Climate Change Can be Good: Advancing Women in Academic Medicine

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Women’s Advancement in STEM
Post-doc ———> Full Professor
A very leaky pipeline

Topics that I will not cover
• Unconscious Bias
• Stereotype Threat
• Tokenism
• Glass Cliff

Today’s Topics
• Increasing Dominance of Teams and Importance of Diversity
• The Problem & Solution: Leaders’ Impact
• Practical tools: Celebration of Success Critical Period Support

Women Professors Are Missing From Medical School Faculty Too

% Women

Men
Women

Professor
Associate Prof
Assistant Prof
Instructor

WWW.AAMC.ORG 2009

WWW.AAMC.ORG 2009
Number of Papers Authored by Teams and Size of Teams: Increasing Over Time


Team-Authored Work More Highly Cited Than Solo-Authored Work


The Power of Diversity In Teams

NY Times
January 8, 2008
A Conversation With Scott E. Page
In Professor’s Model, Diversity – Productivity
By CLAUDIA DREIFUS

In the long-running debate on affirmative action, Scott E. Page, a professor of complex systems, political science and economics at the University of Michigan, is a fresh voice.


The Power of Diversity

- Breakthroughs emerge by looking at complex problems from diverse perspectives.
- Inclusive enterprises with a diverse work force that recognize and value unique individual contributions tend to be more successful than more homogeneous ones – lessons from business.
- As the complexity of scientific problems increases, the need to build and to work within inter- and multi-disciplinary teams increases.

Evidence for a Collective Intelligence Factor in the Performance of Human Groups

Anita Williams Woolley, Christopher F. Chabris, Alex Pentland, Nada Hashmi, Thomas W. Malone

Psychologists have repeatedly shown that a single statistical factor—often called “general intelligence”—emerges from the correlations among people’s performance on a wide variety of cognitive tasks. But no one has systematically examined whether a similar kind of “collective intelligence” exists for groups of people. In two studies with 488 people, working in groups of two to five, we find converging evidence of a general collective intelligence factor that explains a group’s performance on a wide variety of tasks. This “G factor” is not strongly correlated with the average or maximum individual intelligence of group members but is correlated with the average social sensitivity of group members, the equality in distribution of conversational turn-taking, and the proportion of females in the group.

Group’s Collective Intelligence

1. Moderately correlated with average intelligence of individual group members and the intelligence of the highest-scoring team member.
2. Not correlated with group cohesion, motivation, and satisfaction.

Woolley et al. Science 330, 2010
3. **Significant correlation** with the average social sensitivity of group members. Groups where a more equal distribution of conversational turn-taking scored more collectively intelligent than those in which a few people dominated the conversation.

4. Collective intelligence was **positively and significantly correlated** with the proportion of women in the group. They scored better on the social sensitivity measure than men (taking turns).

5. **Direct contribution** of diverse perspectives by women and underrepresented individuals to think in different ways.

6. Stimulates others (more traditionally included) individuals to think in different ways.

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**Potential Gender Bias in Team Effort Evaluation**

- Women receive less credit if rating is “team-based”.
- Women get due credit if individual contributions are rated.

*No Credit Where Credit Is Due: Attributional Rationalization of Women’s Success in Male–Female Teams.* Helman & Haynes J. Appl. Psychol. **80**, 905–16, 2005

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**Climate Perceptions Differ by Faculty Gender**

- Increasing Dominance of Teams and Importance of Diversity
- The Problem & Solution: Leaders’ Impact
- Practical tools: Celebration of Success Critical Period Support

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*Unconscious Bias at Work* Brian Welle (Google Ventures) [https://www.gv.com/lib/unconscious-bias-at-work](https://www.gv.com/lib/unconscious-bias-at-work)
Gender Equity Perceptions Differ by Gender

Virginia Tech 2005 AdvanceVT Faculty Work-Life Survey and Faculty Exit Survey

- Campus free of intimidation, harassment, discrimination
- Male/female offensive comments/treatment in workplace
- Faculty treated fairly regardless of gender
- Faculty treated fairly regardless of sexual orientation
- There is accountability for sexual behavior
- Dept. head unlikely to intervene if sexual behavior occurred

*Items significantly different by gender, p<.05

The Impact of Committed Leaders

Leaders have a disproportionate impact on organizations because of their status as authorities

1) establish and publicize policies to increase fairness,

2) legitimize and support the leadership of both women & men.


Impact of Leaders

Robert Birgeneau – Dean of Science, MIT
Nancy Hopkins – Professor, MIT

Number of Women Faculty MIT School of Science (1960-1995)

Title IX, 1972

"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance."

MIT’s Problems (1996)

- Unequal resources/rewards to senior women faculty
- Family-work conflict for junior women faculty
- Small number of women faculty
- No women faculty in academic administration
- Undervaluation of equal accomplishment
- Marginalization of women faculty as they rise
MIT (2010)

- MIT President, 3 of 5 Deans are women, 2 of 6 department chairs in science and 1 in engineering are women.
- Numbers of women faculty in science and engineering have more than doubled.
- Having children is discussed openly, and women have actually taken maternity leaves and gotten tenure – for the first time in MIT’s history.
- New day care center in one of the most prominent and heavily trafficked places at MIT. (Second new day care center opened in 2013.)
- MIT is not alone: other universities have achieved similar results. In some cases these changes were initiated through NSF ADVANCE grants.

Impact of Department Chairs

- Individuals experience climate in their immediate workplace —department, division.
- Chair’s perspectives of climate differs from those of other faculty, especially women faculty.

Study of Faculty Work-life at the University of Wisconsin-Madison, 2003

Impact of Department Chairs

- Individuals experience climate in their immediate workplace —department, division.
- Chair’s perspectives of climate differs from those of other faculty, especially women faculty.
- Chairs can significantly influence women’s experiences in their departments.

Study of Faculty Work-life at the University of Wisconsin-Madison, 2003

Chairs & Women Faculty Differ in Perception of Climate

The climate for women in my department is good

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% Agree Strongly or Somewhat

* Significant t-test between women and men faculty at p < 0.05.
* Significant t-test between dept. chairs and all other faculty at p < 0.05.

Impact of a Leader

Chairman of Medicine, John Stobo, MD
Johns Hopkins Medical School - 1990 (Emma Stokes, consultant)

- Women faculty earned less than men and advanced more slowly.
- Appointed a committee to evaluate situation and develop ways to deal with gender-based problems.

Committee found

- Women were coming up for promotion later than men because evaluators failed to identify qualified women.
- Junior men faculty were asked to chair confs 6X more frequently than junior women faculty.
- Women didn’t know the criteria for promotion.


Dr. Stobo’s initiatives included:

- Annual faculty evaluations with explicit info re progress.
- Monthly meetings with concrete mentoring for moving up in career.
- Senior faculty were given explicit info on how to mentor.
- Important meetings moved from outside normal hrs.

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Impact on the Dept of Medicine
• 1990 there were 6 women Assoc Profs
• 1995 there were 26 women Assoc Profs.

Career Development for women in academic medicine: Multiple interventions in a department of medicine.

To Overcome Unconscious Bias*
• Collect data
  - Evidence that something is wrong — state metrics
• Establish structure for success
  - Criteria that are essential — ignore all else
• Evaluate subtle messages
  - Microaggressions driven by unconscious bias (DWEGs)
• Hold everyone accountable
  - Think and then act (rather than react — unconscious bias)
  - Justify in writing
• Make decisions collectively
  - After discussion by diverse committee

* Google Ventures, Unconscious Bias at Work https://www.gv.com/lib/
* University of Michigan, STRIDE http://sitemaker.umich.edu/advance/stride_committee

Chairs Have a Huge Impact
• Improve departmental stability
• Increase faculty & student productivity
• Recruit & retain faculty and students
• Promote respect, collegiality, inclusion, collaboration, and cooperation in department
• Expose & correct unconscious bias
• Improve the delivery of medicine and science

Chisholm-Burns, Richardson & Rodrigues, University of Arizona ADVANCE Program

 Increasing Dominance of Teams and Importance of Diversity
• The Problem & Solution: Leaders’ Impact
• Practical tools:
  Celebration of Success
  Critical Period Support

 26 accomplished women faculty - physicians and scientists
• Diverse ages, background and cultures
• Overcame hardships, biases, and their own self-doubts to pursue their passion for research and helping others.
• Passion, perseverance and success of women “balancing” work and family.

“Legends and Legacies: Personal Journeys of Women Physicians and Scientists at MD Anderson Cancer Center” Edited by Elizabeth L. Travis, PhD 2009
• Goal: Platform for highly successful women physicians & scientists as role models & mentors for women trainees and faculty
• Monthly meeting in informal setting
• Features the story of unique path of a highly successful woman scientist and/or physician
• Sharing information about success in juggling competing responsibilities of career, family, and outside interests, overcoming bias
• Chocolate and fruit are served

*Building Groups to Help Women Survive and Succeed.* ASCB Newsletter, October 2014

**Women Speakers for Seminars, Grand Rounds, Symposia**

Two very different examples in Bioengineering:
• MSSM Annual Imaging Symposium:
  1 woman and 24 men (five years)
• Stanford BioX Symposium 2014: Mechanobiology
  5 speakers – all women

**Women Speakers for Seminars, Grand Rounds, Symposia - resources**

WICB Speakers Referral List
[http://ascb.org/wicb-committee/](http://ascb.org/wicb-committee/)
downloadable list and/or customized list
Synberc:
[http://www.synberc.org/speaker-diversity](http://www.synberc.org/speaker-diversity)
provides names of suggested women speakers and sample letter to organizers to encourage gender balance

[Synberc organizers: Pamela Silver, George Church (Harvard), Kristala Jones Prather, Natalie Kuldell, Ken Dye, Christopher Voigt, Ron Weiss (MIT)]

**Clafin Distinguished Scholar Awards**

• Advancement of junior women scientists to senior faculty positions is still far less frequent than that of their male counterparts at MGH
• Significant obstacle to career advancement is the difficulty of maintaining research productivity during the child-rearing years
• Provide bridge funding for junior faculty to sustain research productivity during the child-rearing years
• Funds may be used for support of a technician, postdoctoral fellow or graduate student and supplies.
[http://www2.massgeneral.org/facultydevelopment/owc/clafin.html](http://www2.massgeneral.org/facultydevelopment/owc/clafin.html)
Three-page basic or clinical research plan
• MD, PhD, within 7 years of first full-time faculty appointment
• Primary appointment and conducting their research at MGH
• Salary support from a grant or other funding source
• Applicant is clearly the PI, whose academic progress would benefit from such funding support
• Evidence of strong research training, productivity, and a well-defined focus in either basic or clinical research
• Responsible for care of children
• $50,000/yr X 2 in 2014 in direct costs, plus 15% indirect costs per year.

1997-2004 Claflin Awards
Retention 90% of awardees
Investment in 35 awards $2,100,000
Awardee’s grants as PI $51,401,314
ROI = 24.5 fold


2007-2014 Junior Scholar Awards
University of Pittsburgh Medical School
Dept of Medicine
19 awardees $1,060,000
Awardee’s grants as PI $23,000,000
ROI = 21.7 fold

Ora Weisz, PhD, Vice-Chair for Mentoring, Medicine Dept, U Pittsburgh Med School
“Juggling on the Ladder: Institutional Awards Help Faculty Overcome Early–Mid Career Obstacles”, WICB Career Column, ASCB Newsletter, October 2014

Stanford ABCC* Program - Work-Life Integration
Career customization plan (3-5 yr period):
• Pace to promotion
• Disaggregated workload
• Role as contributor or leader
• Schedule predictability
• Work-life integration
Organized as teams – meeting clinicians’ administrative responsibilities.
Basic scientists – tradeoff teaching and service with others.
Faculty earn credits for taking on these responsibilities when they can

*Academic Biomedical Career Customization based on Deloitte’s Mass Career Customization model for flexibility
Supported by Dean and a Grant from the Sloan Foundation

Key Programs and Benefits for Faculty with Family Responsibilities
Stanford University
• Child Care Resources and Referrals (7 on-site childcare centers; waiting lists)
• Child Care Subsidy Grant Program (children 9 y.o. and younger; up to $5K based on application including income information)
• Faculty Child Care Assistance Program (children 5 y.o. and younger; salary supplement to eligible faculty to offset child care expenses; $5-20K based on adjusted family income)
• Dependent Day Care Flexible Spending Account (before tax $, reimbursement of work-related dependent day care if incurred)
• Adoption Reimbursement Program ($10K)
• ParentNet & SeniorNet - email lists
• School-Age Resources & Elder Care Resources
Key Programs and Benefits for Faculty with Family Responsibilities

- Faculty Back-Up Care Advantage Programs
  - Kids (10 days/yr; co-pay $15/day in center, $6/hr at home)
  - Elders (10 days/yr; $6/hr co-pay)
- Junior Faculty Dependent Care Travel Grants (untenured Jr faculty up to $1K post-tax/yr)
- New Parent Tenure Clock Extension
- Reduced Teaching or Clinical Load (during quarter of childbirth, full pay)
- Part-Time Appointments (for family related needs)
- Dual Career Assistance (finding positions in Bay area or Stanford)
- Counseling Support (on both personal and workplace issues, for faculty members and family; free 10 sessions/issue)

Similar programs and benefits at University of Pennsylvania, Princeton University

Helping Women Succeed in Academic Biomedicine

- High impact work is now done by teams.
  Women scientists and physicians are an essential part of the team.
- Informed, committed leadership is essential.
- Celebrate success and provide support and alternative pathways.
- Overcome unconscious bias.
- Provide support at critical times for Jr faculty.
- Change the climate and enhance the success of your faculty and department

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Change the climate and enhance the success of your faculty and department
Advancing Women in Academic Biomedicine
Sandra K. Masur April 2015

References

Impactful science and team diversity
4. "No Credit Where Credit Is Due: Attributional Rationalization of Women's Success in Male-Female Teams." Heilman & Haynes J.Appl.Psych. 90:905-16, 2005

Bibliography related to women in science and academia

Women in Cell Biology of the American Society for Cell Biology (downloadable)
2. Speakers Referral List http://ascb.org/wicb-committee/

Websites of potential interest and helpful information
2. NIH Updates on Women in Science (NUWS) http://womeninscience.nih.gov

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