Confronting Common Assumptions: Designing Future-Oriented Doctoral Education

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*Center for Innovation and Research in Graduate Education (CIRGE)*

Doctoral Education and the Faculty of the Future

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Overview

1. Common assumptions have shaped our approach to doctoral education and our thinking about successful PhD outcomes.

2. Future faculty will need to prepare PhD students for multiple careers inside and outside academe.

3. Future faculty will need to prepare themselves and their doctoral students to become world-citizens and intellectual risk-takers.
The Research Context: CIRGE
A Resource Center of Information on Graduate Education Research and Practice

1. Research on outcome measures of doctoral education: 3 national career path studies of PhDs
2. Action/evaluation research of innovative and international doctoral programs: NSF IGERTs/ German Graduiertenkolleges
3. Research/monitor international trends in doctoral education: biannual international CIRGE conference, development of pilot programs on “international” leadership workshops for doctoral students

Source:
Common *(outdated)* Assumptions about US PhDs

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.

Source:
Common *(outdated)* Assumptions about US PhDs

4. Everybody can take the best academic job offered.

5. Children detract women from the pursuit of an academic career.

6. Professors enjoy the highest job satisfaction.
Empirical Findings from Three US PhDs –10+ and 5+ Years Later Studies

1. PhDs—Ten Years Later *(surveyed 1997)*
   MELLON FOUNDATION AND NSF FUNDED
   61 US universities, 6 disciplines
   Survey population: 5,864 response rate: 66%
   Biochemistry - Computer Science - Electrical Engin.
   English – Mathematics - Political Science

2. PhDs in Art History – Over a Decade Later *(surveyed in 2002)*
   GETTY GRANT FOUNDATION FUNDED
   54 US universities, all art history PhD programs
   survey population: 725 response rate: 70%

3. Social Science PhDs- 5+ Year Out *(surveyed 2005/06)* FORD FOUNDATION funded
   65 universities, 6 disciplines, 50% response rate (3,025 responses)
Common Assumption 1

All students who pursue a PhD want to become professors.
PhDs’ Views on Faculty Expectations for their Students and PhDs’ Career Goals at Start of PhD

Faculty encouraged academic career/ students wanted to be professors

Source:
### Career Goal at PhD Completion and % Tenured or Tenure-Track 6+ Years Later

<table>
<thead>
<tr>
<th>Field</th>
<th>(1) % Wanted to Be Professor</th>
<th>(2) % Tenured + TT of (1)</th>
<th>(3) % Tenured + T-T of All PhDs</th>
<th>N of All PhDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>67</td>
<td>59</td>
<td>49</td>
<td>(432)</td>
</tr>
<tr>
<td>Communication</td>
<td>70</td>
<td>78</td>
<td>66</td>
<td>(343)</td>
</tr>
<tr>
<td>Geography</td>
<td>61</td>
<td>69</td>
<td>49</td>
<td>(164)</td>
</tr>
<tr>
<td>History</td>
<td>79</td>
<td>72</td>
<td>62</td>
<td>(839)</td>
</tr>
<tr>
<td>Political Sc.</td>
<td>73</td>
<td>76</td>
<td>62</td>
<td>(701)</td>
</tr>
<tr>
<td>Sociology</td>
<td>71</td>
<td>74</td>
<td>59</td>
<td>(546)</td>
</tr>
</tbody>
</table>

## Career Goal at PhD Completion and Tenured 10-14 Years Later

<table>
<thead>
<tr>
<th></th>
<th>(1) % Wanted to Be Professor</th>
<th>(2) % Tenured of (1)</th>
<th>(3) % Tenured of All PhDs</th>
<th>N of All PhDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio-Chemistry</td>
<td>32</td>
<td>34</td>
<td>19</td>
<td>(605)</td>
</tr>
<tr>
<td>Computer Sc.</td>
<td>46</td>
<td>61</td>
<td>34</td>
<td>(282)</td>
</tr>
<tr>
<td>Electrical Engin.</td>
<td>19</td>
<td>67</td>
<td>22</td>
<td>(328)</td>
</tr>
<tr>
<td>English</td>
<td>81</td>
<td>64</td>
<td>55</td>
<td>(767)</td>
</tr>
<tr>
<td>Mathematics</td>
<td>54</td>
<td>73</td>
<td>54</td>
<td>(522)</td>
</tr>
<tr>
<td>Political Sc.</td>
<td><strong>72</strong></td>
<td><strong>66</strong></td>
<td><strong>53</strong></td>
<td><strong>(455)</strong></td>
</tr>
</tbody>
</table>

Source:
Employment at Time of Survey
(2005/2006) 5+ Years after PhD (SS5)

Source:

Anthro  Comm  Geog  History  Poli Sci  Sociol
Employment at Survey, 1996/97 10+ Years after PhD

Tenured  Tenure Track  NTT/Acad.Other  BGN *  Both Sectors


* B = Business  G = Government  N = Non-profits
Selected Employer at Time of Survey (2005/2006) Social Science

Excluded: Not in the Workforce (55=2.1%)
Common Assumption 2

The “best” PhD students do become professors

measures: many publications short time-to-degree
# Publications at PhD Completion by Last Employment Sector (Social Sciences)

<table>
<thead>
<tr>
<th></th>
<th>Academe</th>
<th></th>
<th></th>
<th>BGN*</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% None</td>
<td>% 1 - 2</td>
<td>% &gt; 3</td>
<td>% None</td>
<td>% 1 - 2</td>
<td>% &gt; 3</td>
</tr>
<tr>
<td>Anthropology</td>
<td>34</td>
<td>43</td>
<td>23</td>
<td>37</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>26</td>
<td>48</td>
<td>26</td>
<td>32</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>History</td>
<td>42</td>
<td>38</td>
<td>19</td>
<td>47</td>
<td>37</td>
<td>17</td>
</tr>
<tr>
<td>Political Science</td>
<td>45</td>
<td>40</td>
<td>14</td>
<td>46</td>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>Sociology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source:
Common Assumption 2
The “best” become professors (PhD10)

Short time-to-doctoral degree and number of publications only mattered significantly for English and political science PhDs. (from PhD10)

These factors did NOT matter for PhDs in biochemistry, electrical engineering, and mathematics. Time-to-degree mattered for computer scientists

(logistic regression analysis).
Common Assumptions

the “best” (PhD10)

What mattered most is the RANK of PhD-granting program.

However in fields with an attractive job market outside academia -- computer science and electrical engineering -- RANK did NOT matter significantly.
Common Assumption 3

PhD recipients’ career paths are linear and smooth
% Whose First Job was Tenure Track, and % Ever Tenured/Tenure Track, by Field

PRELIMINARY RESULTS

Source:
% PhDs First Job Assistant Professor and Ever Tenured

Source:
**Three Major Trajectories: Political Science**

<table>
<thead>
<tr>
<th>Trajectory</th>
<th>Description</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Faculty</strong></td>
<td>TT to Ten. (219)</td>
<td>42%</td>
</tr>
<tr>
<td><strong>2. BGN Employees</strong></td>
<td>Business (29)</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Government (21)</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Non-Profit (15)</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Acad. to BGN (22)</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>BGN to Acad. (10)</td>
<td>2%</td>
</tr>
<tr>
<td><strong>3. Crossovers</strong></td>
<td>Back and Forth (30)</td>
<td>6%</td>
</tr>
</tbody>
</table>

Trajectory 1: Under 2yrs. BGN.
Trajectory 2: Under 1yr. Acad.
Trajectory 3: Over 2yrs. BGN and over 1yr. Acad.

Source: 21
Common Assumption 4

Everybody can take the best job offered
Educational Level of Spouse At Time of Survey by Gender (all social science fields)

Women in Our Survey
Married to PhD/JD/MD: 34%

Men in Our Survey
Married to PhD/JD/MD: 19%

PRELIMINARY RESULTS
% Who Said “Good Opportunities for My Spouse” was Very Important in First Job Choice

Source: 24
Educational Level of Spouse by Gender and Field

AT PhD completion married women/ men BIOCHEMISTS had spouses with PhD/JD/MD (1997): 75% / 24%

AT PhD completion married women/ men MATHEMATICIANS had spouses with PhD/JD/MD (1997): 84% / 25%
"Good Opportunities for My Partner" Very Important in First Job Choice

Source:
Common Assumption 5

Children detract women from the pursuit of a faculty career
Who Influenced the Career Path?

**Art History**

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner</td>
<td>44%</td>
<td>26%</td>
</tr>
<tr>
<td>Children</td>
<td>38%</td>
<td>13%</td>
</tr>
<tr>
<td>Taking Care of Relatives</td>
<td>13%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source:
Ever Tenured by Family Trajectories and Gender: *Art History*

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single w/o Children</td>
<td>53%</td>
<td>54%</td>
</tr>
<tr>
<td>Stable Relationship w/o Children</td>
<td>52%</td>
<td>76%</td>
</tr>
<tr>
<td>Stable Relationship w/ Children</td>
<td>38%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Source:
Common Assumption 6

Faculty enjoy the highest job satisfaction
% Very Satisfied in Job at Time of Survey (All Fields/PhD10)

<table>
<thead>
<tr>
<th>Rank</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNG manager/executive</td>
<td>1</td>
<td>40%</td>
</tr>
<tr>
<td>Academic administrator</td>
<td>2</td>
<td>39%</td>
</tr>
<tr>
<td>Acad. researcher</td>
<td>3</td>
<td>28%</td>
</tr>
<tr>
<td>Tenured academic staff</td>
<td>4</td>
<td>26%</td>
</tr>
<tr>
<td>BNG researcher</td>
<td>5</td>
<td>24%</td>
</tr>
<tr>
<td>Administrators</td>
<td>6</td>
<td>22%</td>
</tr>
<tr>
<td>Temporary academic staff</td>
<td>7</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source:
### Satisfaction with Current Job (Social Sciences)

<table>
<thead>
<tr>
<th>Major Field</th>
<th>Rank</th>
<th>Mean Satisfaction (1=very dissatisfied to 4=very satisfied)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Ladder</td>
<td>1</td>
<td>3.20</td>
</tr>
<tr>
<td>Academic Other</td>
<td>5</td>
<td>3.12</td>
</tr>
<tr>
<td>Foundation/Social (non) Profit</td>
<td>4</td>
<td>3.17</td>
</tr>
<tr>
<td>Government</td>
<td>1</td>
<td>3.20</td>
</tr>
<tr>
<td>Industry</td>
<td>3</td>
<td>3.18</td>
</tr>
</tbody>
</table>
Median Salary at Time of Survey (2005/2006) among Full-time and Self-employed PhDs: Social Sciences

Excluded: Not in the workforce, part time, working outside US.

Source:
Faculty will need to prepare PhDs for the Future

The context:

Globalization and the knowledge economy
Importance of Skill in Current Job vs. Quality of Training "Excellent"

- Critical Thinking
- Presenting
- Data Analysis
- Publishing
- Diversity
- Interdisc. Work
- Team Work
- Research Design
- Write Grant Proposals
- Manage People, Money

Skill "Very Important" in Current Job, Quality of Training "Excellent"
Characteristics of Doctoral Education for the 21\textsuperscript{st} Century

1. It prepares for a variety of careers (academic and \textit{non-academic}).

2. It prepares PhDs to work in \textit{inter-disciplinary groups} (provides general epistemology course “how do we know what we know, and what do we regard as evidence?”)

3. It integrates \textit{professional skill building}

4. It integrates \textit{team work}
Characteristics of Doctoral Education for the 21st Century

6. It includes international collaborations into the doctoral program.

7. It integrates cultural expertise and knowledge of international doctoral students and their need into US curricula.

7. It re-introduces foreign language requirement.

8. It prepares for leadership.

9. It prepares PhDs for world citizenship, becoming leaders who both think globally and act locally and act globally and think locally.

Source:
Thank you!

CIRGE website

http://depts.washington.edu/coe/cirge/index.html