Professional development for grad students:
How is it structured, what are the gaps and challenges, how do we move forward

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POLICY FORUM

Educational Science Teaching
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Since publication of the AAAS 1989 report "Science for all Americans" (1), commissions, panels, and working groups have agreed that reform in science education should be based on "scientific teaching," in which teaching is approached with the same rigor as science at its best (2). We also present recommendations for moving the revolution forward.

Implementing Change in Lectures
Active participation in lectures and discovery-

"... teaching is approached with the same rigor as science at its best"
What are the learning objectives?

<table>
<thead>
<tr>
<th>Career Awareness</th>
<th>Career Knowledge</th>
<th>Professional Skills</th>
<th>Career-specific Skills, Network</th>
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- Initiative / Career planning, adaptability, resilience, innovation
- Self-assessment, Career exploration, Networking
- Job search skills
- Navigating career transition

Are we achieving the learning objectives?

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Are we achieving the learning objectives?

How is prof dev structured?

Individual mentoring ↔ Centralized programs
Career center
Graduate school
Departments

Seminars Workshops Courses Career panels Online resources
Career counseling appointments
Informational interviews
Small group discussions
Peer discussion groups

Site visits Job shadowing Internships

Are we achieving the learning objectives?
Are the right partners involved?

Is it tailored to our students’ discipline/culture?

Faculty ↔ Career counselors
Training experts ↔ Employers/Alumni

Who is the central hub?

Council of Graduate Schools/NSF Meeting, November 9, 2015
Cynthia N. Fuhrmann, PhD • UMass Medical School
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### Are we achieving the learning objectives?

**Are we reaching the learners?**

- Professional development is not urgent
  - What % students participate?
  - Do early stage students participate?

- How do we reach students earlier, to avoid the “compressed timeline”?

*International scholars??*

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### Are we achieving the learning objectives?

**How do we measure “success”?**

**How do we incentivize and fuel innovation?**

**How do we share information?**

- Social scientists
- Evaluators
- Education researchers
Attitudes within our culture

Faculty attitudes → Trainee attitudes
- open-minded @ careers beyond academic research
- career planning (student vs. “worker”)
- professional development (waste of time)
- content experts / career counselors (don’t know sci)

Take a scientific approach to prof dev / training

• Develop a culture that values
  - All STEM-related career outcomes
  - Professional development as part of training
• Commit to—invest in—professional development
  - Funding - need specialized staff, content experts
  - Partner in curriculum development (“scientific teaching”)
• Inspire innovation, expect rigor, disseminate
  - Catalytic / Research funding
• Take advantage of existing resources
  - Graduate Career Consortium
  - NIH BEST Consortium
  - Professional Societies (discipline, career, regional)