, *Toward a Global PhD? Forces and Forms in Doctoral Education Worldwide*, was published in 2008.

Conclusion

Given the highly decentralized and market-driven nature of U.S. graduate education, paired with a system of multiple quality assessment mechanisms, change in U.S. doctoral education is an on-going process. It does not follow reform efforts from a centralized, national, governmental agency, such as a ministry or Department of Education. It evolves incrementally. In particular, the institutional program reviews and the cyclical national assessment of the research doctorate assure that individual doctoral programs assess their effectiveness periodically. However, it remains to be seen whether in these times of rapid changes and heightened competition for academic talents worldwide, the U.S. model, which lacks a central reform mechanism, still proves to be the most competitive model.

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