ADVANCE Indicators of the Status of Women in Academia

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Background: Commissions on the Status of Women

- 1961, President Kennedy forms the 1st Presidential Commission
- States’ Governors follow suit.
- Colleges and Universities—various forms
  - President’s or Provost’s Commissions or Committees
  - Women’s Studies or Women’s Resource Centers form “grassroots” groups
  - Recent web search for NMSU’s newly-chartered CSW found 38 different colleges/universities with CSWs
- 1999 MIT Committee Report
### Original Indicators, ADVANCE PI Meeting, April 2002

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
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</thead>
<tbody>
<tr>
<td>1. # and % of women faculty in science/engineering by department</td>
<td>9</td>
<td></td>
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<tr>
<td>2. # and % of women in tenure-line positions by rank and department</td>
<td>9</td>
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<tr>
<td>3. Tenure promotion outcomes by gender</td>
<td>4</td>
<td>5</td>
<td></td>
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<tr>
<td>4. Years in rank by gender</td>
<td>8</td>
<td>1</td>
<td></td>
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<tr>
<td>5.a. Time at institution and b. attrition by gender</td>
<td>0, 1</td>
<td>0, 3</td>
<td></td>
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<tr>
<td>6. # of women in S &amp; E who are in non-tenure-track positions (teaching and research)</td>
<td>5</td>
<td>3</td>
<td>1</td>
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<tr>
<td>7. # and % of women scientists and engineers in administrative positions</td>
<td>8</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8. # of women S &amp; E faculty in endowed/named chairs</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>9. # and % of women S &amp; E faculty on promotion and tenure committees</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10. Salary of S &amp; E faculty by gender (controlling for department, rank, years in rank)</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>11. Space allocation of S &amp; E faculty by gender (with additional controls such as dept., etc.)</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. Start-up packages of newly hired S &amp; E faculty by gender (with additional controls such as field/department, rank, etc.)</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

**Baseline – 2000 and 2001**

**Rate:**

1. Can do easily
2. Not easy but would like to do
3. Just can’t do – i.e., no way

**Non-institutional Indicators**

- **Climate**
- **Productivity**
- **Family/work-friendly policies**
Fundamental Questions—Status of Women Faculty

- To what extent are departmental sex compositions “equitable”? To what extent are women and men in similar positions?
- Are the institution’s processes of advancement fair to men and women?
- To what extent do women hold powerful positions within the institution?
- To what extent are resources allocated equitably by gender?
ADVANCE Indicators Working Group

• Pre-meeting: work in 2004 at NMSU ADVANCE to bring indicators together
• January 2005: NSF in Arlington, VA
• February 2005: UC, Irvine
• June 2005: New Mexico State, Las Cruces
• September 2005: UC, Irvine
13 Individuals from 9 ADVANCE Projects Participated During 2005 with the Working Group

- New Mexico State University (L. Frehill & C. Jeser-Cannavale)
- University of Alabama, Birmingham (H. Sviglin)
- University of California, Irvine (P. Kehoe)
- University of Michigan (A. Stewart, J. Malley, & E. Meader)
- University of Puerto Rico, Humacao (E. Batiste)
- University of Texas at El Paso (S. Gonzales-Baker)
- Utah State University (K. Sullivan)
- University of Wisconsin (J. Sheridan)
- University of Washington (S. Edwards Lange)
- National Science Foundation (A. Hogan)
To what extent are women and men in “gender equitable” departments and positions?

Original Metrics:
- 1. Number and percent of women faculty in STEM
- 2. Number and percent of women in tenure line positions by rank and department
- 6. Number of women in STEM who are in non-tenure-track positions (teaching and research)

Report indicators for STEM and institution as a whole:
- Number and percent of faculty by rank and tenure status by department
- Measures that can be computed with the above: Indices of vertical and horizontal gender segregation: D, A, Representation Ratios, etc.
Are the institution’s processes of advancement fair to men and women?

Original Metrics:
- 3. Tenure and promotion outcomes by gender
- 4. Years in rank by gender
- 5a. Time at institution
- 5b. Attrition by gender
- 8. Number of women STEM faculty in endowed/named chairs

Report indicators for STEM and institution as a whole:
- Likelihood of (by gender):
  - Tenure
  - Promotion Asst → Assc
  - Promotion Assc → Full
- Average years at Associate rank for Full
- Annual attrition: % of each sex within rank who leave the institution for any reason other than retirement
- Number of women faculty in endowed/named chairs
To what extent do women hold powerful positions within the institution?

Original Metrics:

- 2. Number and percent of women in tenure line positions by rank and department
- 7. Number and percent of women scientists and engineers in administrative positions
- 8. Number of women STEM faculty in endowed/named chairs
- 9. Number and percent of women STEM faculty on promotion and tenure committees
To what extent are resources allocated equitably by gender?

Original Metrics

- 10. Salary of STEM faculty by gender (with additional controls such as department, rank, years in rank)
- 11. Space allocation of STEM faculty by gender (with additional controls such as department, etc.)
- 12. Start-up packages of newly hired STEM faculty by gender (with additional controls such as field/department, rank, etc.)

Instead of indicators, reports of rewards, resources, and responsibilities significant to faculty within the institution should be completed with some periodicity.
Toolkits

Developed by the ADVANCE Institutional Transformation Indicators Working Group

Toolkit for Reporting Progress Toward NSF ADVANCE: Institutional Transformation Goals
Available at

Using Program Evaluation To Ensure the Success of Your Advance Program
Available at
http://www.cpst.org/diversity/toolkit2.pdf
National Research Council Report

• “Gender Differences at Critical Transitions in the Careers of Science, Engineering and Mathematics Faculty.”
• 89 RI institutions and 6 disciplines:
  – Biology Chemistry
  – Mathematics Physics
  – Electrical engineering Civil engineering
• Collected data basically related to the ADVANCE Indicators at individual and department levels.
• NO DATA ABOUT RACE/ETHNICITY COLLECTED
• Cross-sectional data – one moment in time (2004-05).
• Women under-represented in initial applicant pools but those who DO get in
  – Receive similar resources as men within their disciplines
  – Have similar success in promotion and tenure within their disciplines
  – Do use stop-the-clock more often than men.
Key Issues

• Unit of analysis: discipline vs. with ADVANCE, institution.
• Regression to the mean – obscures potential variations within institutions.
• Institutional homogeneity/heterogeneity – top institutions are able to take “the best” and reward them.
• Bias – no evidence there is no bias embedded in processes, indeed, this evidence suggests “Raising the bar” (see Moody) is still quite common.
Work In Progress Related to Indicators

• Frehill & Ivie, PAID:
  – Women of color – increasing visibility
  – Other sources of data
    • professional societies – Ivie and Frehill workshop 6/18/2009.
      – Which societies collect data?
      – What can we learn about women of color in academia?
  • Survey of Doctorate Recipients (longitudinal)
  • National Study of Postsecondary Faculty (cross-sectional, multi-year)
• Cross-national / cross-disciplinary work in progress:
  – Measurement refinement – e.g., EU Glass Ceiling Index
  – Status of women in chemistry, computer science and mathematics (w/Willie Pearson, Jr, Georgia Tech).
  – Women’s international science collaborations (w/Kathrin Zippel, Northeastern U. ADVANCE Co-PI)