Fixing the Leaky Pipeline and the Changing Demographics of the United States: What kept me from leaking out.

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Recent STEM Reports: U. S. Scientific Workforce

- *STEM*, (2011) Georgetown University Center on Education and the Workforce
Noninstitutionalized resident population of the United States ages 18–64, by race, ethnicity, and sex: 2012

- White women 31.6%
- Asian men 2.6%
- Asian women 2.9%
- Black men 6.0%
- Black women 6.6%
- Hispanic men 8.4%
- Hispanic women 8.0%
- Other men 1.2%
- Other women 1.2%

NOTES: Hispanic may be any race. Other includes individuals not of Hispanic ethnicity who reported more than one race or a race not listed separately.
Science and engineering bachelor’s degrees earned by underrepresented minorities, by field: 1993–2012

Percent

- Psychology
- Social sciences
- Computer sciences
- Biological sciences
- Engineering
- Physical sciences
- Mathematics and statistics


NOTE: Data not available for 1999.
Support Structures
A Village & MORE

• Home
  • Elementary & Secondary Education
  • Undergraduate Experience
  • Graduate School
  • Career: TU Faculty & NSF
The Home Experience

• **Parents**: Mentors and Role Models

• Biggest CHEER LEADER
  – Cannot be overemphasized

Parental support:
  a catalyst for academic success.
  ability to cope with failure and pressure
Pre-College Experience

• Elementary, Secondary, Teachers College

• Teachers: Mentors

• At least one individual at each phase
  – A case for early intervention
College Experience

• Undergraduate & Graduate
• My URM realization

• **Professors**: Mentors
  – Intentional & unintentional

• **Opportunities Provided**:  
  – Cohort building/Peer mentoring  
  – Leadership training  
  – Note taking and study skills development
Career Experience

• Colleagues: Mentors & Role Models
• Faculty:
  – Career-life balance
  – Aim for excellence
  – Inclusiveness
• NSF:
  – Opportunities for development
  – Mentor/mentee
  – Ambassadors for Inclusion
Common Themes: What it is!!

- Mentors
- Role Models
- Intentional & unintentional

- **Support**: the ability to listen
- **Inspiration**: excitement about knowledge and love for learning
- **Motivation**: to strive for excellence

- Genuine support and interest in student’s growth & development as individuals
- Leveling the playing field
It’s NOT

– About carrying
– Hand holding
– Granting special favors
– Lowering expectations
– Lowering standards

**It is:** Implementing strategies that have proven successful for other students
Interventions & Opportunities

• Leadership training
• Study skill development
• Opportunities for research
• Someone to listen
• Interaction with community

– Like with teaching/learning, no one strategy works for every individual
Create an Inviting & Welcoming Atmosphere

- Safe space to say almost anything
- Individual treatment (I cannot talk for the group)
- Be pleasant/cordial
- Imposter syndrome
- Genuine commitment to inclusion
Efforts to Diversify Faculty

• Recruitment
  – Usually relatively good
  – Genuine efforts

• Retention
  – Usually poor
  • Limited faculty development opportunities
  • No incentives beyond start up
  • Overextended with service commitments

Professional society membership, open discussions with administrators, opportunities for individual development
Impact of Faculty Development: BP/Inclusion

• Culture of science: importance of diversity in institutional mission as well as individual values

• Cultural capital (knowledge, skills, and norms): enriches the academic/scientific community

• Communities of practice: learning in a social/institutional setting that is representative of society
Structural Barriers that affect faculty at all institutions

- Mentoring/Role Models
- Campus climate
- Balancing Faculty Roles:
  - Teaching, Research, Service
    - Build research communities
- Institutional Infrastructure of Research/Teaching
- Work/Family: Promote balance
BP/Inclusion: should be more than an academic exercise

Requires resources and genuine commitment, along with expectations/products

Recognition that individuals are balancing personal, home and school demands

Issues should be framed as relevant to the lives of individuals (contributing to society)

Evaluation of current approaches. Should intervention be earlier?
Thank you!

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