Navigating Successful Pathways: Promoting Access and Diversity in STEM Education

2009 ADVANCE Program
Broadening Participation: A Societal Imperative
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From Policy to Implementation: Key Spheres of Influence

- Public Will
- Policy
- External Rules
- Research & Experience
A Question of Law: The U.S. Supreme Court

2003

GRUTTER MAJORITY

GINSBURG  STEVENS  SOUTER  BREYER  O’CONNOR  KENNEDY  REHNQUIST  SCALIA  THOMAS

GRATZ MAJORITY

2009

Seattle S.D. Majority

GINSBURG  STEVENS  SOTOMAYER  BREYER  ALITO  KENNEDY  ROBERTS  SCALIA  THOMAS
A Question of Public Support: Voter Initiatives

[Map of the United States showing states in different colors to represent the passage or failure of voter initiatives.]
Coherent Policy Design: Student Diversity Efforts

Goal

Educational Benefits of Diversity

Objectives

Compositional Diversity
(Critical Mass-Related)

Learning outcomes/Generation of quality workforce

Strategies

Recruitment

Admissions

Retention

Financial Aid

Academic Affairs

Student Affairs

Supporting Evidence

Supporting Evidence
Coherent Policy Design: Employment Diversity Efforts

Goal

Objectives.

Strategies.

Benefits of Faculty Diversity

Enhanced Teaching, Research, Learning

"Remedial" Foundations *

Recruitment

Retention

Hiring

Resources

Mentoring

Professional Dev.
YES YOU CAN

- Diversity-related goals can be compelling and support race- and ethnicity- (and presumably gender-) conscious policies.
  - They must be mission-driven and educationally focused.
  - They can include core diversity benefits such as improved teaching and learning, enhanced civic values and preparation for 21st Century economy.
  - They *may* (likely) address issues of access and equal opportunity—if appropriately framed, and limited in scope and time.

- Objectives by which success is gauged must be established.
  - Critical mass objectives can support diversity-related goals in appropriate circumstances.

NO YOU CAN'T

- Certain goals cannot be advanced by race- and ethnicity- (and presumably gender-) conscious policies
  - Curing societal discrimination
  - Achieving statistical/population parity among subgroups of individuals
  - Racial balancing
The Federal Non-Discrimination Standards

- Strict Scrutiny
- Intermediate Scrutiny
- Rational Basis

- Other
- Gender
- Race and Ethnicity
And, with Respect to Gender...

Under FEDERAL Law, What We Know About Diversity-Related Goals and Objectives

- **YES YOU CAN**
  - Compensate women for "particular economic disabilities," "promote equal employment opportunities" and "advance full development of the talent and capacities of our Nation's people"

- **BUT TREAD LIGHTLY**
  - Reduced scrutiny doesn't eliminate contextual relevance in analysis
    - "Context matters."
1. Assessment of the Nature of the Issue Before Acting

2. Adequacy of Investment in Outreach and Recruitment

3. Identification and Removal of Barriers
   - Remove unnecessarily restrictive definitions of qualifications while maintaining high standards of intellectual capacity, accomplishments, and promise.
   - Undertake individualized, flexible assessment of all candidates against the same criteria—rather than relying on generalizations.
   - Build an inclusive climate for broadly diverse students and faculty
4. Gender-Neutral Approaches—Educationally Grounded and Mission-Driven

- Seek students and faculty with
  - Demonstrated capacity/success in achieving inclusion;
  - Characteristics/interest in issues of concern to women in science, math, etc. (research, pedagogy, etc.)
  - Characteristics and backgrounds that will enrich the learning enterprise and the quality of the workforce (cultural competence, ability to relate to patients, etc.)
AAAS–AAU Diversity & Law Project

- Objectives:
  - Identify and Foster Common Understanding of Effective Diversity/Access Programs That Are Also Legally Sustainable, with a STEM Focus
  - Build Productive Partnerships of Academic Policy/Program and Legal Leaders To Design and Implement Diversity/Access Programs

- Website: [www.aaascapacity.org](http://www.aaascapacity.org)
Objective:
- To provide practical, timely guidance to assist institutions of higher education in policy development and implementation—with a focus on key substantive issues as well as the process of policy development and implementation.

Resources:
- Legal and Policy Manuals
- White papers
- Toolkit

Website:  [www.collegeboard.com/accessanddiversity](http://www.collegeboard.com/accessanddiversity)

Many slides in this presentation are the product of the Collaborative.
Art Coleman, co-managing partner of EducationCounsel LLP, previously served as Deputy Assistant Secretary for Civil Rights in the U.S. Department of Education.

EducationCounsel LLP provides higher education institutions and organizations with a wide variety of educational services, including diversity-related strategic planning, policy/legal counseling and program evaluations; litigation support (including representation in OCR investigations); and staff/member training.

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The Educational Pathway for Women in Engineering

- Engineering-Ready H.S. Seniors
  - 52% of Males (about 890,000)
  - 48% of Females (about 820,000)

- Freshman Engineering Students
  - 84% Male (86,465)
  - 16% Female (16,896)

- Engineering Baccalaureates
  - 80% Male (60,721)
  - 20% Female (15,282)

- Engineering PhDs
  - 83% Male (5,368)
  - 17% Female (1,136)
PhDs Earned by Women: Parity in the biological sciences by 2006, but lags (despite within-field gains) in all other natural sciences since 1977.

Percent Women Amongst Doctoral Degree Recipients in Natural Sciences and Engineering, Selected Years, 1977-2006

Source: Commission on Professionals in Science and Technology, analysis of data from NSF's WebCASPAR database system.
Fig. 1.13
Women as a Percentage of Doctoral Recipients
By Broad Field, 2006

Degrees in S&E: As degree level increases, women’s and URMs’ share of degrees decreases. At each level, these groups are less likely to earn degrees in S&E.

Figure 3-1. Percent of U.S. Citizen and Permanent Resident Women and Under-Represented Minorities at Each Degree Level, 2005-06

Women on the Faculty: Representation varies by field and level.

Figure 5-14. Women Doctoral Degree Faculty by Tenure Status and Field, 2006

Source: CPST analysis of National Science Foundation SESTAT data base. The use of NSF data does not imply NSF endorsement of the research, methods, results or conclusions.