Overview

1. Changes in Doctoral Education worldwide- Why? connection between globalization, national innovation policies and doctoral education
2. Macro-level and micros-level reforms in doctoral education worldwide
3. Taboos in doctoral education: in the global North or worldwide?
4. Cautions when designing an international survey of graduate students

Source: M. Nerad, UC Berkeley, CSHE, June 9- 2015
3 CIRGE International Working Conferences

Forces and Forms of Change in Doctoral Education Worldwide (NSF funded)

2005 US, Seattle; 2007 Australia, Melbourne; 2009 Germany, Kassel

Goals:
• Research synthesis of selected topics (see website + book publications)
• Development of an international network of experts in doctoral education

Countries: 6 continents, 20 countries
Argentina, Australia, Brazil, Canada, China, Czech Republic, Denmark, Germany, Iceland, India, Ireland, Japan, Malaysia, Mexico, Pakistan, South Africa, UK, US

Participants: Graduate Deans, national funding agencies (i.e. NSF, ), researchers of doctoral education, University provosts for research, early career researchers (ECR – 1/3)

Outcomes:
• Towards a Global PhD? (2008) UW Press
• Globalization and the Impact on Quality of the PhD (2014) Sense Publishers
• Diversity, Internationalization & Intellectual Risk Taking in PhD Education (2016)

Source: M. Nerad, UC Berkeley, CSHE, June 9- 2015
What is the Connection between Innovation Policies and Doctoral Education? (Marco level)

- Economic theory of the knowledge economy are embraced by governments worldwide (neoliberal).
- Innovations and technical changes are seen as means of economic growth (emphasis on STEM).
- Doctoral education is expected to educate innovators for many sectors of society.
- New knowledge has to be disseminated too.
- Governments want world-class research capacities in order to attract investment and create new jobs.
More is Asked from the Next Generation of Researchers

1. Academic research skills
   Skills developed in completing the PhD: critical thinking, research design + methods, data analysis/synthesis, writing, publishing), research ethics = responsible conduct in research.

2. Professional competencies
   Teaching, team-work, presenting, grant writing, managing people and budgets, working in multi-disciplinary teams, translational competencies, leadership skills.

3. Inter-cultural competencies
   Effective and appropriate interactions skills with those from different backgrounds, race/ethnicity, cultures, religions, perspectives

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
## Increase in PhD Production 1991-2008

Source: NSF Science Indicators 2012/13

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<td>Australia</td>
<td>5,000</td>
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<td>Brazil</td>
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<td>43,800</td>
<td>25,600</td>
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<td>2,000</td>
<td>23,400</td>
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<td>Germany</td>
<td>22,000</td>
<td>23,100</td>
<td>25,600</td>
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<td>India <em>(2006)</em></td>
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<td>Vietnam</td>
<td>8,000</td>
<td>15,300</td>
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<td>World Total</td>
<td>37,000</td>
<td>48,500</td>
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<td><strong>World Total</strong></td>
<td>381,453</td>
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Expansion of Doctoral Education since 1990-2005

Rate of increase in doctoral production (1991-2005)

- China 817%
- Taiwan 379%
- South Korea 166%
- Japan 57%
- UK 82%
- Australia 46%
- Germany 3%

Recruiting/attracting International PhD doctoral candidates

“graying countries:” Scandinavian countries, Japan, Germany

Revenue generating: Australia, Canada, New Zealand, UK,

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
Innovation Policies’ Effects: Trends in Reform/Change Efforts (1-3)

1. A bifurcation of doctoral education: Flagship governmental programs ↔ run-of-the-mill programs

Common characteristics:

a. Imbedded in national research grant schemes - well funded
b. Well-funded stipends for 3 years + extra research allowance including international conferences
c. Connection to outside world (internship, secondment, international research visits)
d. Ample professional competencies development
e. Rich networks (national+ international) established within programs
f. Small seminars, special attention by university administration

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
Examples of National/Regional Flagship PhD Programs

a. European Union funded, Marie-Curie, **EU/ITN** International Training Programs
b. Germany- **Excellence Initiative DFG/ Excellence Graduate Schools**
c. Netherlands
d. Australia- Government funded **CRC- Cooperate Research**
e. U.S. - **NSF/IGERT/NRT= National Research Training Programs, PIRE = Partnership in Internat. Research Education**
f. Japan - MEXT –Ministry **Leading Graduate Schools**
g. Chile - **BECAS-Chile -Conicyt- National Fellowship** (Brazil, Columbia, etc.)

Source: M. Nerad, UC Berkeley, CSHE, June 9- 2015
Innovation Policies’ Effects: Trends in Reform/Change Efforts

2. Selected co-operative agreements for research and dual/joint degrees (perceived peer institutions)

3. Aiming to become world-class universities
   - Excellence Initiative – Germany
   - APEX university selection – Malaysia
   - Centers of Excellence – GS US, Japan
   - Project 985 – China (9 universities - now 40)

4. Implementing international quality standards
   - 1990 - Australia/ New Zealand/ UK
   - 1995 – US, 2000 Canada
   - Latin America - Brazil
   - Europe

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
Most Common Quality Assurance Model in Doctoral Education

Inputs

Applicants
Professors
Infrastructure
Political context

Throughputs

• Advising/supervision (contract, training, not automatically chair)
• Course work & General Exam
• Professional skills
• External Doctoral Program Reviews
• External examiners

Outputs

Independent Scholars, PhD Degree Dissertation Research

Outcome

Difference made by output, Careers tracking

Societal Impact

Source: M. Nerad
A. Selection and Admission

1. English has become the language of doctoral education (in order to attract international students)
2. Some Access to PhDs after Bachelor (fast track)
3. Admission process - defined, formalize, competitive.
4. Countries/universities offer several years of funding (3 years) with benchmarks and performance evaluation.
5. Funding of campus visits for admitted students before they make decisions
B. Program Elements

5. Students work with more than 1 supervisor
6. Many countries expect a 3-year doctoral completion
7. Introduction of oral exams where not existent (Australia)
8. Dissertation panels (3-5 persons) on all exams & dissertation review,
9. **External** (to university or country) dissertation reviewers
10. Choice between traditional dissertation or compilation of several peer reviewed articles (Econ, Bio sciences)
11. Ethics training integral in all fields.

Source: M. Nerad, UC Berkeley, CSHE, June 9- 2015
Practices in Doctoral Education
Worldwide - micro-level (2-3)

C. Doctoral Education for Career Preparation

13. Doctoral students prepare for a variety of careers (non-academic and academic)


15. Increase in offering of professional/transferable/translational competencies.

16. Many countries have few doctoral student service units

17. Increase in professional practice doctorates

18. Countries/institutions start PhD career tracking (ESF, CGS)

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
D. Attracting and Serving International Students
   19. Recruiting of International doctoral students at international fairs
   20. Some countries charge no tuition+ minimal fees for out-of-state students (Norway, Germany)
   21. Welcome centers for international students
   22. Introductory class to graduate education
   23. Writing Centers for international students
   24. Choice of language for the dissertation
Taboos in Doctoral Education in many countries (examples US + Japan)

1. Between super/advisors + doctoral students
2. Among doctoral students

Hidden Issues in Doctoral Education

cultural differences manifested in the relationship to advisor
Taboos in Doctoral Education

Between super/advisors + doctoral students

Things which doctoral students would not tell their advisors

1. **That they do not want to become professors**
   
   **US:** at top research universities in many fields, not engineering & business, particularly in social sciences + humanities
   
   **Japan:** All fields, except engineering

2. **That they want to become pregnant or being pregnant**

   **WHY:**
   
   • To protect from stereotypical perceptions
   • Fear of being treated as second class citizen
   • Being not taking seriously, and not getting financial support (RA/TA)
   • Being perceived as not smart enough
   • Being seen as a failure (**Japan**)

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
Taboos in Doctoral Education

Between super/advisors + doctoral students

Things which doctoral students would not tell their advisors

Japan

3. To contradict one’s advisor
4. To discuss private matters
5. To change supervisor

WHY:

• Fear to break cultural etiquettes
  – Age
  – Hierarchy
  – High status of professor, need to show high respect

⇒ Different advising cultures!

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
Cautions when designing an International Survey

1. How to capture interdisciplinary doctoral program?

2. Master’s degrees have many functions
   - Preparation for research training
   - For highly skilled professional
   - Recurrent education for adult learners
   - Temporary place holders in times of recession
   - Fee-based 1-year master’s degree geared to international students

3. Terminology
   - mentor = a person outside the university,
   - advisor/supervisor – strict academic guidance

4. Cultural differences in advising

Source: M. Nerad, UC Berkeley, CSHE, June 9-2015
Pitfalls in comparing international data on doctoral education

Example: time-to-degree

1. Nature of undergraduate program: *more or less specialized*
2. Structure of doctoral program: *more or less coursework*
3. % students completing a master’s prior to PhD: *no MA/MS have shortest time*
4. Presence or absence of continuing registration: *institutional policy affect counting of time*
5. Financial support – governmental context
6. Definition of full-time study: *defined by hours of work per week versus # of credits enrolled*
7. % of part-time study
8. International student definition-national visa/immigration policy: when are they defined “international” *preferable use of entrance cohort*
9. National job market

Source: M. Nerad, UC Berkeley, CSHE, June 9- 2015
Thank you!

CIRGE website

http://www.cirge.washington.edu
Three U.S. National Surveys of PhDs 10+ and 5+ Years Later

1. PhDs—Ten Years Later \textit{(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 \textit{(surveyed in 2002)}
   GETTY GRANT FOUNDATION funded
   54 US universities, all art history PhD programs
   survey population: 746 response rate: 68%

3. Social Science PhDs- Five+ Years Out \textit{(surveyed 2005/06)}
   FORD FOUNDATION funded
   65 universities, 6 disciplines, Population: 6,670, response rate 45%
   Anthropology, Communication, Geography, History, Sociology, Political Science