

Spotlight on Doctoral Education #2



Center for Innovation and Research
in Graduate Education

Findings from Social Science PhDs—Five+ Years Out National Survey
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Professional Development for PhD Students: Do They Really Need It?

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EXECUTIVE SUMMARY

Using data from *Social Science PhDs—Five+ Years Out*, CIRGE’s national survey of graduates 6 to 10 years post-PhD in six disciplines, this *CIRGE Spotlight* investigates the need for professional development among social science PhD students. This analysis distinguishes between PhD-completion skills—those acquired in the normal course of successfully completing PhD research—and “professional skills”—career competencies that may need to be learned in addition. We then assess the value in faculty and non-faculty careers of PhD-completion skills (critical thinking, data analysis and synthesis, writing and publishing, and research design) and of professional skills (working with diverse groups, working in interdisciplinary contexts, teamwork, presenting, grant writing, and managing people and budgets). Finally, we examine respondents’ evaluation of support they received from their program and advisor in completing the PhD and in transitioning from student to professional. We find:

- **DATA ANALYSIS AND SYNTHESIS skills are the most transferable PhD-completion skills. They are critical in 75% of careers and are equally likely to be key in faculty careers, in business, government and non-profit (BGN) careers, and in non-faculty academic work.**
- **Among professional skills, working with DIVERSE GROUPS, in INTERDISCIPLINARY contexts, and in TEAMS is critical in more than 1/3 of faculty careers and in nearly 2/3 of non-faculty careers; nearly everybody needs PRESENTATION SKILLS.**
- **PhD students need more CAREER GUIDANCE in terms of connecting knowledge and skills acquired during doctoral education to a variety of careers.**

We conclude that doctoral students in the social sciences would benefit from enhanced opportunities to develop skills in:

- multiple data analysis and synthesis techniques
- giving presentations
- working with diverse groups
- team work and collaboration
- working in interdisciplinary contexts
- managing people and budgets

Students would also benefit from:

- learning how to recognize and articulate the transferability of PhD-completion skills
- exposure to non-academic career options
- access to a variety of professional networks

“It appears to me that two basic propositions are central here and I state them as my own convictions: (1) training in research and scholarship should be the primary purpose of doctoral study and (2) training at the doctoral level must be specialized.”—Berelson (1960, p. 221)

“...[D]octoral programs [must] include appropriate professional career development opportunities.”—From the Salzburg “Ten Basic Principles” (European University Association, 2005).

Since the beginning of doctoral education in the late 19th century, the purpose of the PhD has remained the same. Consensus exists worldwide that doctoral students should master substantial knowledge in their specialty and contribute original research (Bernstein & Evans et al., 2008). Today, as reflected in the European Salzburg Principles, there is discussion of adding a component in response to changes in students’ needs, modes of knowledge production, and employment situations. This added aspect is referred to under the rubrics of providing professional development opportunities and/or training in skills variously termed professional, transferable, generic, or translational (Bernstein, et al. 2008; Gilbert, Balatti, Turner, & Whitehouse, 2004; Solem, Cheung, & Schlemper, 2008; Feetham, n.d.; Nerad, 2008a). This CIRGE *Spotlight* uses data from *Social Science PhDs–Five+ Years Out*, a national survey of more than 3,000 social science doctorate holders from 65 U.S. universities, to evaluate the use of professional skills in careers of social science PhDs and to assess the need for professional development opportunities during graduate school.

This paper first covers study methods. We then briefly review notions of professional development for PhD students in order to disentangle overlapping meanings used in contemporary discussions. This leads us to distinguish “*PhD-completion*” skills—those necessarily acquired in the course of fulfilling the traditional purposes of the PhD—from “*professional*” skills such as

teamwork, communication, and project management. Then, using SS5 survey data and narrative responses to open-ended questions, we evaluate the transferability of PhD-completion skills to non-faculty careers and the value of professional skills for social science PhDs in three different career types: faculty, non-faculty academic, and business, government, or non-profit (BGN) sector careers. We also analyze respondents’ ratings of how well their PhD program and their dissertation advisor supported them in completing their PhD and making the transition from student to professional.

SOCIAL SCIENCE PHDS–FIVE+ YEARS OUT: SURVEY SAMPLE AND METHODS

Social Science PhDs–Five+ Years Out (SS5), a national study of PhD education and careers, surveyed recent recipients of doctoral degrees in anthropology, communication, geography, history, political science, and sociology. Respondents earned their PhD between July 1, 1995 and June 30, 1999. They provided information in 2005 – 2006 on post-PhD career paths and assessed their graduate school experiences. Sixty-five U.S. institutions participated in the study. CIRGE contacted 6,670 doctorate holders from these universities and 3,025 of these PhD graduates answered, yielding a response rate of 45%. Response rates were similar across disciplines.

SS5 collected data useful for assessing the need for professional development support and professional skills training among social science PhD students. Respondents rated

the importance in their current jobs of each of several skills, including research and professional skills. They also evaluated their programs on several items reflecting support for successfully completing the PhD and for the transition to practicing professional. Open-ended items offering advice to programs and to new students in their field provided further insight into needs for professional development and skills training.

This report uses actual data; we have not imputed missing data. Quotations from respondents are from answers to open-ended questions and they illustrate frequently expressed sentiments identified by coding narrative responses. (For details on the survey methods, see Picciano, Rudd, Morrison, & Nerad, 2007.) Exact question wording and coding for variables used in this analysis are given in the Methods Appendix.

WHO CARES ABOUT PROFESSIONAL DEVELOPMENT FOR PHD STUDENTS?

More than a decade ago, in the United States the influential National Academies' Committee on Science, Engineering, and Public Policy (COSEPUP, 1995) argued that PhD education should be redesigned to provide students with a greater breadth of exposure to subfields and career paths and equip them with better communication and teamwork skills. The report concluded that PhD education was primarily designed to serve research interests and was based on the assumption that its purpose was to replenish the ranks of academic researchers. In reality, the Committee pointed out, at least half of PhD holders in many fields went on to work outside of academia in business, government, or nonprofit sectors. Referring to emerging institutional contexts of science and engineering careers, changing modes of problem formulation, and changing research methods, the committee concluded that "a

world of work that has become more interdisciplinary, collaborative, and global requires that we produce young people who are adaptable and flexible, as well as technically proficient" (p. 2). Interest in professional skills for PhD students continues to be motivated by concerns about the employability of doctorate holders and their suitability for a variety of careers. Drawing on the Pew Foundation funded study *Re-Envisioning the PhD*, Nyquist (2002) argued that for doctorate holders "[t]he range of skills needed to function effectively today has increased enormously . . ." (p. 14). The Preparing Future Faculty movement has drawn attention to the need for graduate students who seek faculty careers to learn about all aspects of the faculty role, not just research but also teaching and service.¹

Students are aware of the fact that in many fields the academic labor market cannot absorb all of the PhDs and that there may be attractive and well-paid employment opportunities outside of academia. Students are thus interested in the transferability of skills acquired during graduate school to careers in business, government, and nonprofit sectors. Policy makers who fear that the best and brightest students will eschew graduate school if PhD career paths are perceived as risky and uncertain are also interested in the effectiveness of PhD education as career preparation (Nyquist, 2002).

Outside of the United States, interest in professional skills training for PhD students is at least as strong and motivated by the same beliefs: "that there are skills which all graduates should possess, and which would be applicable to a wide range of tasks and contexts beyond the university setting (Gilbert, et al., 2004, p. 375). These views are

¹<http://www.preparing-faculty.org/>

rooted in the observation that PhD holders are increasingly likely to work outside of academia and in national governments' new interest in PhD-level scholars as candidates for work in increasingly complex, knowledge-rich environments (Bartelse & Huisman, 2008).

The idea behind providing PhD students with professional development opportunities and training in specific professional skills is that PhD students today need more than disciplinary training. Many need more support than they are getting in meeting PhD program requirements. And, to fulfill their economic and civic roles, they need skills in addition to the capacity to contribute to the advancement of knowledge in their field. They need to be able to communicate complex research findings to diverse audiences, work in interdisciplinary contexts, apply knowledge in commercially viable, socially responsible, and ethical ways, and take on leadership roles in knowledge-rich environments in complex organizations (Bartelse & Huisman, 2008; Enders, 2004; Nerad, 2008b; Nyquist, 2002; NSF, 2000).

WHAT IS PROFESSIONAL DEVELOPMENT FOR PHD STUDENTS?

What is professional development for PhD students? One useful model identified two basic categories: (1) development of skills and habits needed to complete the PhD and (2) training that prepares students to “engage possibilities beyond the discipline” (Feetham, n.d.)² Useful programs that offer chances to develop skills needed to complete the PhD need not be contained within the doctoral program. For instance, the Imperial College in London requires 3-day residential

² Feetham's categories are based on the disciplinary nature of PhD education and she refers to disciplinary development vs. training to engage beyond the discipline.

workshops in research skills for first year graduate students in addition to disciplinary training (Ritter, 2008). The University of Washington Graduate School in Seattle offers workshops on being a research assistant, including topics such as “How can I build good relationships with my supervisors?” “How can I prepare for working in a research team?”³ In the UK, institutions are asked to implement opportunities for “Personal Development Planning,” which offers graduate students and postdoctoral scholars guidance for self-reflection on both disciplinary and personal development (UK GRAD Programme, 2005).

But calls for professional development more commonly focus on the transition from PhD student to practicing professional. In this sense, professional development refers to (1) learning to recognize the transferability (from academic research to a variety of contexts) of skills gained in doctoral studies, (2) preparing for activities and tasks beyond disciplinary scholarship and academic research, and (3) developing the knowledge, attitudes, and skills required to successfully manage any kind of post-PhD career. Professional development programs targeting the transition to practicing professional help students to formulate clear career goals, connect with a variety of academic and non-academic career possibilities, and learn skills needed for managing post-PhD careers. For instance, spending more time and money on career planning and placement activities for doctoral students was the lead recommendation Nerad and Cerny (2000) drew from their national study of PhD careers. Nyquist (2002) called for “commitment to an informed career choice based on exposure to a broad array of

³ <http://depts.washington.edu/cidrweb/RAWorkshop/index.html>

opportunities and paths” to become part of the “core competencies of successful PhDs.”

An example is the University of Melbourne’s, Advanced Leadership & Professional Skills (ALPS) seminars, which provide “graduate students with a professional skills base of the highest quality that is transferable across research, industry and the public sector.”⁴ Topics include writing for non-academic audiences and consulting. The University of Washington in Seattle’s Office of Postdoctoral Affairs offers a workshop in “Individual Development Plans.”⁵ Since 1996, the University of California, Berkeley has been offering career counseling and resources for PhD students.⁶

Training in teaching is also often considered professional development that is not strictly “disciplinary” (Feetham, n.d.) or part of the essential purpose of PhD education (i.e., mastering a specialized area of inquiry and making an original contribution to knowledge). Traditionally graduate students in U.S. PhD programs learned to teach by hook or by crook, without training or formal supervision. This is still usually true, but the problem has been addressed at high levels. For instance, training for teaching assistants was spurred by special legislative allocations in the case of the University of California system. A major effort has been the national Preparing Future Faculty initiative, launched in 1993, which includes explicit attention to learning how to teach in addition to exposing students to academic careers in a variety of institutional types and to the service component of faculty careers.⁷

PHD-COMPLETION SKILLS & PROFESSIONAL SKILLS

Skill sets referenced by the terms “professional,” “generic,” “transferable,” and “translational” vary widely. These include skills traditionally considered central in PhD education such as analytical skills, writing and publishing, which are acquired in the course of fulfilling essential PhD requirements. When such skills are labeled “professional” the point is that students should be able to recognize and communicate to others the value of these skills and also articulate the transferability of these skills to non-faculty careers. In this *Spotlight* we refer to skills developed in the normal course of mastering specialized knowledge and contributing original research as “PhD-completion” skills.

The descriptor “professional” more often means skills such as teamwork, communication, and managing people and budgets, as well as competencies in personal effectiveness, career management and self-promotion. In this *Spotlight* we use “professional” to refer to teamwork, communication, and project management skills that may not develop as a byproduct of completing a PhD. **Therefore, we distinguish between PhD-completion skills and professional skills.** Using data from SS5, we evaluate the usefulness of PhD-completion skills in faculty and non-faculty careers and we evaluate the need for professional skills, i.e., skills in working with diverse groups, working in interdisciplinary contexts, team work, presenting, grant writing, and managing people and budgets, in faculty and non-faculty post-PhD careers.

⁴ <http://www.gradstudies.unimelb.edu.au/programs/skills/alps.html>

⁵ <http://depts.washington.edu/pdafrs/events.html>

⁶ <http://career.berkeley.edu/PhDs/PhDs.stm>

⁷ <http://www.preparing-faculty.org/>

ARE PHD-COMPLETION SKILLS TRANSFERABLE?

YES.

Most respondents in all types of jobs very often use skills in critical thinking, data analysis and synthesis, and writing and publishing.

SS5's skill inventory, listed in Table 1, includes 4 skills that develop naturally in the course of completing a social science PhD, i.e., by mastering a specialized area of knowledge and contributing to knowledge through original research. These are critical thinking, data analysis and synthesis, writing and publishing reports and articles, and research design.

TABLE 1: IMPORTANCE OF SKILL IN CURRENT JOB BY JOB TYPE							
	Faculty ^a			Academic other + BGN			(N)
	Very	Some- what	Not	Very	Some- what	Not	
Skills Developed in Completing the PhD							
Critical thinking***	91	8	1	83	15	3	
	(1,532)			(523)			(2,055)
Data analysis/synthesis	75	20	5	73	20	6	
	(1,539)			(525)			(2,064)
Writing & publishing***	73	19	8	48	27	25	
	(1,522)			(497)			(2,056)
Research design***	49	28	23	37	29	33	
	(1,530)			(522)			(2,052)
Skills Often Called "Professional"							
Diversity***	48	39	13	58	29	12	
	(1,534)			(522)			(2,056)
Interdisciplinary contexts***	48	37	15	58	25	18	
	(1,535)			(524)			(2,059)
Team work***	39	41	20	71	22	7	
	(1,536)			(524)			(2,060)
Presenting***	86	13	1	73	23	5	
	(1,539)			(525)			(2,064)
Grant writing***	43	40	17	32	25	43	
	(1,534)			(524)			(2,058)
Managing people, budgets***	26	37	37	47	30	22	
	(1,537)			(524)			(2,061)
*** p < 0.001, 2 x 3 chi-square test ^a Includes tenured, tenure-track, and non-tenure-track faculty. CIRGE, <i>Social Science PhDs—Five+ Years Out</i>							

Critical Thinking

Almost all faculty rated "critical thinking" skills "very important" in their work, and 99% considered these skills at least "some-

what" important. Similarly, 83% of respondents in non-faculty careers rated critical thinking "very important."

Data Analysis & Synthesis

Skills in data analysis and synthesis stand out among the PhD-completion skills for being equally important across all job sectors. The importance of these skills in the labor market was echoed in the narrative responses offering advice to students to get specific, marketable research and analysis skills. A geographer advised: “develop expertise in high performance computing, GIS, remote sensing, GPS, visualization and geoinformatics, as critical planning support tools.” A political scientist advised: “Get fundamental quantitative and statistical training, including mathematics.”

Writing & Publishing

Among faculty, writing and publishing were rated “very important” by 73% and at least somewhat important by 92%. These skills were much less likely to be critical in non-faculty careers, with non-faculty respondents about half as likely to consider them “very important.” However, these skills were still rated as at least “somewhat important” by 75% of non-faculty respondents.

Research Design

Among the PhD-completion skills, research design was least likely to be critical in current jobs, while, nevertheless, being key for substantial proportions of respondents. Half (49%) of faculty respondents rated research design skills “very important.” Among non-historians in faculty careers this proportion was significantly higher (57%). In non-faculty jobs, research design was less likely to be critical, with 37% rating these skills “very important” and 33% rating them “not important.”

	Faculty	Others
Anthropology (276)	67	33
Communication (227)	78	22
Geography (120)	64	36
History (586)	78	22
Sociology (482)	75	25
Political Science (373)	75	25
Total (2,064)	75	25
CIRGE, <i>Social Science PhDs—Five+ Years Out</i>		

The size of the non-faculty labor market varies across disciplines, accounting for one-third of respondents in anthropology and geography (33% and 36% respectively) and about one-fourth of respondents in all other fields (Table 2). However, there were only minor field differences in the value of PhD-completion skills in non-faculty and BGN careers.

ARE THERE FIELD DIFFERENCES IN THE TRANSFERABILITY OF PHD-COMPLETION SKILLS?

NO.

Commonalities outweigh the few small differences.

Field Differences: Critical Thinking

Critical thinking skills were considered “very important” in their current work by most respondents in all fields in all job types. Among anthropologists, historians, and sociologists respondents in faculty positions were somewhat more likely to indicate these skills are key in their work than were respondents in non-faculty positions. Among political scientists, geographers and holders of communication PhDs, respondents in

faculty and non-faculty positions were equally likely to indicate that critical thinking is “very important” in their work.

TABLE 3: PERCENT RATING SKILL “VERY IMPORTANT” BY FIELD							
	Anth	Com	Geo	Hist	Pol Sci	Soc	Total
Skills Developed in Completing the PhD							
Critical thinking***	88	86	75	89	90	93	89
	(289)	(230)	(121)	(601)	(373)	(484)	(2,098)
Data analysis/synthesis*	79	70	71	73	81	74	75
	(289)	(228)	(122)	(592)	(372)	(483)	(2,086)
Writing & publishing***	71	61	64	63	73	72	68
	(287)	(224)	(121)	(582)	(369)	(484)	(2,067)
Research design***	55	39	47	27	52	65	46
	(275)	(226)	(120)	(579)	(371)	(480)	(2,051)
Skills Often Called “Professional”							
Diversity***	63	56	53	51	43	49	51
	(275)	(226)	(120)	(584)	(372)	(478)	(2,056)
Interdisciplinary contexts***	62	53	56	44	49	48	50
	(275)	(227)	(120)	(581)	(373)	(482)	(2,059)
Team work***	58	53	51	39	43	52	47
	(276)	(227)	(120)	(584)	(373)	(480)	(2,060)
Presenting**	81	85	82	85	83	79	83
	(276)	(227)	(120)	(586)	(373)	(482)	(2,064)
Grant writing***	56	32	41	33	37	49	40
	(276)	(227)	(120)	(582)	(373)	(479)	(2,058)
Managing people, budgets***	43	36	36	22	31	33	31
	(276)	(227)	(120)	(584)	(372)	(481)	(2,061)
* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$ (Chi-square 3 categories (very, somewhat, not important) by 6 fields) CIRGE, Social Science PhDs–Five+ Years Out							

Field Differences: Data Analysis & Synthesis

Looked at field by field, data analysis and synthesis are still the most transferable PhD-completion skills, with no differences between faculty and others in the likelihood of reporting these skills to be very important in geography, history, political science, and sociology. Among anthropologists and communication PhDs, faculty were a little more likely than non-faculty to consider these skills critical in their work.

Field Differences: Writing & Publishing

Nearly three-fourths of anthropologists, political scientists, and sociologists indicated that writing and publishing were critical in their work, as did nearly two-thirds of communication, geography, and history respondents. In all fields except geography, writing and publishing was more likely to be “very important” for faculty than for other kinds of jobs. For geographers writing and publishing skills are key transferable skills. Geographers needed writing and publishing skills equally often in faculty and non-faculty work.

Field Differences: Research Design

Research design was more often “very important” in anthropology, political science, and sociology careers (Table 3). In all fields except sociology, faculty were more likely to use research design skills than others. For sociologists, research design is a key transferable skill. Sociologists were more likely to need these skills than PhDs in other fields and sociologists in faculty and non-faculty positions were equally likely to report these skills are “very important.”

HOW IMPORTANT ARE PROFESSIONAL SKILLS FOR SOCIAL SCIENCE CAREERS?

Among the skills commonly referred to as “professional,” SS5 inventoried working with diverse groups, working in interdisciplinary contexts, team work, presenting, grant writing, and managing people and budgets. All of these were considered “very important” by at least one-quarter of respondents, with most of them being “very important” for one-third to one-half of respondents. Presentation skills were critical for more than 80%. Teamwork skills and managing people and budgets were much more likely to be critical for non-faculty careers (Table 1).

Teamwork

Being able to collaborate effectively in a team is widely believed to be critical outside the academy and to be increasing in importance in academic research (COSEPUP, 1995; Nerad, 2004; Gibbons et al., 1994). SS5 findings reveal that social scientists in non-faculty positions were nearly twice as likely as faculty to consider teamwork and collaboration skills key. Close to three-fourths of those employed in non-faculty academic positions or in business, government, and non-profit positions rated teamwork “very important” in their jobs. A closer look at non-faculty academic work vs.

jobs in business, government, and non-profit sectors reveals that faculty were least likely to consider teamwork key, those in non-faculty academic positions were somewhat more likely to do so, and those in business, government, or non-profit sectors were the most likely to need teamwork skills.⁸

Even among faculty, 39% considered teamwork “very important” and another 41% considered it somewhat important (Table 1). This finding highlights the mismatch between traditional PhD education in which students are required to complete a major piece of research on their own and the reality of scientific work today in which more published peer-reviewed research is co-authored than sole-authored, even in the social sciences (Wuchty, Jones, & Uzzi, 2007).

Interdisciplinary Contexts

No longer relegated to the margins of scientific inquiry, interdisciplinary work is now considered a necessary launching pad for scientific progress (Gibbons et al., 1994). How important is it for social scientists to be able to work effectively in interdisciplinary contexts? Half of social scientists rated these skills “very important,” (48% of faculty and 58% of non-faculty). More than 80% of respondents in all fields and job types considered these skills at least “somewhat important” (Table 1).

Diversity (Working With People from Diverse Educational and Social Backgrounds)

Diversity, like interdisciplinary contexts, proved to be more often “very important” for

⁸ In a logistic regression model controlling for field and predicting response “very important,” the difference between faculty and BGN is significant at the $p < 0.001$ level and the difference between non-faculty academic employees and BGN is significant at the $p < 0.05$ level.

people in non-faculty careers. Even among faculty, however, more than 80% considered skills needed for working with diverse groups of people to be at least “somewhat important” (Table 1).

Presentation Skills

Presentation skills stand out among the professional skills for being extremely important. More than 80% of respondents rated presentation skills “very important,” including 86% of faculty and 73% of those in other careers.

Grant Writing

The importance of grant writing varies significantly by job type. Faculty were most likely to rate grant writing skills “very important” (43%) followed by those employed in non-faculty positions in academia (36%), and those in BGN sectors (30%). Moreover, faculty were much more likely to indicate that grant writing is at least “somewhat important” for them, while for those in non-faculty positions grant writing tends to be either “very important” or “not important.”

Managing People and Budgets

People and budget management skills, like teamwork, were much more likely to be critical in non-faculty careers, with 47% in non-faculty careers finding these skills “very important” and another 30% finding them at least “somewhat important.” Nevertheless, 26% of faculty felt these skills were key in their jobs and another 37% felt they were “somewhat important.”

TRAINING FOR TEACHING

Most (91%) respondents had taught during their PhD studies. Of these, only a small proportion (about 20%) had the

opportunity to prepare and deliver their own class.

About half (53%) of graduates had been offered formal instruction in teaching or formal supervision and evaluation of their teaching. Of these, most used these opportunities and found them useful. Nevertheless, about half of surveyed social science PhDs left their studies without formal training in how to teach (Nerad, Rudd, Morrison, & Picciano, 2007).

In narrative responses offering advice to programs in their field, the second most common theme was the need for training in teaching. “Teach graduate students how to teach,” advised a tenure-track professor of geography, “and treat teaching as a valuable component of a professor’s workload.” A historian suggested that “doctoral programs should prepare their students to teach more thoughtfully and incorporate pedagogical literature and research into their training of teachers.”

PROGRAM AND ADVISOR SUPPORT FOR PHD COMPLETION & TRANSITION TO PRACTICING PROFESSIONAL

Are PhD students in social sciences receiving the professional development support that they need? To answer this question, we look at graduates’ evaluations of support provided by their program and advisor for completing the PhD and transitioning into their post-PhD career. Narrative responses to open-ended survey items provide ample evidence of student needs for support and guidance in forging a viable career out of a passion for their subject. The most common themes indicate unmet needs for exposure to multiple career paths, for guidance in planning doctoral education strategically, and information that would help connect PhD education to career goals. These findings are reinforced by

results—discussed below—of closed survey items evaluating program elements and mentoring by the dissertation chair.

Advice to Programs

The issue most frequently touched on in narrative responses offering advice to programs was the need for better and more information on a variety of career paths, including non-academic careers and faculty careers outside of Research 1 institutions. For instance, a professor in communication argued that “too many of us leave our PhD programs knowing content and methodology, but not how to effectively engage the many pragmatic issues that attend being an academic.” Further, he advised programs to “show us how what we have learned is applicable outside of academe.” A tenured professor of anthropology advised programs:

[b]ring in applied professionals . . . to give students a sense of the possibilities of non-academic employment. Strengthen partnerships with community organizations in which applied professionals work . . . create internships for graduate students and undergraduates as well.

A sociology professor suggested offering PhD students “an applied/policy track.”

Advice to Students

Organize your studies strategically and stay focused. The benefit of hindsight is reflected in the most common type of advice offered to new or prospective students: *Organize your studies strategically and stay focused.* This reflects the need for professional development in the sense of helping students understand how to meet program requirements and how to plan graduate studies with career goals in mind. For instance, design “a course of study,” advised one historian, “that gives you some

flexibility with regard to the types of positions you are qualified for; define your own personal and professional goals clearly.” “Dissertation doesn’t have to be your life’s work,” according to a sociologist, “do what is necessary to finish, and you can do your magnum opus later.” A geographer suggested “write articles while you’re still in school . . . look out for your interests and don’t get too caught up in working on someone else’s research mission . . .”

Don’t limit yourself to faculty careers. The job market was central in the second most common topic: *Consider careers beyond the academy and other than the faculty route.* An anthropologist working in a non-faculty academic position suggested that students should pursue the PhD because “you’re interested in anthropology but keep an open mind about how you might apply that knowledge and those skills.” A communication graduate working in business suggested, “By all means find out what jobs use the skills taught in your program that do not just have application to academic research and teaching.” A geographer recommended:

Find out what resources are available to you at your university (in terms of professional and career development) and make use of these resources early and often—don’t just bury yourself in your research. These other opportunities may lead you to your permanent career—either inside or beyond academia.

Be proactive about getting mentoring from your dissertation chair. Copious comments on mentoring also indicate the need for guidance in how to manage PhD studies. One political scientist advised students: “You can’t choose your dissertation chair too carefully.” What is needed in a dissertation advisor? Respondents

commented that a chair should be able to guide you practically through the program, offer substantive expertise, and link students to networks needed for future careers. Typical sentiments:

Try to find an advisor with whom you can have a comfortable talking relationship, so that you are not afraid to ask for help. Try to work out a timeline with your advisor relatively early, so you both know when you have gotten stuck and need help getting un-stuck.

–Tenured anthropology professor

Know what your research objectives are before you start, find an advisor that is an expert in your area, talk to students that have worked with that advisor, and once in the program, follow your advisor's advice.

–Geographer working in government

A sociologist urged: "hook up with a mentor and network as much as you can; it is who you know and continue to maintain ties with that really helps you out in the future."

Several writers referred to the need for multiple mentors, with advice such as:

Develop strong relationships with key faculty to support academic and career decisions throughout the doctoral program and beyond.

–Sociologist working in government

Make sure that you get the advisor that fits your needs and nature, have more than one for that matter both in your department and outside. You must do part of the work of creating a good mentoring relationship.

–Communication PhD in a non-tenure-track faculty position

Evaluation of Supportiveness of the Program and of Mentoring by the Dissertation Chair

Table 4 distinguishes between items reflecting support for students to complete their PhD program successfully and items related to the transition from student to professional. Students are more satisfied with support they received in mastering academic requirements for PhD completion than they are with career guidance.

Compared to items reflecting the transition to a career, items related to successfully completing the PhD more often received a rating of excellent. The majority of respondents rated their programs at least "adequate" in such important dimensions as support and guidance during dissertation writing, preparation for the qualifying exam, socializing students into an academic community, providing students with feedback on their progress and making program requirements clear. About half of graduates were "very satisfied" with their dissertation advisor's help in developing the thesis topic and guidance to complete the dissertation. One way to look at these findings is as evidence that social science PhD students' need for support in successfully completing their PhD program are usually being adequately met. Alternatively, four of the five program elements evaluated received an "excellent" rating from fewer than 42% of respondents and this could be seen as evidence of unmet needs.

Items reflecting support for the transition from student to professional received poor marks. For instance, 25% of respondents felt that academic career preparation in their program was poor, while only 31% felt it was excellent. Preparation for non-academic careers was rated "poor" by half of respondents and "excellent" by fewer than

5%. Finally, satisfaction with the help given by the dissertation chair in publishing was much lower than for other types of mentoring. Nearly 20% of respondents were

“very unsatisfied” with their dissertation advisor in this regard and another 25% were somewhat unsatisfied. Only 27% were “very satisfied.”

Successful Completion of PhD	Excellent	Adequate	Poor	NA	(N)
Support & guidance during dissertation writing	42.4	40.7	16.9	(3)	(2,479)
Preparation for qualifying exam	36.4	51.1	9.8	2.7	(2,476)
Socializing students into an academic community	31.9	45.1	21.9	1.1	(2,478)
Feedback on student progress	32.0	55.4	12.6	(1)	(2,479)
Clear program requirements	54.5	42.2	3.3	(0)	(2,483)
	Satisfied		Unsatisfied		
	Very	Some-what	Some-what	Very	
Chair’s mentoring in developing thesis topic	55.0	31.5	9.4	4.1	(2,478)
Chair’s guidance in completing dissertation	54.9	28.2	11.4	5.5	(2,477)
Transition to Practicing Professional					
	Excellent	Adequate	Poor	NA	
Academic career preparation	31.1	42.3	25.1	1.4	(2,479)
Non-academic career preparation	4.6	22.5	50.4	22.5	(2,447)
	Satisfied		Unsatisfied		
	Very	Some-what	Some-what	Very	
Chair’s support of career decisions	50.8	29.1	11.3	8.8	(2,412)
Chair’s support of job search	43.0	29.7	15.8	11.5	(2,390)
Chair’s help in publishing	27.5	28.9	25.3	18.3	(2,405)

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CONCLUSIONS

This *Spotlight* analyzes the use of PhD-completion and professional skills in careers of social science doctorate holders and evaluates PhD students’ needs for support in meeting program requirements and transitioning to professional careers. Findings show that skills acquired in the normal course of completing a PhD (“PhD-

completion” skills) are critical in faculty careers and also in other types of PhD careers: Critical thinking and data analysis and synthesis are very important in both faculty and non-faculty careers. **In fact, for social scientists, data analysis and synthesis skills are the most transferable PhD-completion skills.**

There are only a few disciplinary variations in transferability of PhD-completion skills. Compared to others, sociologists are more likely to need research design skills and among sociologists research design is equally likely to be key in faculty and non-faculty careers. Skills in writing and publishing are key transferable skills for geographers.

Professional skills are needed by PhD holders in all types of careers. Skills for working with diverse groups, in interdisciplinary contexts, and in teams are critical in more than one-third of faculty careers and in nearly two-thirds of non-faculty careers. Almost everyone needs good presentation skills. Non-faculty careers are much more likely to require skills in managing people and budgets.

Narrative responses to open-ended questions and results of program and mentoring evaluations emphasize over and over again students' need for better career preparation. Graduates expressed in multiple ways the need during PhD studies to have better information about different kinds of careers and to develop the skills to manage any kind of PhD career. Graduates are much more likely to be satisfied with the support they received in meeting program requirements than with what their program offered in terms of career preparation.

These findings suggest that social science PhD programs could increase the career options of their graduates and the transferability of skills acquired during PhD studies by enhancing opportunities to learn multiple data analysis techniques, requiring training in giving presentations, facilitating experiences in team work and interdisciplinary contexts, and exposing students to management of people and budgets. Universities and PhD programs could also enhance students' *awareness* of the

transferability of skills acquired during doctoral education. They could do this by offering opportunities for students to learn how to recognize and articulate the transferability of PhD-completion skills, and providing much more in the way of career guidance, career preparation, exposure to a variety of career options, and access to diverse professional networks.

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Methods Appendix: Exact Question Wording

Skills Inventory	Scale
<i>For each activity, please indicate the quality of your doctoral training (either formal or informal):</i>	
<i>For each activity, please indicate importance relative to your current work. If you are currently not employed, please answer for your most recent employment.</i>	
Analyzing or synthesizing data	1 Excellent
Thinking critically	2 Adequate
Research design (experiments, surveys, etc)	3 Poor
Writing proposals for funding	4 N/A
Writing and publishing reports and articles	
Managing people and budgets	1 Very Important
Working collaboratively, in a team	2 Somewhat
Working in an interdisciplinary context	Important
Working with people from diverse educational and social backgrounds	3 Not Important
Presentation skills	or N/A
Mentoring by Dissertation Chair	
<i>As you look back on your doctoral studies, to what extent were you satisfied with the following types of support from your dissertation chair or advisor?</i>	
The quality of advice from your dissertation chair in developing your dissertation topic	1 Very Satisfied
	2 Somewhat
The quality of guidance from your dissertation chair in completing your PhD	Satisfied
The quality of help from your dissertation chair in publishing	3 Somewhat
Your dissertation chair's support of your job search	Unsatisfied
Your dissertation chair's support of your career decisions	4 Very
The overall quality of mentoring you received from your dissertation chair	Unsatisfied
Program Elements	
<i>How would you evaluate your doctoral program on each of the following? Please evaluate your perception of your program for the years that you were in the program.</i>	
Clear program requirements	
Feedback on student progress	
Financial support	
Socializing students into an academic community	
Having a diverse student population	
Preparation for qualifying examination	
Support and guidance during dissertation writing	1 Excellent
Academic rigor	2 Adequate
Academic career preparation	3 Poor
Non-academic career preparation	4 N/A
Overall program quality	

Open-ended Questions

“What advice would you offer to graduate students just beginning studies in your field?”

“What recommendations would you offer doctoral programs in your field today?”



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