

Career preparation in PHD programs: results of a national survey of early career geographers

Elizabeth Rudd · Maresi Nerad

Published online: 17 August 2014
© Springer Science+Business Media Dordrecht 2014

Abstract *Social Science PhDs—Five+ Years Out (SS5)* surveyed a national sample of recent doctorate recipients, including 164 geographers, to find out how well their PhD programs prepared them for their careers. The study was motivated in part by long-standing criticism of US PhD programs as “over-producing” PhDs and failing to equip graduates with skills needed in today’s labor market (Nerad 2004). It was also motivated in part by the need for student-centered evaluations of PhD programs (Ostriker and Kuh in *Assessing research-doctorate programs: a methodology study*. National Academies Press, Washington, 2003; Denecke in *The assessment of doctoral education: emerging criteria and new models for improving outcomes*. Stylus, Sterling, pp xi–xiii, 2006). This article presents findings about geographers, including career paths, skills used in their work,

and evaluations of the quality of training in these skills received during graduate school.

Keywords PhD · Social Science PhDs—Five+ Years Out (SS5) · Careers · Training · Student satisfaction

Social Science PhDs—Five+ Years Out (SS5) surveyed a national sample of recent doctorate recipients, including 164 geographers, to find out how well their PhD programs prepared them for their careers. The study was motivated in part by longstanding criticism of U.S. PhD programs as “over-producing” PhDs and failing to equip graduates with skills needed in today’s labor market (Nerad 2004). It was also motivated in part by the need for student-centered evaluations of PhD programs (Ostriker and Kuh 2003; Denecke 2006). *SS5* asked respondents for career path data and assessments of several aspects of their doctoral programs, including career preparation and skills training. Graduates were surveyed a few years post-PhD so that they had time to settle into relatively stable employment and to gain enough work experience to offer useful feedback to PhD programs and policymakers interested in enhancing PhD students’ preparation for professional life. This article presents findings about geographers, including career paths, skills used in their work, and evaluations of the quality of training in these skills received during graduate school.

E. Rudd (✉)
Division of Program Evaluation, U.S. Department of
Housing and Urban Development’s Office of Policy
Development and Research, 451 7th St SW, Room 8120,
Washington, DC 20140, USA
e-mail: elizabeth.c.rudd@hud.gov

M. Nerad
Center of the Innovation and Research in Graduate
Education, College of Education, University of
Washington, Miller Hall, Box 353600, Seattle,
WA 98195, USA
e-mail: mnerad@u.washington.edu

Survey methods

Social Science PhDs—Five+ Years Out surveyed a national sample of PhD holders in anthropology, communication, geography, history, political science, and sociology who earned their degrees between July 1995 and June 1999 (Picciano et al. 2007). The Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington, Seattle conducted the survey.¹ Respondents provided information on post-PhD careers and assessed their graduate school experiences. The survey included several open-ended questions inviting narrative comments. The sample was drawn from departments at 65 doctoral-granting universities; 3,025 respondents yielded a response rate of 45 %. Surveyed geographers came from 32 PhD-granting departments; 164 geographers yielded a response rate of 49.1 % (Nerad et al. 2007). Among the fields studied, geography had the lowest proportion of women (33 %). The geographers' median respondent age at PhD award was 35.8 years. The median time from PhD award to survey completion was 7.9 years, with a range of 5.9–10.2 years (Babbit et al. 2008).

Findings discussed here are available in previously published reports on the CIRGE website (www.cirge.washington.edu).

Career paths

Traditionally, and stereotypically, a social science PhD leads to a faculty career. However, non-faculty and non-academic careers are becoming more important because tenured professorships are dwindling as a proportion of all faculty jobs (Schuster and Finkelstein 2006) and governments around the world are increasingly interested in PhD holders as candidates for working in the complex knowledge environments characteristic of contemporary societies (Bartelse and Huisman 2008; Enders 2004; National Science Foundation (NSF) 2000). Among geographers surveyed, 53 % held tenured or tenure-track faculty positions, 22 % were in non-tenure-track faculty or other (non-faculty) academic positions, and 24 % were in the business, government, or non-profit sector (Table 1).

Table 1 Geography careers

Type of job and sector	First job post-PhD (1995–2000)	Job at survey (2005–2006)
<i>Academic sector</i>		
Tenured faculty	8.1 %	31.9 %
Tenure-track faculty	34.8 %	21.5 %
Non-tenure-track faculty	14.8 %	11.1 %
Postdoc	10.4 %	1.5 %
Academic other (not faculty)	7.4 %	9.6 %
<i>BGN sectors</i>		
Non-profit (includes K-12)	2.2 %	3.0 %
Government	16.3 %	17.8 %
Industry/business	5.9 %	3.7 %
Total n	135	135

Source: CIRGE, Social Science PhDs—Five+ Years Later

With nearly 1 out of 4 doing so, geographers were the most likely among surveyed disciplines to work outside the academy (Nerad et al. 2007). Comparing physical to cultural geographers, physical geographers were more likely to report holding tenured or tenure-track faculty positions and more likely to report working in a BGN sector; cultural geographers were more likely to hold non-tenure-track faculty or non-faculty academic positions (Babbit et al. 2008). In addition, 15 % of geographers reported first jobs as non-tenure-track faculty and 10 % reported postdocs, indicating that the path to tenure often includes at least one temporary position.

The complexity and diversity of PhD careers in geography, as illustrated in Table 1 and described above, underscores the limited usefulness of the traditional academic career as a guide to job seeking and career development. It suggests, further, that graduate students need career management skills and resources that they can draw on throughout their careers, not just in the transition from graduate school to the first professional position. The relatively high proportion of geography PhDs working in a BGN sector might be an opportunity for the discipline to build on its strength in this labor market and develop resources to enhance graduates' preparation for and ability to connect with jobs outside the academy. In fact, the Association of American Geographers (AAG) has a study currently underway to investigate the nature of geography careers in business, government,

¹ The Ford Foundation provided financial support.

Table 2 Percent rating skill “very important” in current job and percent rating quality of training during graduate school “excellent” for all six social science fields versus only geographers

	% All fields		% Geographers	
	Very important skill	Excellent training (formal or informal)	Very important skill ^a	Excellent training (formal or informal) ^b
<i>Related to core PhD education</i>				
Critical thinking	89	79	76	80
Data analysis/synthesis	74	62	72	68
Writing and publishing	66	30	63	27
Research design	45	36	47	42
<i>Professional skills</i>				
Communication and team work				
Diversity	51	27	52	35
Interdisciplinary contexts	50	32	56	52
Team work	47	15	51	22
Other				
Presenting	83	35	82	52
Grant writing	40	15	41	18
Managing people, budgets	31	3	36	4

Source: CIRGE, *Social Science PhDs—Five+ Years Later*

^a n = 120, except for the skill “critical thinking” where n = 119

^b n varies between 122 and 99 (“managing people, budgets” does not include 24 “not applicable” responses)

and non-profit sectors. (See the AAG’s website for the EDGE project for more information on that groundbreaking and highly informative study: <http://www.aag.org/edge>.)

Most geographers responding to SS5 held full-time jobs that used their PhD education. But how well did PhD programs prepare graduates for their work? And how satisfied were they with the career guidance and support offered by their PhD programs?

The importance of particular skills in current jobs versus the quality of skills training in graduate school

One way to assess how well PhD programs prepared graduates for careers is to compare respondents’ judgments about the importance of particular skills in their current jobs to judgments about the quality of training received in those skills during graduate school. This exercise offers information about the kinds of skills respondents typically need in their work and one view of the match—or mismatch—between PhD education and careers.

Table 2 displays findings from SS5 that indicate the proportion of respondents (in geography and in all surveyed fields) evaluating each of the listed skills as

“very important” in their current job and the quality of their training in that skill as “excellent.” The importance of skills was rated on a 3-point scale of “very important,” “somewhat important,” and “not important.” The quality of training was rated on a 3-point scale of “excellent,” “adequate,” and “poor.” The skills are categorized as the kinds of skills that are naturally acquired in the normal course of becoming a researcher (“related to core PhD education”) or as “professional skills,” which, some argue, may need to be imparted through additional training (Rudd et al. 2008).

First, of the listed skills, which ones do most geography PhDs consider very important for their work? Looking at Table 2, what stands out immediately is that skills acquired in the normal course of learning to become a researcher—critical thinking and data analysis—are central in most respondents’ work. About three quarters of geographers indicated that critical thinking and data analysis and synthesis are key skills in their current jobs. This is evidence of the continuing relevance and value for careers of the research training mission of research doctorate programs in geography. But how did respondents rate the quality of training in these skills? Pointing to strengths of geography PhD programs in general, most geographers felt they had received excellent training in

critical thinking and more than two-thirds rated training in data analysis and synthesis “excellent.”²

Among the professional skills, “presenting” stands out as critical for more than 80 % of geographers. More than half rated their training in these skills “excellent.” This is a much higher proportion than in other fields, suggesting that this is a strength of geography programs.

Findings about skills somewhat less commonly key in geographers’ work point to potential areas of mismatch between PhD education and professional life. Nearly two-thirds rated writing and publishing “very important,” but only 27 % rated training in these skills received in their PhD program “excellent.” In addition, in open-ended comments respondents frequently encouraged students to publish before PhD completion (Babbit et al. 2008). Doctoral programs in geography might benefit, then, from critical examination, and subsequent reform, of how their graduate students learn to write and publish.

About half of respondents considered working with diverse groups, working in interdisciplinary contexts, and team work “very important” in their jobs. Training in these skills was usually rated as less than excellent. This suggests that current students could benefit from getting more opportunities during graduate school to work in diverse teams and on interdisciplinary problems and also to consciously reflect upon development of skills needed for team work and communication in diverse contexts.

About one-third of respondents rated research design, grant writing, and managing people and/or budgets as “very important.” Among these skills, “research design” is not like the others insofar as it should be central in research doctorate programs, which, after all, aim to produce independent researchers. For this reason, the relatively low proportion of “excellent” ratings for the quality of training in research design is puzzling. We leave it to disciplinary experts to interpret this finding and ponder its implications.

Respondents only rarely rated training in grant writing and management skills “excellent.” Yet, these skills are critical in research careers that depend on

grant funding and leading teams; they are also key for administrative and management positions inside and outside of academia. This is reflected in the more than one-third of geographers rating grant writing and management skills as “very important” in their current work. Possibly PhD programs or universities could offer doctoral students trainings, workshops, and more opportunities for hands-on experience with grant writing and management; however, it is also possible that these would be more effective at later career stages. PhD students can benefit from professional skills training offered in addition to traditional research education, but PhD programs cannot do everything and doctorate holders, perhaps even more than other professionals, can expect to continue learning and developing new skills throughout their careers. Thus, it remains an open question how best to make available opportunities for learning skills such as grant writing and project management that are critical for a smaller proportion of early career geographers.

Due to the increasing importance of non-academic careers for PhDs in general and the relatively large (for a social science) non-academic labor market for geography doctorate holders, we examined the usefulness of core PhD skills for non-academic careers. For all fields, and also for geographers in particular, data analysis and synthesis turned out to be equally likely to be very important in all job sectors (Rudd et al. 2008). Given the importance and transferability of data analysis and synthesis skills, it is worth reiterating that most geographers surveyed rated their training during graduate school in these skills as “excellent.”

In most fields faculty more often indicated that writing and publishing were key in their work than did respondents outside of academia; however, among geographers those working in academic and BGN sectors were equally likely to consider skills in writing and publishing “very important.” For geographers, then, writing and publishing are key transferable skills, i.e., skills that are normally learned in the course of PhD education and are also widely applicable across a range of geography careers (Rudd et al. 2008). In light of the transferability of writing and publishing skills, it is noteworthy that training in these skills during PhD studies garnered an “excellent” rating from a small proportion of respondents. The implication is clear: More attention to writing and publishing

² Analysis not shown here revealed that respondents who rated a skill “very important” in their current job were only slightly more likely than others to rate their training in that skill “excellent.”

would enhance professional preparation of geography PhD students destined for multiple job markets.

Career development support for PhD students

Geographers indicated they were motivated to pursue a PhD by their intense interest in the field and for the intrinsic challenge of getting a PhD and they returned very positive evaluations of their programs for their disciplinary training. However, they also wanted their PhD to lead to gainful employment and they were less satisfied with career preparation. On a three point scale of “excellent,” “adequate,” or “poor,” most rated their program’s offerings in terms of academic career preparation as adequate (46 %) or poor (19 %). Preparation for non-academic careers was rated adequate by 40 % and poor by 51 % of geographers. Similarly, on a four point scale of “very satisfied,” “somewhat satisfied,” “somewhat dissatisfied” and “very dissatisfied,” only 45 % of geographers were “very satisfied” with their chair’s support in the job search, although another 34 % were “somewhat satisfied,” so that most fell on the “satisfied” side of the scale.

In narrative responses to open-ended questions geographers wrote at length about dissatisfactions with support in making the transition to a professional career. They frequently urged PhD programs to provide better career development resources for future faculty as well as for non-academic careers. One respondent pointed out, for instance, that students planning to become professors could benefit from a course covering topics like the tenure and promotion process and the work of university committees. Another suggested that established academics should maintain relationships with geographers outside the academy in order to facilitate access to interesting non-academic jobs for graduate students. Current students were strongly advised to engage in career preparation such as publishing and gaining visibility through presenting at conferences and joining professional networks (Babbit et al. 2008). Together survey responses and open-ended comments make it very clear that geography PhD students would benefit from more guidance and support for career development.

These perceptions on the part of SS5 respondents reflect global trends in doctoral education. Worldwide a paradigm shift is taking place. PhD education is no longer seen as primarily preparation for a college or

university teaching and research career (Bartelse 2008; Enders 2004; National Science Foundation 2000; Nerad 2009). Instead, PhD holders are also viewed as good candidates for staffing the complex knowledge environments that increasingly characterize social institutions. University-centered research is also changing. University-industry partnerships are encouraged (Slaughter and Rhoades 2004). Interdisciplinary research in response to societal problems—often of global scope—is seen as central in the research enterprise (Gibbons et al. 1994). Tenured and tenure-track faculty are a shrinking proportion of the academic and research labor force. In short, PhD careers are changing. Because of this, excellent disciplinary education is not enough to prepare graduates to make the best of their career opportunities. Nor is it enough to ensure that society can fully reap the benefits of the knowledge and analytical skills graduates acquired during doctoral education. Additional training in professional skills and greater access to career development resources would enhance geography PhD students’ capacity to transform their passion for inquiry into satisfying and productive professional careers.

References

- Babbit, V., Rudd, E., Morrison, E., Picciano, J., & Nerad, M. (2008). *Careers of Geography PhDs: Findings from Social Science PhDs—Five+ Years Out*. CIRGE Report 2008-02. (CIRGE: Seattle, WA). Available at www.cirge.washington.edu.
- Bartelse, J., & Husiman, J. (2008). The Bologna process. In M. Nerad, & M. Heggelund (Eds.), *Toward a global PhD? Forces and forms in doctoral education worldwide*. (pp. 101–113). Seattle, WA: UW Press.
- Denecke, D. D. (2006) Foreword. In P. L. Maki, & N. A. Borowski (Eds.), *The assessment of doctoral education: Emerging criteria and new models for improving outcomes* (pp. xi–xiii). Sterling, Virginia: Stylus.
- Enders, J. (2004). Research training and careers in transition: A European perspective on the many faces of the Ph.D. *Studies in Continuing Education*, 26(3), 419–429.
- Gibbons, M., Limoges, C., Nowotney, H., Schwarzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. London: Sage.
- National Science Foundation (2000). *Graduate education reform in Europe, Asia and the Americas and international mobility of scientists and engineers: Proceedings of an NSF workshop, NSF 00-318*. Division of Science Resource Studies, Project Officer, Jean M. Johnson. Arlington, VA.

- Nerad, M. (2004). The PhD in the US: Criticisms, Facts, and Remedies. *Higher Education Policy*, 17, 2.
- Nerad, M. (2009). Confronting common assumptions: Designing future-oriented doctoral education. In R. Ehrenberg (Ed.), *Doctoral education and the faculty of the future*. Ithaca, NY: Cornell University Press.
- Nerad, M., Rudd, E., Morrison, E., & Picciano, J. (2007). *Social Science PhDs—Five+ Years Out: A National Survey of PhDs in six fields: Highlights report*. Seattle, WA: CIRGE. www.cirge.washington.edu
- Ostriker, J. P., & Kuh, C. (2003). *Assessing research-doctorate programs: A methodology study*. Washington, DC: National Academies Press.
- Picciano, J., Rudd, E., Morrison, E., & Nerad, M. (2007). *Social Science PhDs—Five+ Years Out: Survey methods*. CIRGE report 2007-01. CIRGE: Seattle, WA. www.cirge.washington.edu.
- Rudd, E., Nerad, M., Morrison, E. & Picciano, J. (2008). Professional development for PhD students: Do they really need it? *CIRGE spotlight on doctoral education #2*. CIRGE: Seattle, WA. www.cirge.washington.edu.
- Schuster, J., & Finkelstein, M. J. (2006). *The American Faculty: The restructuring of academic work and careers*. Baltimore, MD: Johns Hopkins University Press.
- Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy: Markets, states and higher education*. Baltimore, MD: Johns Hopkins University Press.