The Benefits of Climate Change

Global Warming
at the Departmental Level

Sandra K. Masur
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Chair, Women in Cell Biology
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IWiN
16 September 2011

Climate Resources

IWiN Presentations & Readings:
http://www.sfn.org/index.aspx?pagename=professionalDevelopment_iwin_participants
Diana Bilimoria, *Professor Organizational Behavior, Case Western Reserve University*
Marie Chisholm-Burns, Randy Richardson, Helena Rodrigues, *U. Arizona, ADVANCE Program*

ADVANCE Program Websites:
University of Wisconsin-Madison
     WISELI:Women in Science and Engineering Leadership Institute http://wiseli.engr.wisc.edu/
University of Michigan ADVANCE Program - http://sitemaker.umich.edu/advance/home
Hunter College (CUNY), Gender Equity Project - http://www.hunter.cuny.edu/genderequity/

Two Emerging Trends in Climate Change

Science: Teams or Solitary Practitioner

Scientific Pipeline: more women

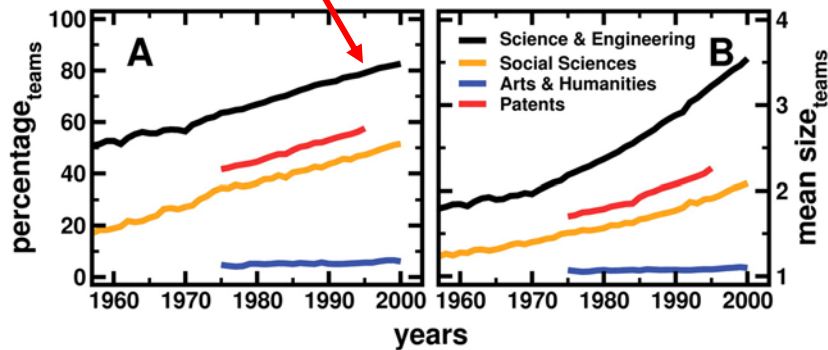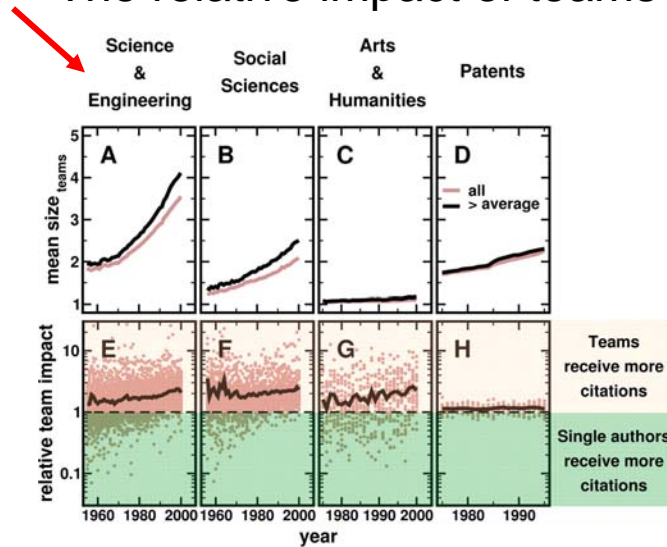# The Increasing Dominance of Teams in Production of Knowledge

Fig. 1. The growth of teams.

S Wuchty et al. Science 2007;316:1036-1039

The relative impact of teams

Science & Engineering   Social Sciences   Arts & Humanities   Patents

The Increasing Dominance of Teams in Production of Knowledge (Fig. 2)

S Wuchty et al. Science 2007;316:1036-1039

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.

His recently published book, "The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools and Societies" (Princeton University Press), uses mathematical modeling and case studies to show how variety in staffing produces organizational strength.

The Power of Diversity
(studied by computer simulation, in psych lab and retrospective analysis)

•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.

Scott Page, "The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies" (2008)

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

Anita Williams Woolley,[1]* Christopher F. Chabris,[2,3] Alex Pentland,[3,4] Nada Hashmi,[3,5] Thomas W. Malone[3,5]

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 699 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 "c 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.

Why does it matter that we lose women & minority faculty and scientists?

When we lose women & minority faculty and scientists, we lose the power inherent in diversity.

Diversity creates group intelligence.

Be proactive in hiring, promoting, and retaining minorities and women.

Why Focus on Improving Departmental Climate?

- Improve departmental stability
- Increase faculty & student productivity
- Recruit & retain faculty and students
- Promote respect, collegiality, inclusion, collaboration, and cooperation in department
- Improve the science

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

Definition and Benefits of Positive Climate

- The degree to which the environment is supportive of individuals' work success and satisfaction (Riger et al., 1997)
- Dynamic process, not a condition
- Improves research excellence, productivity, faculty & student recruitment & retention efforts, & departmental stability

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

Commitment & Work-Life Balance Issues Are <u>Not</u> Gender Dependent

- Both women and men rank science higher than their private lives (64% vs. 61%, respectively) (Sonnert, 1995)
- Both women and men report working harder when they can contribute to the department (Bowen & Schuster, 1986)
- Both women and men report that marriage impacts careers (Sonnert & Holton, 1995)
- Men are just as likely as women to report difficulty in work-life balance (Levine & Pittinsky, 1997; Hill et al., 2001)

Chisholm-Burns, Richardson & Rodrigues, University of Arizona ADVANCE Program
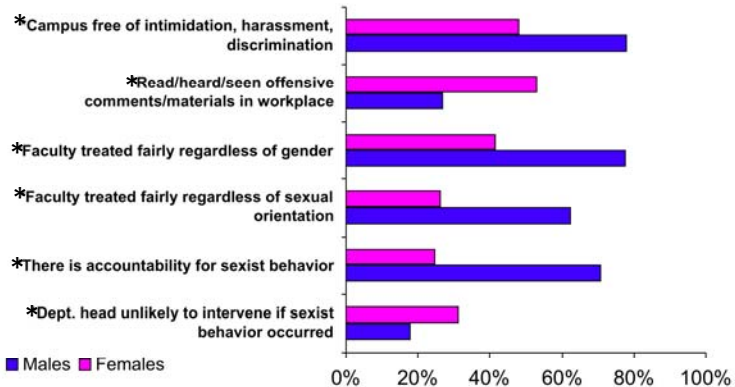
Climate Perceptions Differ by Faculty Gender
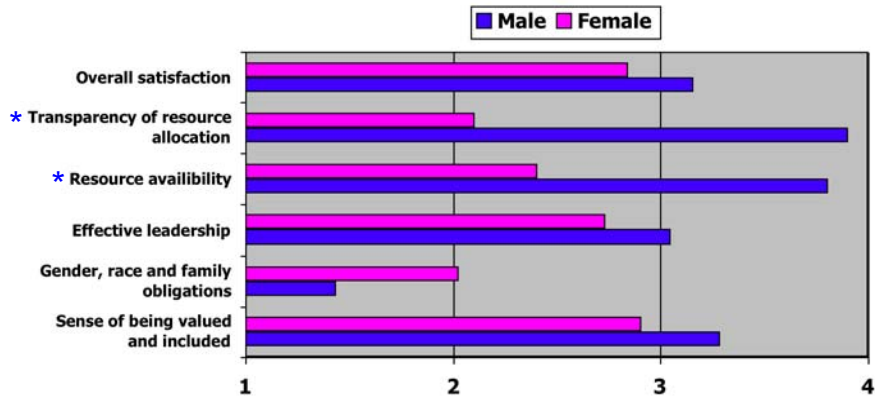
Diana Bilimoria, IWiN 9-23-2010

Source: CWRU 2004 Climate Survey

Gender Equity Perceptions Differ by Gender

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

Advance Survey, N=816; Includes combined responses of strongly agree and somewhat agree;
*Items significantly different by gender, p ≤ .05

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Why Focus on Department Chairs?

- 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

Study of Faculty Worklife at the University of Wisconsin-Madison, 2003

Chairs & Faculty Differ in Perception of Climate

The climate for women in my department is good
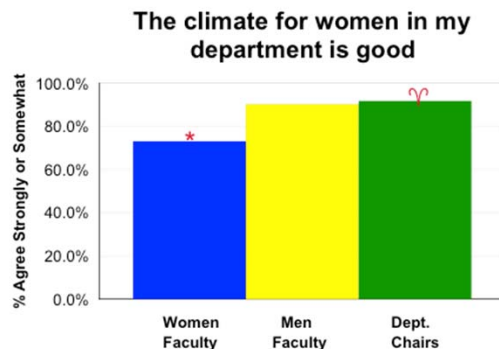
* Significant t-test between women and men faculty at $p<.05$.
♈Significant t-test between dept. chairs and all other faculty at $p<.05$.

WISELI: Enhancing Departmental Climate

Goals of WISELI Chairs'
Climate Workshops

- To increase awareness of climate and its influence on the research and teaching missions of a department
- To identify various issues that can influence climate in a department
- To present research on how unconscious assumptions and biases may influence climate
- To enable chairs to assess climate in their own departments
- To provide chairs with opportunities to enhance climate in their departments by learning from each others' experiences and ideas.
- To provide chairs with advice and resources they can use to enhance climate in their departments

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Chairs & Faculty Climate Perception
After Workshops

Percent Agree: The Climate for Women In My Department is Good
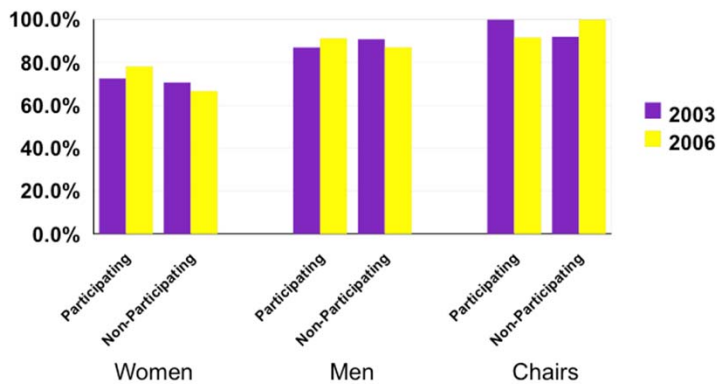
WISELI – preliminary results

Conclusions and Caveats
from WISELI Workshops

- Institutional Transformation takes TIME
- Constraints on ability to undergo "transformation"
  - Culture of Institution – Hierarchical? Driven by strong faculty governance system?
  - Size of Institution
  - Availability of Resources – time, personnel, funds
  - Support of Top Administrators
  - Turnover of Administrators and Chairs.

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.

Why So Slow? The Advancement of Women. Virginia Valian

Impact of a Leader (1)

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.

Impact of a Leader (2)

Stobo's initiatives based on the committee's findings 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.

Impact on the Dept of Medicine
- 1990 there were 6 women Assoc Profs

- *1995 there were **26 women Assoc Profs**.*

Impact of a Leader (1)

Larry Summers

27th President of Harvard University (2001-2006)

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Impact of a Leader (2)

Dr. Summers resigned in the wake of a no-confidence vote by Harvard faculty

- Summers' conflict with Cornel West

- financial conflict of interest questions regarding his relationship with Andrei Shleifer

- a 2005 speech in which he suggested that the under-representation of women in science and engineering could be due to a "different availability of aptitude at the high end," and less to patterns of discrimination and socialization.

Source: Wikipedia
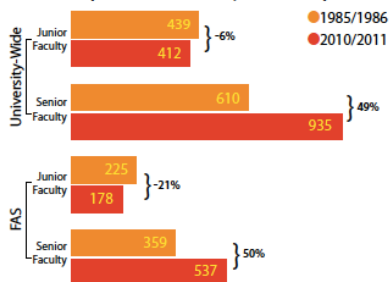
Impact of a Leader (3)

- Summers appointed two task forces (2005)
- The task forces' recommendations included:
  - Senior Vice Provost for Faculty Development & Diversity
  - Increased recruitment efforts
  - Implemented improved mentoring and advising
  - Instituted retention strategies (new tenure track for jr faculty)
  - Established official parental leave and automatic extension of tenure clock
  - Grants of up to $20,000/yr to 50+ faculty members for childcare
  - Dependent care fund for children to travel with parents to conferences
  - New babysitting service this fall

Harvard's Evolving Faculties *by Jonathan Shaw*
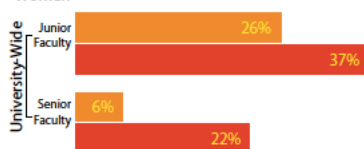Harvard Magazine October 2011

More Women & Minority Appointments

Faculty Demographic Trends
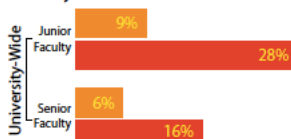(excluding the medical and dental schools)

While the senior faculty has grown 50 percent since 1985-86, the number of junior faculty has remained nearly steady, reflecting the shift to a tenure-track system. The number of senior women faculty has quadrupled, a rate of growth that exceeds the underlying growth rate. The number of minorities among senior faculty has increased two-and-a-half-fold, and more than tripled in the ranks of junior faculty.

● 1985/1986
● 2010/2011

University-Wide
Junior Faculty: 439 } -6% / 412
Senior Faculty: 610 } 49% / 935

FAS
Junior Faculty: 225 } -21% / 178
Senior Faculty: 359 } 50% / 537

Women
University-Wide
Junior Faculty: 26% / 37%
Senior Faculty: 6% / 22%

Minority
University-Wide
Junior Faculty: 9% / 28%
Senior Faculty: 6% / 16%
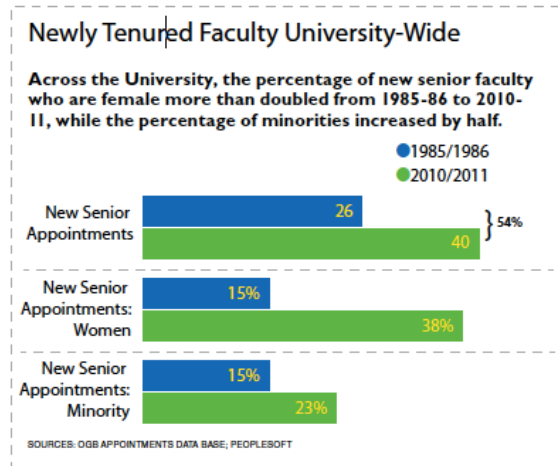
SOURCES: 1985-6 FACT BOOK, 1990 IR DATA TRENDS; PEOPLESOFT; SOME TOTALS MAY REFLECT DUAL APPOINTMENTS

Harvard's Evolving Faculties *by Jonathan Shaw*
Harvard Magazine October 2011

More Women Senior Appointments

Newly Tenured Faculty University-Wide

Across the University, the percentage of new senior faculty who are female more than doubled from 1985-86 to 2010-11, while the percentage of minorities increased by half.

● 1985/1986
● 2010/2011

New Senior Appointments: 26 (1985/1986), 40 (2010/2011) } 54%

New Senior Appointments: Women: 15% (1985/1986), 38% (2010/2011)

New Senior Appointments: Minority: 15% (1985/1986), 23% (2010/2011)

SOURCES: OGB APPOINTMENTS DATA BASE; PEOPLESOFT

Harvard's Evolving Faculties *by Jonathan Shaw*
Harvard Magazine October 2011

Essential Climate Components

For the advancement of women and minorities (and the benefit of all faculty), a department's policy should aim for

- **Transparency:** Making all kinds of information available and easy to find
- **Uniformity:** Leveling the field and dealing equitably with all faculty
- **Assistance:** Attending to the needs of faculty; offering mentoring and other types of help

Best Practices – University of Michigan ADVANCE Program

Best Practices of Faculty Mentoring

- U Michigan CAS
  - Dept. chair and new faculty member develop a mentoring plan addressing teaching, graduate supervision, and research
  - Chairs fill out a section on mentoring in their annual reports.
  - Annual college-level meeting open to all tenure-track faculty to discuss the requirements for tenure and promotion and the P&T process

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- U Penn
  - Each school designates a senior faculty person responsible for the management of the faculty mentorship program
  - Specific responsibilities and expectations of the mentor are clearly stated in the school's policy and distributed to the junior faculty member along with the school's promotion guidelines
  - Faculty mentoring considered as one of the university citizenship criteria for promoting senior faculty from Associate Professor to Full Professor

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- Stanford Medical School
  - Mentor assigned as soon as faculty member is hired; others may be added later by the faculty; mentors meet every six months with mentees

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"How" We Mentor Affects Career Outcomes

Women mentees:

- Were mentored mostly about:
  - Psycho-social support (understanding themselves and the ways they operate, navigating politics, and work-life issues)
  - Developmental advice (guidance about ways to change themselves) and extra work assignments including extra travel and meetings
- Had mentors with lower clout, after controlling for lower post-MBA starting position

Men mentees:

- Were mentored mostly about:
  - Career functions (planning next moves, how to take charge in next roles, and figuring out how to achieve career goals)
- Received active sponsorship by the mentor (advocacy, resources, visibility, opportunities, network connections)
- Had mentors with higher clout

- Similar numbers of lateral moves were given to men and women

- Men were promoted after the lateral moves;
  for women, the moves were offered in lieu of advancement.

"Why Men Still Get More Promotions Than Women"
Ibarra, Carter, and Silva, Harvard Business Review, 2010

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Mentoring Challenges

- Department size: Sometimes not enough senior faculty mentors to go around

- Time challenges: the best mentors are very busy; and mentees don't perceive their time investment to be worthwhile

- Culture: Junior women faculty don't want to "impose" on senior faculty

- Perceptions and expectations of mentoring differ between senior and junior faculty

- Associate to full professor mentoring sometimes falls through the cracks

- Departments are left to manage on their own; few school- or university-level resources and supports for mentoring

- Others …

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Formats of Mentoring

- One-on-one mentoring
- Committee mentoring
- Peer group: seminars, panel discussions
- Academic performance and career development workshops
- Zone mentoring (by area of expertise)
- E-mentoring
- Travel support to meet disciplinary mentor outside the university
- Annual review meetings with chair and mentors
- Wise Guys – use your senior faculty who may have some free time

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How A Chair Can Change the Climate

Motivate change within department: develop compelling rationales for change, focusing on benefits to department

- use gender as window on departmental effectiveness everyone benefits: continuous thread linking students, post-docs, women and men faculty

- attract more women as faculty

- improve morale

How A Chair Can Change the Climate(2)

Develop faculty for leadership positions within institution

- establish paths toward leadership

- place women and minorities on important committees

- provide guidelines on how to run committees

- have periodic meetings with interested faculty to explain how decisions are made within institution

How A Chair Can Change the Climate(3)

Develop a diverse circle of advisors

- determine what you need and who can fulfill those needs

- include people who will provide constructive criticism and reasoned objections

- chairs are at risk of isolation from and lack of knowledge of hidden problems – everyone tends to assume their unit is working well unless there are major overt signs to the contrary

How A Chair Can Change the Climate(4)

Develop procedures to counteract unintended bias

- review colloquium speaker roster - reflect % women grad students & in field
- run faculty meetings so that everyone's voice is attended to
- review letters of recommendation for "gender equity"
- review workload assignments (teaching and service) for equity
  - importance of assignment
  - labor-intensiveness of assignment
  - visibility
  - scope for innovation
- ensure that departmental-internal staff respond equally promptly and fully to males and females, non-minority and minority
- ensure that women and minorities have a voice in hiring

Essential Take Home Advice
for the Best Climate

For the advancement of women and minorities (and the benefit of all faculty), a department's policy should aim for

- Transparency: Making all kinds of information available and easy to find
- Uniformity: Leveling the field and dealing equitably with all faculty
- Assistance: Attending to the needs of faculty; offering mentoring and other types of help

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