More Women In Science:

*The Institutional Challenge*
More Women In Science

- The Problem
- Some Solutions
- ADVANCE Innovations
- Elements of ADVANCE Success
The Problem

![Graph showing the percent of women in various sciences over years]

- Social Sciences
- Life Sciences
- Physical Sciences
- Engineering
The Problem

The graph shows the percentage of women in different academic positions across Life Sciences, Physical Sciences, and Engineering. The data indicates a significant drop in the percentage of women from Ph.D. to Full Professor, with a notable disparity between fields, particularly in Engineering.
The Problem

Women from minority racial and ethnic backgrounds are virtually absent from the nation’s leading science and engineering departments.

"Increasing the number of women earning science and engineering doctorates will have little effect on the number of women in academic positions, unless attention is paid to recruiting women to these positions and retaining them once hired."
Past Solutions

- Increasing the pipeline
  - Biology?
- Increased funding for women
  - POWRE awards?
- Teach women how to succeed
  - Leadership training
  - Mentoring
- Policy changes
  - Extend tenure clock
  - Dual career hire
New Approach: Institutional Transformation

- Rules that appear neutral may function in a way that leads to differential treatment or produces differential outcomes for men and women
  - Tenure process coincides with family formation years
  - Outside activities (e.g., family obligations) indicate a “lack of seriousness” about career
  - Use of programs designed to increase flexibility?
  - Deviation or delay from “normal” path
  - Salary increases/outside offers
  - Childcare needs (conferences, field study, time in laboratory)

“Academic organizational structures and rules contribute significantly to the underuse of women in academic science and engineering.”
New Approach: Institutional Transformation

- National Science Foundation ADVANCE program
  - 2001 first solicitation
  - Large, prestigious awards
  - Goal is to transform the institution, not the women!
  - Take a scientific approach: data, social science research
  - Provide models for other universities
What is “climate?”

- The atmosphere or ambience of an organization as perceived by its members. An organization's climate is reflected in its **structures, policies, and practices**; the **demographics of its membership**; the **attitudes and values of its members and leaders**; and the **quality of personal interactions**. (UW-Madison, 2002).
Work/Life Balance

- UW-Madison, Univ of Michigan, Univ of Washington, others: Life Cycle Grants
- Georgia Tech: Childcare, lactation spaces, Active Service/Modified Duties policy
- Virginia Tech: Dual Career Hiring program
- Univ of Alabama-Birmingham: Tenure clock extensions
- Iowa State Univ: Cost/benefit analysis of w/l policies
Recognize that life events outside of one’s control *happen*
  - Both men and women experience such events, but women are more likely to experience them early in the career, when they are more vulnerable

Reduce turnover by providing research support for faculty in crisis

Understand what events are problematic and which career junctures are most critical

Understand what faculty need when they are in crisis
Vilas Life Cycle Professorship Program

- Fall 2002 – Spring 2004, Pilot Program
  - Four rounds, 17 Applicants, 7 Awards
  - ADVANCE funding supplemented by Graduate School
- Fall 2004, Bridge Funding
  - One round, 5 Applicants, 3 Awards
  - Graduate School and Provost Office funding
- Spring 2005 +, Vilas Life Cycle Professorships
  - Three rounds/year, 27 Applicants, 18 Awards
  - Vilas Trust funding, $372,000 per year
Vilas Life Cycle Professorship Program

Applicants

- Male: 33.3%
- Female: 66.7%

Awardees

- Male: 27.8%
- Female: 72.2%
Vilas Life Cycle Professorship Program

Applicants
- Majority Faculty: 70.4%
- Faculty of Color: 29.6%

Awardees
- Majority Faculty: 72.2%
- Faculty of Color: 27.8%
Vilas Life Cycle Professorship Program

Applicants

- Own Health: 23.9%
- Parent Health: 6.5%
- Spouse/Partner Health: 8.7%
- Multiple Reasons: 23.9%
- Aging: 2.2%
- Child Health: 8.7%
- Childbirth Complication: 6.5%
- Children: 2.2%
- Divorce: 2.2%
- New Baby: 10.9%
- No Life Event: 4.3%

Awardees

- Child Health: 14.3%
- Childbirth Complications: 7.1%
- Children: 3.6%
- Parent Health: 7.1%
- Own Health: 32.1%
- Multiple Reasons: 25.0%
- Spouse/Partner Health: 10.7%
What is “climate?”

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Recruiting & Hiring

- Hiring process is an obvious critical juncture
  - Entry point to the faculty
  - Determines the “complexion” of faculty for decades
- Hiring processes vary enormously across departments, colleges, universities
- Faculty normally receive little or no training in running an effective hiring process
- Unconscious biases and assumptions can easily enter the evaluation of candidates
Recruiting & Hiring

- UW-Madison: *Searching for Excellence & Diversity* workshops
- Univ of Michigan: STRIDE
- Univ of Washington: Hiring Toolkit
- Univ of Illinois-Chicago: SUCCEED
- Univ of California-Irvine: Equity Advisors
- New Mexico State Univ, Univ of Montana: Supplement startup and/or salary for women hires
Searching for Excellence & Diversity

Five Essential Elements of a Successful Search

- Run an effective and efficient search committee
- Actively recruit an excellent and diverse pool of candidates
- Raise awareness of unconscious assumptions and their influence on evaluation of candidates
- Ensure a fair and thorough review of candidates
- Develop and implement an effective interview process
Unconscious Biases and Assumptions

An impressive body of controlled experimental studies and examination of decision-making process in real life show that:

- On the average, people are less likely to hire a woman than a man with identical qualifications.
- People are less likely to ascribe credit to a woman than to a man for identical accomplishments.
- When information or time is scarce, people will far more often give the benefit of the doubt to a man than to a woman.
What is “climate?”

- The atmosphere or ambience of an organization as perceived by its members. An organization's climate is reflected in its structures, policies, and practices; the demographics of its membership; the attitudes and values of its members and leaders; and the quality of personal interactions. (UW-Madison, 2002).
Departmental Climate

- “Chilly climate” for women in academic departments is a recurring theme in much of the literature.
- Climate surveys continually document the differences in men and women faculty’s perceptions of their work environments.
- Climate often cited by women as a reason for leaving a university, or academia.
Departmental Climate

- UW-Madison:  *Enhancing Department Climate: A Chair’s Role* workshops
- Univ of Washington:  Department head professional development workshops
- Case Western Reserve Univ:  Coaching for department chairs
- Univ of Michigan, Utah State Univ:  Interactive theater program
- Univ of Rhode Island:  Climate grants for departments
- Univ of Michigan:  STEP program
Enhancing Department Climate: A Chair’s Role

- Individuals experience climate in their immediate workplace – the department
- Chairs can significantly influence women’s experiences in their departments
- Chairs’ perspectives of climate differ from those of other faculty, especially women faculty
Figure 1. The climate for women in my department is good
<table>
<thead>
<tr>
<th>Departments Resurveyed</th>
<th>Mean 1&lt;sup&gt;st&lt;/sup&gt; Survey</th>
<th>N</th>
<th>Mean 2&lt;sup&gt;nd&lt;/sup&gt; Survey</th>
<th>N</th>
<th>Change</th>
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</thead>
<tbody>
<tr>
<td>Department A</td>
<td>3.21</td>
<td>24</td>
<td>3.71</td>
<td>56</td>
<td>0.5</td>
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<tr>
<td>Department B</td>
<td>3.07</td>
<td>15</td>
<td>3.29</td>
<td>17</td>
<td>0.22</td>
</tr>
<tr>
<td>Department C</td>
<td>3.82</td>
<td>60</td>
<td>4.25</td>
<td>53</td>
<td>0.43</td>
</tr>
<tr>
<td>Department D</td>
<td>3.79</td>
<td>124</td>
<td>3.63</td>
<td>86</td>
<td>-0.16</td>
</tr>
<tr>
<td><strong>Overall Mean Score</strong></td>
<td><strong>3.47</strong></td>
<td></td>
<td><strong>3.72</strong></td>
<td></td>
<td><strong>0.25</strong></td>
</tr>
</tbody>
</table>
Percent Agree: The Climate for Women In My Department is Good

- **Women**: Participating - 0.0%, Non-Participating - 20.0%
- **Men**: Participating - 40.0%, Non-Participating - 80.0%
- **Chairs**: Participating - 100.0%, Non-Participating - 100.0%

Legend:
- **2003**
- **2006**
What else?

- Data!
  - NSF indicators
  - Climate surveys
  - Evaluation data
  - Interviews, focus groups
Percent Women Faculty, by Division
University of Wisconsin-Madison

Physical Sciences
Biological Sciences
% Female, Major UW-Madison Faculty Awards*
Biological & Physical Sciences

* Vilas Associate, Hilldale, Romnes, Kellett
Women as Percentage of Named Professorship Recipients

% Women

2000 2001 2002 2003 2004 2005 2006
% Women Department Chairs
Biological & Physical Sciences

- 2000: 5.0%
- 2001: 5.0%
- 2002: 2.0%
- 2003: 2.0%
- 2004: 5.0%
- 2005: 10.0%
- 2006: 15.0%
- 2007: 25.0%
Women as Percentage of New Hires
Biological and Physical Sciences

% Women Hires

0% 10% 20% 30% 40% 50%

99-00 00-01 01-02 02-03 03-04 04-05 05-06 06-07 07-08

Untenured Tenured Total

Women as Percentage of New Hires

[Graph showing trends in women's percentage of new hires in biological and physical sciences from 1999-2000 to 2007-2008, with data points for untenured and tenured positions, and a total line.]
Climate for Women and Faculty of Color
Any WISELI Participation

% Agree Strongly or Somewhat

Climate for Women
is Good
Climate for Faculty
of Color is Good

<table>
<thead>
<tr>
<th>Year</th>
<th>Climate for Women is Good</th>
<th>Climate for Faculty of Color is Good</th>
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</thead>
<tbody>
<tr>
<td>2003</td>
<td>80.0%</td>
<td>70.0%</td>
</tr>
<tr>
<td>2006</td>
<td>70.0%</td>
<td>60.0%</td>
</tr>
</tbody>
</table>

* Denotes a significant difference.
“[With other grants] you're competing on a national level on everything, and I think that's fair, but you are at a disadvantage because you just don't have the time and energy at the same level as perhaps other people and so it just gives you that little bit of, little extra money to get things pulled together—have another person, have more reagents, have more whatever you need to have your grant be competitive. I also think it's a good idea because of the investment value. If I get my grant, it's going to pay off for the university several fold over.”
Importance of department chair

Before I got here, when [X] was chair, two other people had babies under his leadership and [it] was fine! ‘Oh! Congratulations! Good. Take the semester off. You have a grad student to fill in. Okay, that’s no problem.’ Blah blah blah. And it was, you know, a handshake and a nod and, ‘Of course . . . do what you need to do. Let me know when you can get back on your feet’-type thing. Versus [the new] chair has never had kids, does not think the idea of parental leave is meritorious.
ADVANCE Elements of Success

- Support of high-level administrators
- Resources
- Peer-to-peer interactions
- Use of data (both qualitative & quantitative)
- Use of literature on unconscious bias and assumptions
- Active learning strategies
- Fearless intervention when required
- Refrain from gender-specific programming
WISELI
Women in Science & Engineering Leadership Institute
University of Wisconsin-Madison