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# Graduate Education and its Changes in the U.S.: an Evolving Process

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# Overview



- 1. The context: globalization in doctoral education**
- 2. Characteristics of US graduate education**
- 3. Selected national issues in US doctoral education**
  - 1. Quality assurance mechanisms: input/throughput/output**
  - 2. Professional skills development**
  - 3. Responsible conduct in research**
  - 4. Increase participation of underrepresented students**
  - 5. Interdisciplinarity and socially relevant research**
- 4. Outdated assumptions about US doctoral education**
- 5. Commonly accepted definition of what is a PhD**

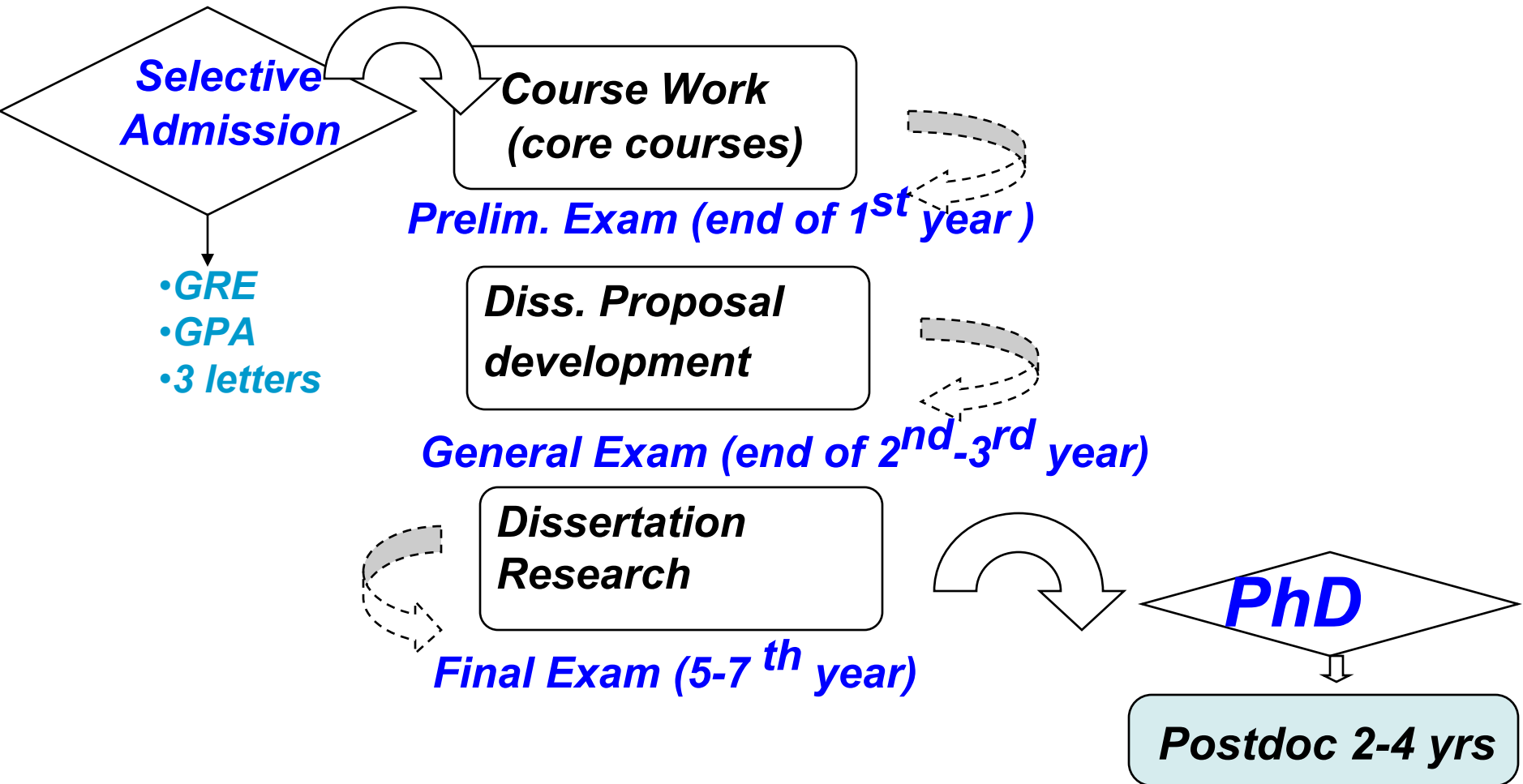
# Characteristics of U.S. Graduate Education



- 1. Decentralized**
- 2. Market- driven**
- 3. Structured process with a developmental curriculum**
- 4. Many quality assurance mechanisms**

**See: M. Nerad,~ Doctoral Education in the United States~ in: M. Nerad and Heggelund M. (eds.) *Towards at Global PhD? Forces and Forms of Doctoral Education Worldwide*. Seattle: University of Washington Press, 2008**

# Basic Structure of US PhD Programs in Physical, Life Sc.+ Engineering



# **Quality Assurance in US doctoral education: an engine for change and a potential for ' risk~ aversion**

# *Why are we assessing the quality of doctoral education? From a US perspective*



## **Extrinsic reasons**

- 1. Accountability towards funders**
- 2. Effective and efficient use of resources**
- 3. Comparison with other universities**
- 4. Establishment of institutional reputation**

## **Intrinsic reasons**

**Improvement of quality**

**for new program planning**

**and to give feedback to programs, faculty, students**

# *Who is undertaking the assessment?*

## *Who is asked to assess?*



### Assessment agencies

(Non-governmental accreditation agencies assess the institution  
NOT doctoral programs)

1. Governmental agencies
2. Disciplinary professional associations
3. **National Research Council**
4. **University faculty committee (Graduate Council)**
5. Research Centers (such as CIRGE), individual researchers

### Evaluators

1. Professors/ academic staff
2. current doctoral students
3. PhD recipients (past students)

# *What are we assessing?*

## *What is the level of analysis?*



- 1. The individual student**
- 2. The PhD program effectiveness**
- 3. Professional development activities**
- 4. Overall university scholarly infrastructure**



# ***What exactly are we assessing? When are we assessing?***



## **1. Assessing individual student accomplishments and learning experiences**

- a. **INPUT: competitive admission GPA, GRE, letters of references, speak English test, essay, c.v., career goal**
- b. **THROUGHPUT: example: pilot study, written general exam, orals, dissertation, dissertation defense, conference presentations, publications, fellowships, socialization into the field**
- c. **OUTPUT: quality of the dissertation, time-to-degree, completion rates, # of publications, presentations, placement in post-doctoral position or academic or non-academic job**
- d. **5 - 10 YEARS OUT: career outcomes in all employment sectors, publications/ patents, job satisfaction, usefulness of PhD in life, retrospective program evaluation in light of application**

# *What exactly are we assessing?*



## 2. The PhD program

*(by the Graduate Council-faculty peers coordinator through the Graduate School)*

- **Curriculum**
- **Teaching by Faculty/academic staff**
- **Advice, guidance, mentoring of academic staff**
- **Research experience by students**
- **Research methodology**
- **% Student funded by TA, RA, fellowship**
- **Opportunities for interdisciplinary research & instruction**
- **Exam preparation**
- **Dissertation support**
- **Diversity of faculty and student**

# *What exactly are we assessing?*



## **3. Availability and Quality of Professional Development Activities of Graduate Students**

- Teaching
- Grant writing
- Presentation
- Publishing
- Leadership (time management, organizational understanding, etc.)
- Working in teams, collaborating
- Working in inter/multi/trans-disciplinary groups
- Working with diverse people
- Career development, placement support
- Preparing for global citizenship

# *What exactly are we assessing?*



## **4. University Scholarly Infrastructure**

- **Library holdings**
- **Laboratory equipment**
- **Computer laboratory**
- **Research and office space for students**
- **Diversity of people (professors, students, staff)**
- **Childãcare facilities**
- **Health Insurance**

# Doctoral program evaluation

- essential program elements
- mentoring

*Example” Social Science PhDs—Five+ Years Out (CIRGE, 2008)*

# AN EXAMPLE

## *Social Science PhDs* Five+ Years Out

### Survey Sample



Survey: April 2005-March 2006,  
PhD Cohorts: 1995 ã 1999

Response Rate 45%

65 US universities (accounted for 63% of PhDs in years surveyed)

	N	(% women)
Anthropology	432	(56.5)
Communication	343	(52.2)
Geography	164	(32.3)
History	839	(43.4)
Political Science	701	(35.9)
Sociology	546	(59.2)
<b>Total</b>	<b>3025</b>	<b>(46.8)</b>

# *Social Science PhDs* Five+ Years Out

## Evaluation of Program Elements



<i>% Rating the item <b>Excellent</b>:</i>	
<b>Academic rigor</b>	<b>66%</b>
<b>Clear requirements</b>	<b>54%</b>
<b>Overall quality</b>	<b>49%</b>
<b>Support/guide dissertation writing</b>	<b>42%</b>
<b>Preparation for Qual. Exam</b>	<b>37%</b>
<b>Students encouraged to take initiative in academic activities</b>	<b>36%</b>

# ***Social Science PhDs Five+ Years Out***

## **Evaluation of Program Elements**



<b><i>% Rating the item Vexcellentw:</i></b>	
<b>Financial support</b>	<b>35%</b>
<b>Socializing students into academic community</b>	<b>32%</b>
<b>Feedback on student progress</b>	<b>32%</b>
<b>Academic career preparation</b>	<b>32%</b>
<b>Having a diverse student population</b>	<b>28%</b>
<b>Non-academic career preparation</b>	<b>6%</b>



# ***Social Science PhDs Five+ Years Out*** **Quality of Mentoring by Thesis Advisor**



	<b>% ' Very Satisfied</b>
<b>Advice with PhD Topic</b>	<b>55%</b>
<b>Guidance to finish</b>	<b>55%</b>
<b>Overall mentoring</b>	<b>48%</b>
<b>Support in career decisions</b>	<b>51%</b>
<b>Support in job search</b>	<b>43%</b>
<b>Help in publishing</b>	<b>27%</b>

# Social Science PhDs **Use** Their PhD Education 5+ Years Out

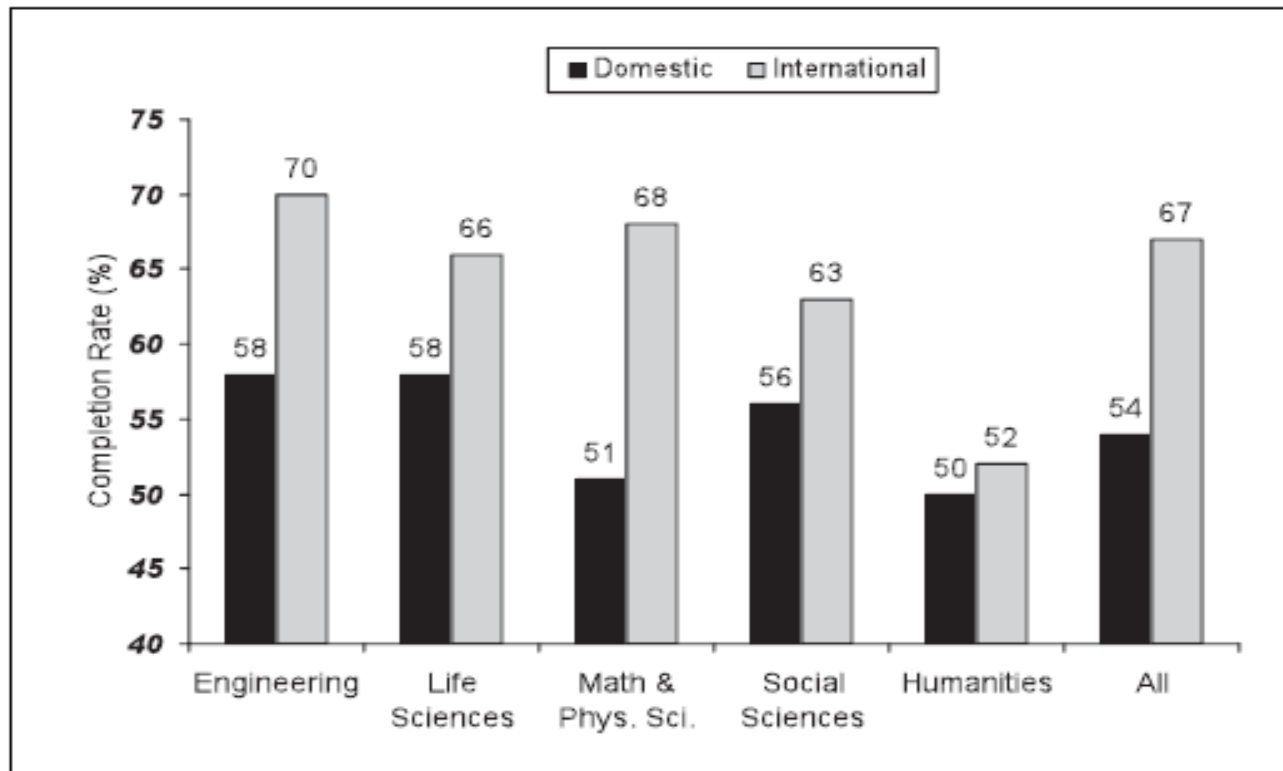


**Used Social Sc. Knowledge ' often~ or ' sometimes~ in Current Job (vs. rarely/never)**

	<b>PhD Field</b>	<b>Thesis Topic</b>
<b>Ten./TT</b>	<b>97%</b>	<b>87%</b>
<b>Academic Other</b>	<b>83%</b>	<b>64%</b>
<b>BGN</b>	<b>76%</b>	<b>49%</b>

# PhD Completion Project (CGS)

## Cumulative Ten-Year PhD Completion Rates by Citizenship and Broad Field



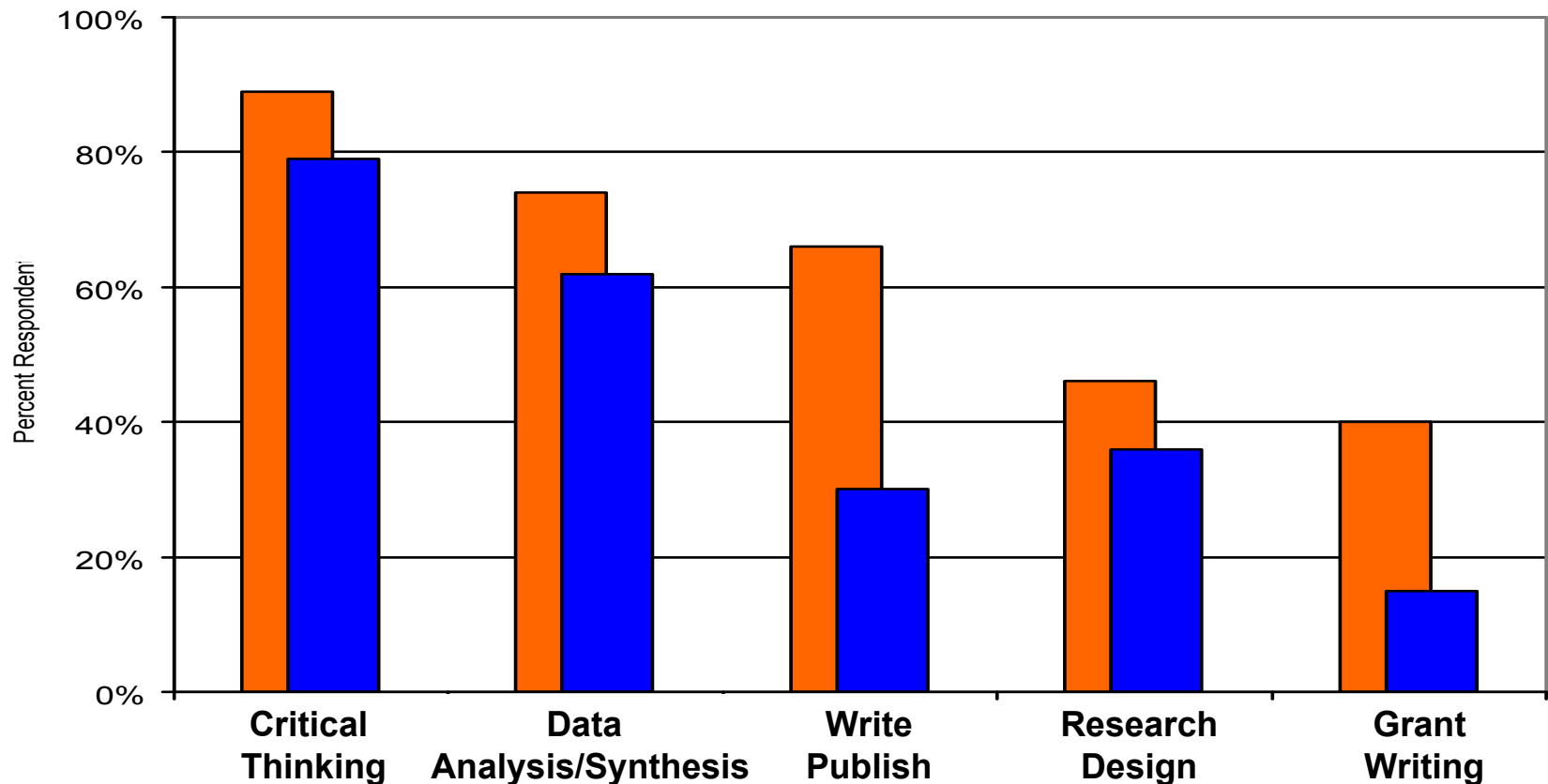
PhD Completion Project: Analysis of Baseline Demographic Data.  
Source: *Communicator*, Council of Graduate Schools, July 2008

# Importance of Professional skills training

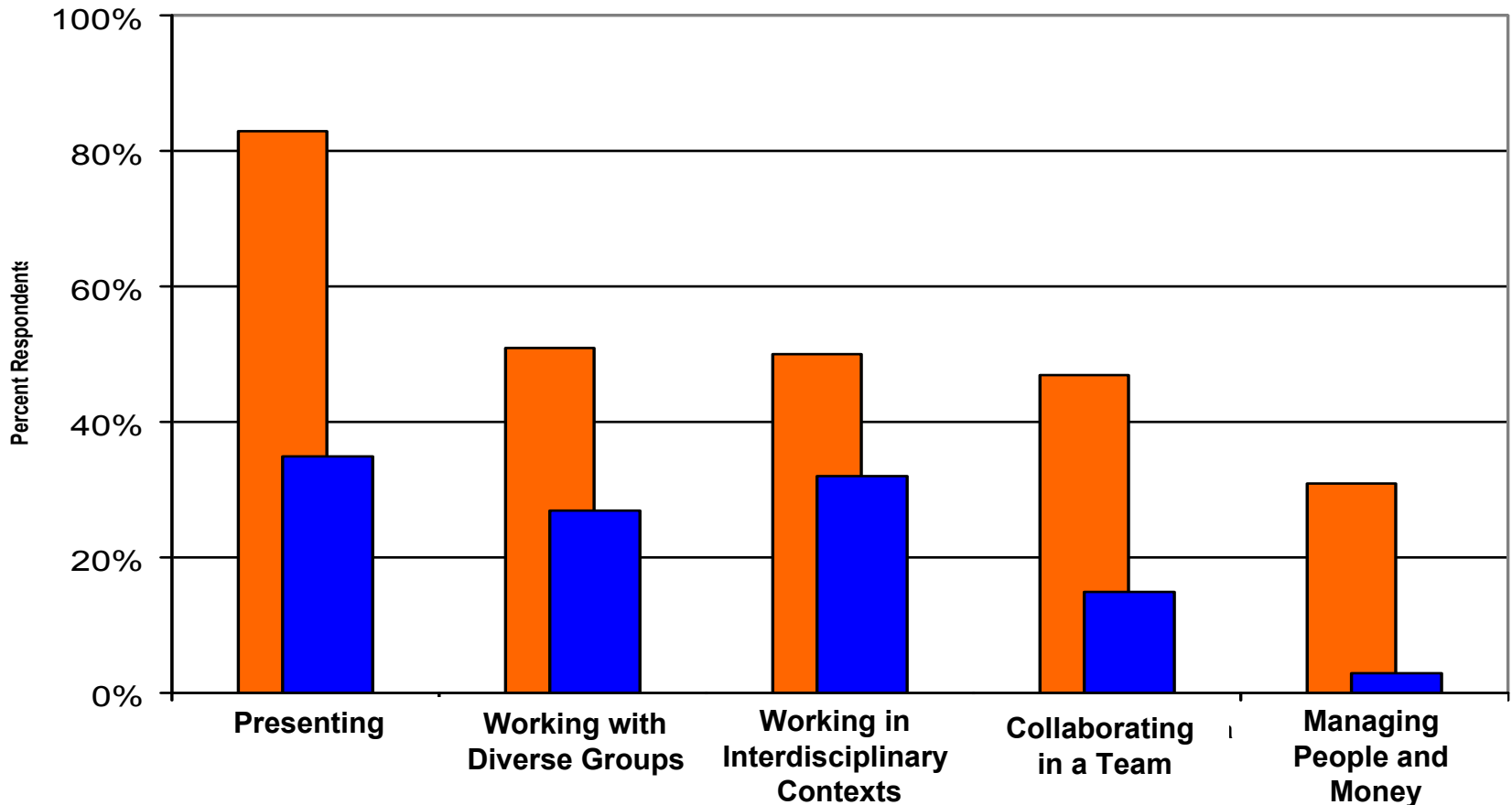
From

*Social Science PhDs Ū Five+ Years Out*

# Importance of Skill at Current Job versus Quality of Training in this Skill During PhD Studies



# Importance of Skill at Current Job versus Quality of Training in this Skill During PhD Studies



# Recent and On-going National Projects Aimed at Change in Graduate Education



## 1. National Science Foundation:

1. Integrated Graduate Research and Traineeship program (IGERT) **interdisciplinary and socially relevant research**
2. Alliance for Graduate Education and the Professoriate in STEM fields (AGEP) –**underrepresented groups**

## 2. Council of Graduate Schools

1. Professional Master's Program
2. Preparing the Future Professors/Professionals
3. PhD Completion Project
4. Responsible Conduct of Research (research ethics)

## 3. Carnegie Foundation for the Advancement of Teaching

### Carnegie Initiative on the Doctorate

# Recent and On-going National Projects Aimed at Change in Graduate Education



4. **Re-envisioning the PhD - Pew Foundation Charitable Trust**
5. **The Responsive PhD – Woodrow Wilson National Fellowship Foundation**
6. **Center for Innovation and Research in Graduate Education – Ford Foundation/ NSF/ Sloan**
  1. **National PhD career path and retrospective program evaluation**
  2. **Evaluation of Doctoral Innovations (IGERTs)**
  3. **Fostering international collaboration and research network – International research synthesis workshops**



# Characteristics of IGERT Programs



- 1. Theme based**
- 2. Student funding is tied to the program NOT to the professor**
- 3. Trans- or interdisciplinary and team-based**
- 4. Access to professionals in the field**
- 5. Professional skill development**
- 6. Emphasis on the learning environment**
- 7. Foster diversity of students**
- 8. International component**
- 9. Become a catalyst for change on campus**

# Outdated Assumptions about US PhDs' Employment



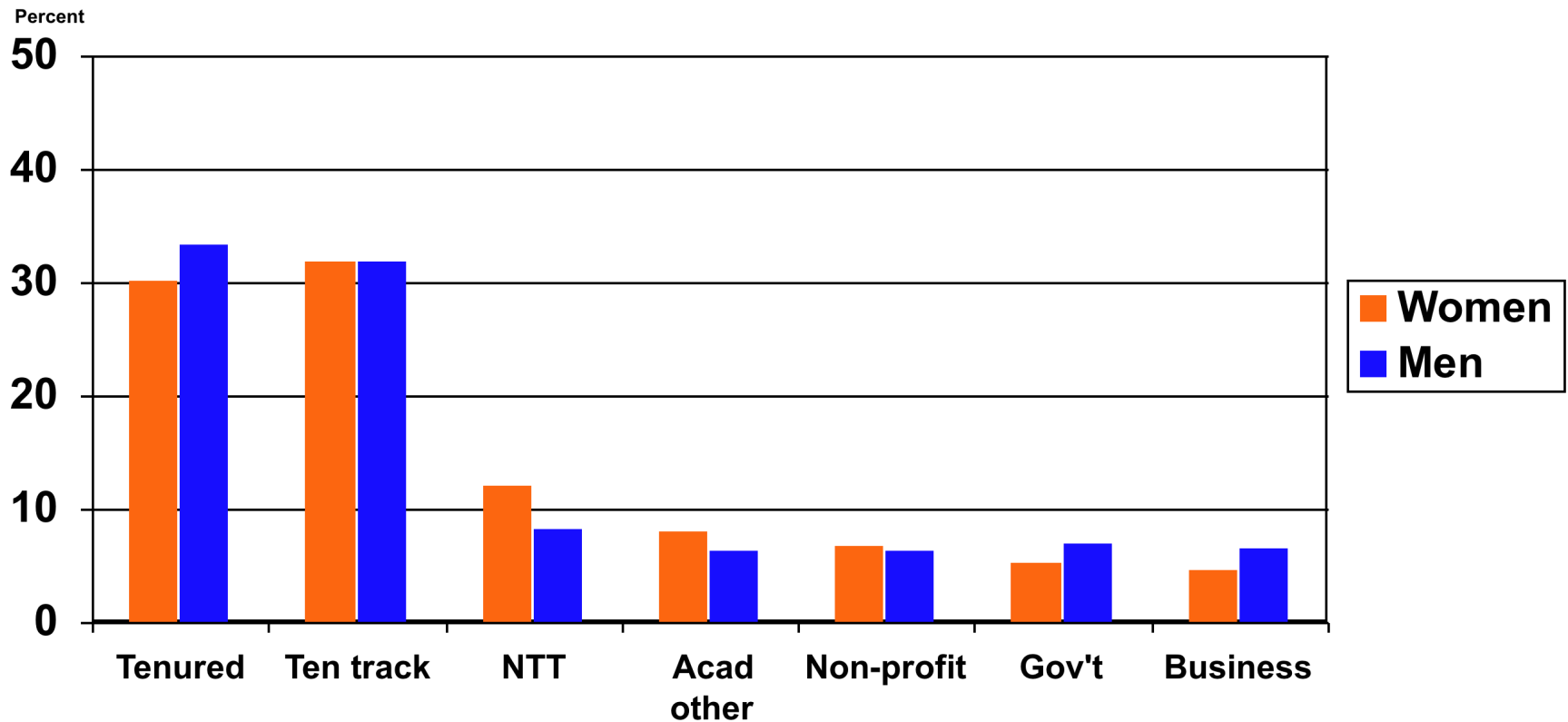
- 1. All PhD students want to become professors.**
- 2. The 'best' PhD students do become professors.**
- 3. PhD recipients' academic career paths are linear and smooth.**
- 4. Everybody can take the 'best' job offered.**
- 5. Professors enjoy the highest job satisfaction.**

# Career Goal at PhD Completion and % Tenured or Tenure-Track 5+ Years Later



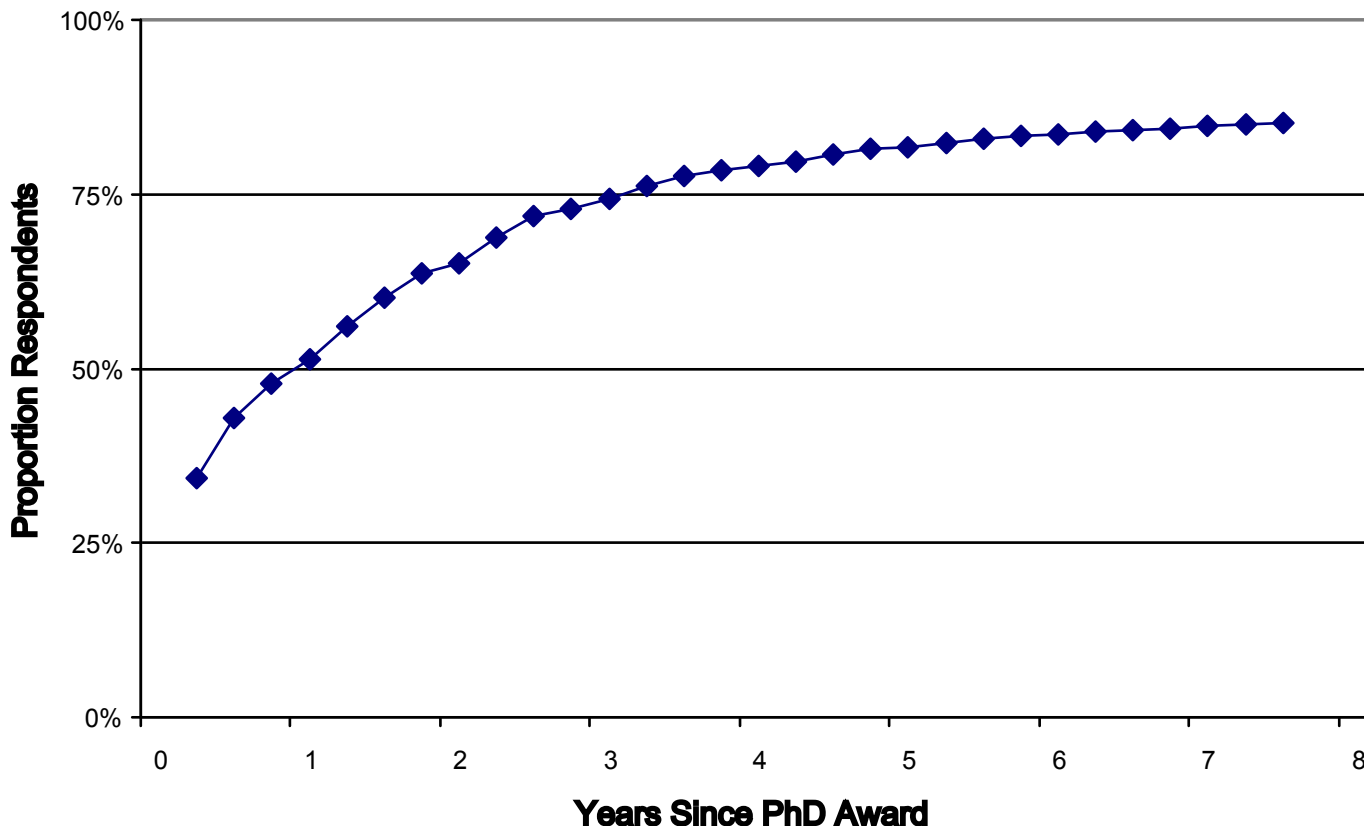
	(1) % Wanted to Be Professor	(2) % Tenured + TT of (1)	(3) % Tenured+T-T of All PhDs	N of All PhDs
<b>Anthropology</b>	<b>72</b>	<b>64</b>	<b>52</b>	(407)
<b>Communication</b>	<b>75</b>	<b>84</b>	<b>71</b>	(319)
<b>Geography</b>	<b>65</b>	<b>74</b>	<b>53</b>	(155)
<b>History</b>	<b>84</b>	<b>76</b>	<b>66</b>	(789)
<b>Political Sc.</b>	<b>76</b>	<b>80</b>	<b>66</b>	(674)
<b>Sociology</b>	<b>75</b>	<b>78</b>	<b>63</b>	(521)

# Social Science PhDs Five+ Years Out Jobs at Survey by Gender (2005/2006)



# Social Science PhDs Û Five+ Years Out

## Time to stable, full-time Job

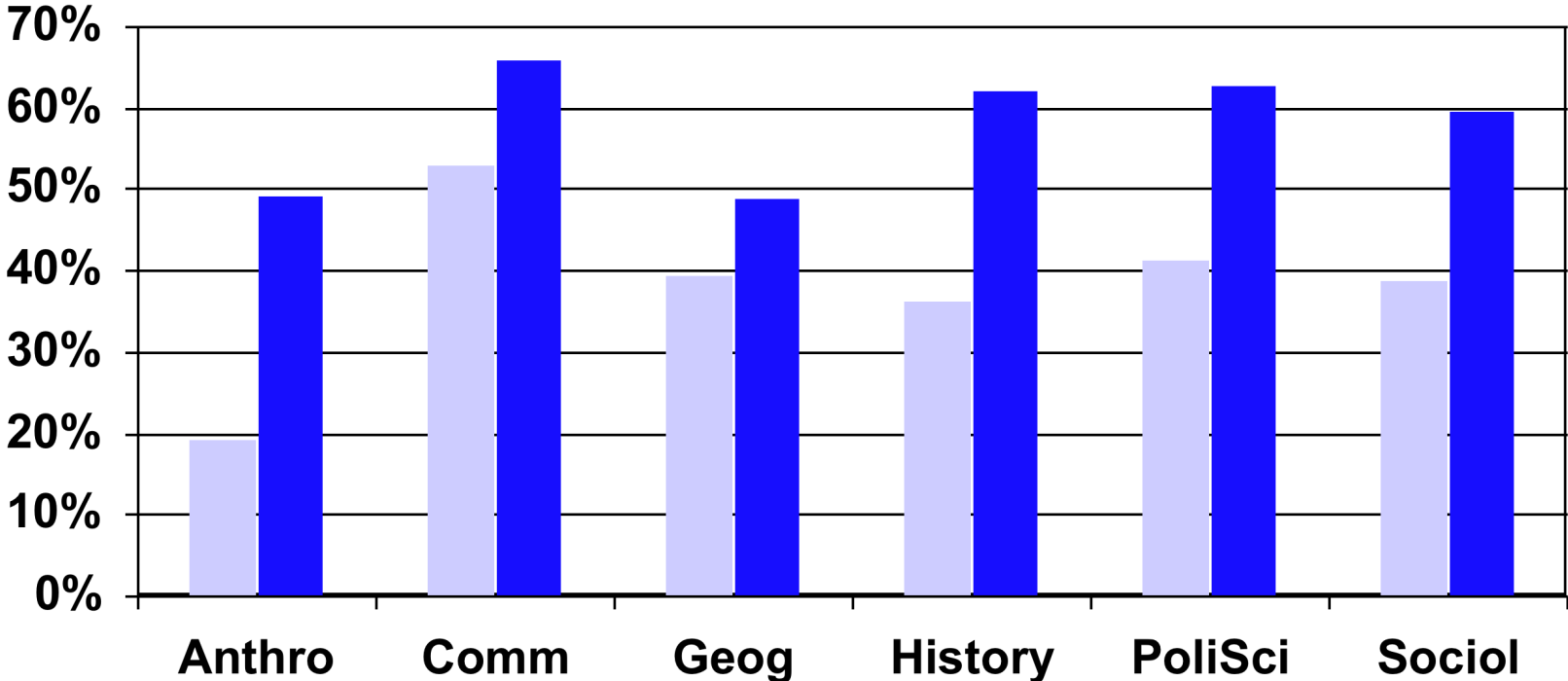


# % whose First Job was Tenure Track, and % whose Last Job was Tenured/Tenure Track



■ First Job Tenure Track

■ Last Job T/TT



# Women Make More Compromises Related to Family and Career



	Women	Men
<b>Partner has PhD/JD/MD</b> (among those partnered at survey)	<b>32%</b>	<b>18%</b>
<b>Partner never worked full-time</b> (among ever married or partnered from start of PhD program to survey)	<b>13%</b>	<b>26%</b>
<b>Moved or changed jobs because of partner's career</b> (of ever married or partnered)	<b>27%</b>	<b>16%</b>
<b>Postponed or did not have child because of own career</b> (of those wanting children)	<b>48%</b>	<b>23%</b>

# Common Definition of a Research Doctorate



- 1. Should contribute to knowledge through original research**
- 2. Expected to have a substantial knowledge in their area of study**
- 3. Training should include development of transferable skills and competencies**



# Thank you!



Center for Innovation and Research  
in Graduate Education



CIRGE website

[http://www.cirge.  
washington.edu](http://www.cirge.washington.edu)

# Time to Degree by Job Sector at First Job

## Does Time-to-Degree Matter?



<b><i>Job Sector at First Job</i></b>	<b><i>TTD (median years)</i></b>	<b><i>P Value*</i></b>
<b>Ladder Faculty</b>	<b>6.50</b>	<b>Ref. Group</b>
<b>Non-Tenure Track</b>	<b>6.75</b>	<b>.207</b>
<b>Academic Other</b>	<b>7.54</b>	<b>&lt;.001</b>
<b>BGN</b>	<b>6.75</b>	<b>.018</b>

\*Analysis conducted using ordinary least squares regression

# Graduate School Performance by Job Type at Survey, SS5: *Political Science*



	<b>Ladder Faculty</b>	<b>NTT faculty</b>	<b>Academic other</b>	<b>BGN</b>
<b>Median time-to-degree</b>	<b>6.7</b>	<b>7.6</b>	<b>6.8</b>	<b>6.8</b>
<b>3+ presentations at national meetings</b>	<b>67%</b>	<b>52%</b>	<b>53%</b>	<b>61%</b>
<b>1+ peer reviewed articles (1<sup>st</sup> or co-author)</b>	<b>50%</b>	<b>37%</b>	<b>30%</b>	<b>43%</b>
<b>Prestige of department (median NRC rank)</b>	<b>17</b>	<b>19</b>	<b>23</b>	<b>18</b>

# Median Salary at Time of Survey (2005/2006) among Full-time and Self-employed PhDs: Social Sciences



Thousands

