Diversity: Path to Change

UWADVANCE
National Leadership Workshop for SEM
Department Chairs and Emerging Leaders

- Statistics -- we are number people
- Experiments -- we are scientists
- Stories -- we are human
- Policy -- we are leaders

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National Data on Faculty Composition
  • Donna Nelson, University of Oklahoma

Studies of the “Playing Field”
  • Implicit assumptions are there

Personal Comments
  • The reality of small numbers

Advice for Chairs
  • Small things can make big improvements
Faculty Diversity Study

- Donna Nelson, U. Oklahoma Chemistry
- 14 Fields -- 11 UW-ADVANCE fields
- Survey 100 top departments in 2005
  - Ranked by research expenditures in 2002
  - Biased toward large depts supporting students
- Faculty composition by race and gender
- Compare to Ph.D. Data from NSF
### Example Data: Physics Faculty

http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html

<table>
<thead>
<tr>
<th>University</th>
<th>Full</th>
<th>Assoc</th>
<th>Asst</th>
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</table>

**UW 2002:**
- Full Professor: 35 WM, 3 WF, 1 HM
- Associate Professor: 2 WM
- Assistant Professor: 6 WM, 1 WF

**UW 2005:**
- Full Professor: 33 WM, 3 WF, 2 HM
- Associate Professor: 4 WM, 1 WF, 1 AM
- Assistant Professor: 3 WM

**UW Next Year:**
- Full Professor: 31 WM, 4 WF, 1 HM, 1 AM
- Associate Professor: 5 WM, 1 WF
- Assistant Professor: 2 WM, 1 HM, 1 AM

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*By physics research expenditures FY2002, NSF, funded by a grant from the National Science Foundation. Numbers may vary due to different grant classifications.*

**Women of Color Hidden in Statistics**

**Example Data: Physics Faculty**

Table 2. Tenured/Tenure Track Faculty at the "Top 50" Departments (as of December 31, 2009). Full-Time Members. Numbers are obtained from department's web sites. **Data are from ucweb, other than department chair.

<table>
<thead>
<tr>
<th>Department</th>
<th>Full</th>
<th>Assoc.</th>
<th>Asst.</th>
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<td>BM</td>
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<td>Asst. Professor</td>
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<td>0</td>
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</tbody>
</table>

50 Departments: 2,009 Faculty in 2005

- 158 Women (7.9%); 302 Minorities (15%); 30 Women of Color (1.5%); 7 Non-Asian Women of Color

See [http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html](http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html) for more data.
11 Fields, 550 Departments

Tenured Faculty 2005 - Top 50

- Total: 15,836

Tenured Faculty 2005 - Top 50

- Total: 263 (1.7%)

Untenured Faculty 2005 - Top 50

- Total: 3,785

Untenured Faculty 2005 - Top 50

- Total: 248 (6.5%)
Tenured
- WM 77% ⇒ 75%
- AM 11.0% ⇒ 11.4%
- OM 2.6% ⇒ 2.7%
- WF 8.0% ⇒ 9.1%
- AF 1.0% ⇒ 1.0%
- OF 0.3% ⇒ 0.4%

Untenured
- WM 60% ⇒ 54%
- AM 16.1% ⇒ 17.7%
- OM 4.3% ⇒ 3.8%
- WF 15.1% ⇒ 17.8%
- AF 3.3% ⇒ 5.2%
- OF 1.1% ⇒ 1.4%
Pipeline 2002 vs 2005

- Compare Asst. Profs. To Ph.D.’s
  - Foreign-born “minorities” only present in numerator
  - Definite improvement in some fields

### 2002 Overall
- Male: 1.17
- Female: 0.63

### 2005 Overall
- Male: 1.09
- Female: 0.79
Physics vs. Chemistry Pipeline

AIP Study on Academic Women in Physics

Physics women 2x as likely to be at UG Institutions (14% vs. 7% faculty)
Why so Few?

- **MYTH:** “It’s THEIR fault -- women just don’t apply.”
- **REALITY:** “My grad school experience was so awful I just want to get out of there.”
- **Example of Change:** Medical Schools after Title IX

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**Medical School Gender Distribution**

Parity in 30 years

Widely Practiced

10% Quota

Matriculation rate = Applicant rate

1972 Law -- Education Gender Discrimination Made Illegal
Large body of research shows:

**Implicit Assumptions Impact Evaluation**

**Gender Bias and Research Papers**
- Paludi and Bauer (Sex Roles, 1983)

<table>
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<tr>
<th>Reviewer (1-5, 1 top)</th>
<th>John T. McKay</th>
<th>Joan T. McKay</th>
<th>J. T. McKay</th>
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<tbody>
<tr>
<td>Male</td>
<td>1.9</td>
<td>3.0</td>
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</tr>
<tr>
<td>Female</td>
<td>2.3</td>
<td>3.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>

**Gender Bias and Post-Doc Applications**
- Wenerås and Wold (Nature, 1997)

**Gender Bias and Performance Evaluation**
- Orchestra tryouts behind curtain
- Stereotype threat on exam performance
(Implicit) Discrimination

- Lower expectations
- Uneven evaluation
- Narrow view of excellence
- Exclusion from informal networks
- Other people feel uncomfortable
- Accumulation of Disadvantage

\[
\left( \frac{0.49}{0.51} \right)^{10} = \frac{2}{3}; \quad \left( \frac{0.48}{0.52} \right)^8 = \frac{1}{2}
\]
Personal Observations

- Small numbers mean everybody counts
  - UW Physics nearly lost 60% of women in one quarter
  - US Physics PhDs -- 12 years (‘92–’03): 8,261 total
    - 2 Native American Women
    - 21 Black Women
    - 31 Hispanic American Women
  - Enrolled in US Grad School 2005 (7506 US; 5966 Foreign):
    - US Women: 7 Native American; 67 Black; 69 Hispanic; 130 Asian

- Each person must consciously confront their implicit assumptions
  - Grew up in 99% white suburb
  - Adult before I knew professional, educated minorities

- Scientific and educational enterprise requires trust
  - Different cultural expectations must be dealt with head on
Good Chairs Make a Difference

- Take ownership of the “problem” to create a public, inclusive climate for students and faculty.
- Consciously and publicly counter implicit assumptions and accumulated disadvantage.
- Set transparent and inclusive criteria and processes for hiring, promotion, salary and resources.
- Give women and minorities assignments to gain leadership skills (both scientific and administrative).
- Have all faculty actively mentor and recruit minority students to the profession. One more/year is significant.
- Compare attitudes of 1st and 5th year grad students -- do they still want to be academics? Is there a gender and/or ethnicity difference in the response? Find out WHY.
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- Experiments -- we are scientists
- Stories -- we are human
- Policy -- we are leaders

To access course readings:
Login: womensci   Password: curie1903

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http://courses.washington.edu/ph122mo/W06