Advancing a Respectful Community

Edmund Bertschinger, MIT

NIST Colloquium

September 23, 2016

Air Asiana Flight 214

http://www.cnn.com/videos/bestoftv/2013/12/11/exp-erin-pkg-lah-asiana-crash-culture-concerns.cnn

LOTTERY, PAGE A2
Volume 263
Number 33
$2.00

Boston Sunday Globe

FEBRUARY 2, 2003

THE WEATHER
Today: Cloudy, with light rain likely, windy, 39
Tomorrow: Breezy, cloudy, chance of drizzle, 49
FULL REPORT: PAGE D12

Space shuttle Columbia lost on reentry; 7 astronauts dead

AP PHOTO/TYLER MORNING TELEGRAPH, DR. SCOTT LIEBERMAN

A fiery trail streaked across the sky as the space shuttle Columbia broke apart yesterday over Texas. An amateur photographer captured this image from his backyard in Tyler.

"In the board's view, NASA's organizational culture and structure had as much to do with this accident as the External Tank foam."

Columbia Accident Investigation Board report, 2003, p. 177

Does culture matter only for safety?


OUR ASSIGNMENT IS TO MAKE OUR ACCOUNTING SYSTEM LESS TRANSPARENT.
WHAT?
www.dilbert.com scottadams@aol.com
WE DON'T WANT INVESTORS TO KNOW WHAT WE'RE DOING.
ARE WE BAD PEOPLE?
6/20/02 © 2002 United Feature Syndicate, Inc.
WE'RE GOOD PEOPLE WHO HAVE BEEN INFLUENCED BY A CORRUPT CORPORATE CULTURE.
OH, OKAY. CARRY ON.

Culture

Λ ₹ ♀♪

A system of symbols and meaning

Culture

Λ ₹ ♀♪

A system of symbols and meaning

A set of beliefs and practices associated with a group

Culture

Λ ₹ ♀♪

A system of symbols and meaning

A set of beliefs and practices associated with a group

The unspoken rules of behavior

Hofstede's Cultural Dimensions

Factor analysis of surveys of IBM employees in 76 countries yields "principal axes"

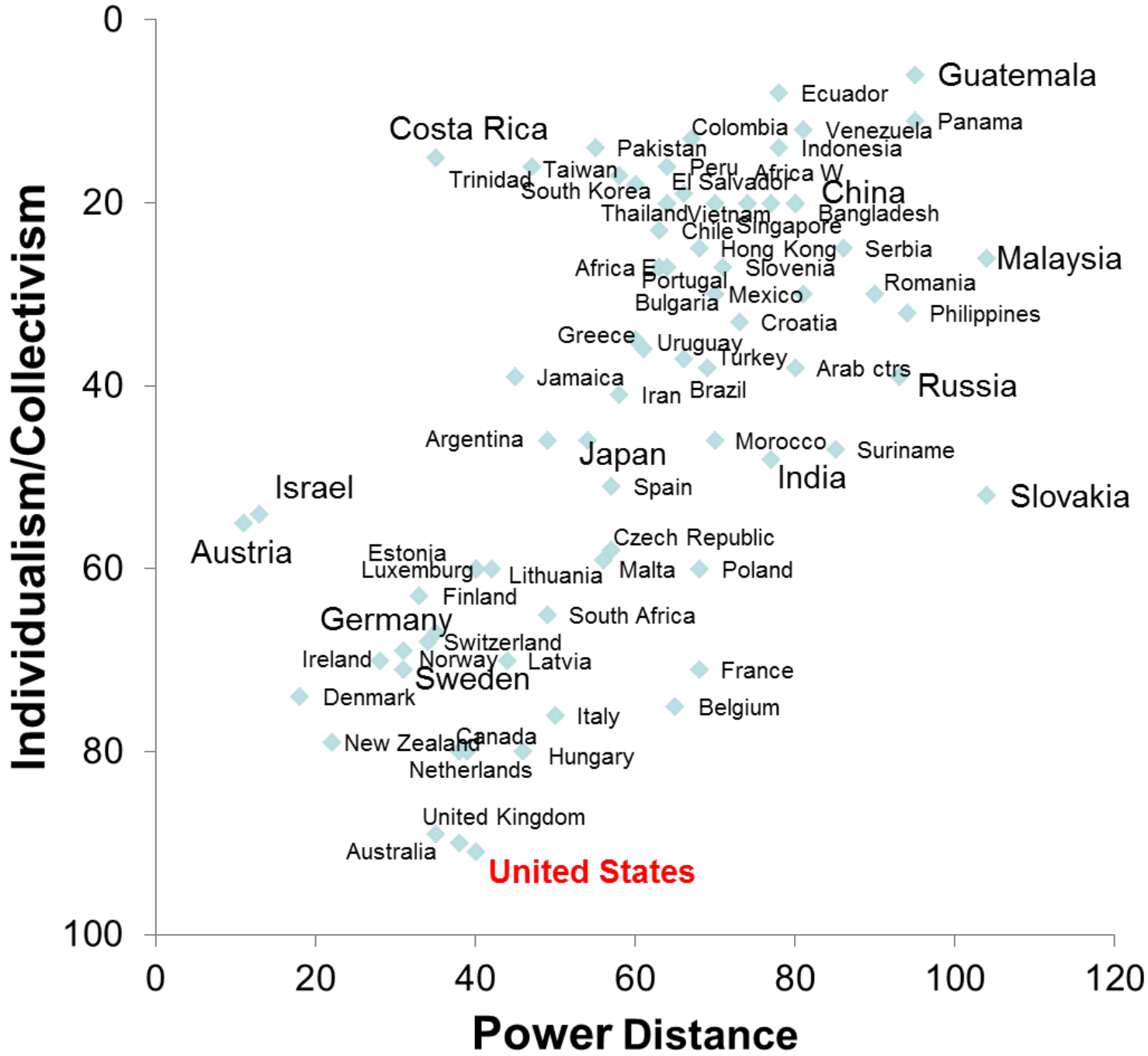
Power distance (social hierarchy)

Individualism/collectivism

Masculinity/femininity (task vs relationships)

Uncertainty avoidance

Long term orientation


Individualism/Collectivism
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Power Distance
Guatemala
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Singapore
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Mexico
Bulgaria
Philippines
Croatia
Greece
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Suriname
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Finland
Germany
South Africa
Switzerland
Ireland
Norway
Latvia
France
Sweden
Denmark
Belgium
Italy
New Zealand
Canada
Hungary
Netherlands
United Kingdom
Australia
United States

Power distance

Small

Inequality is undesirable.

Students treat teachers as equals.

Subordinates expect to be consulted.

All should have equal rights.

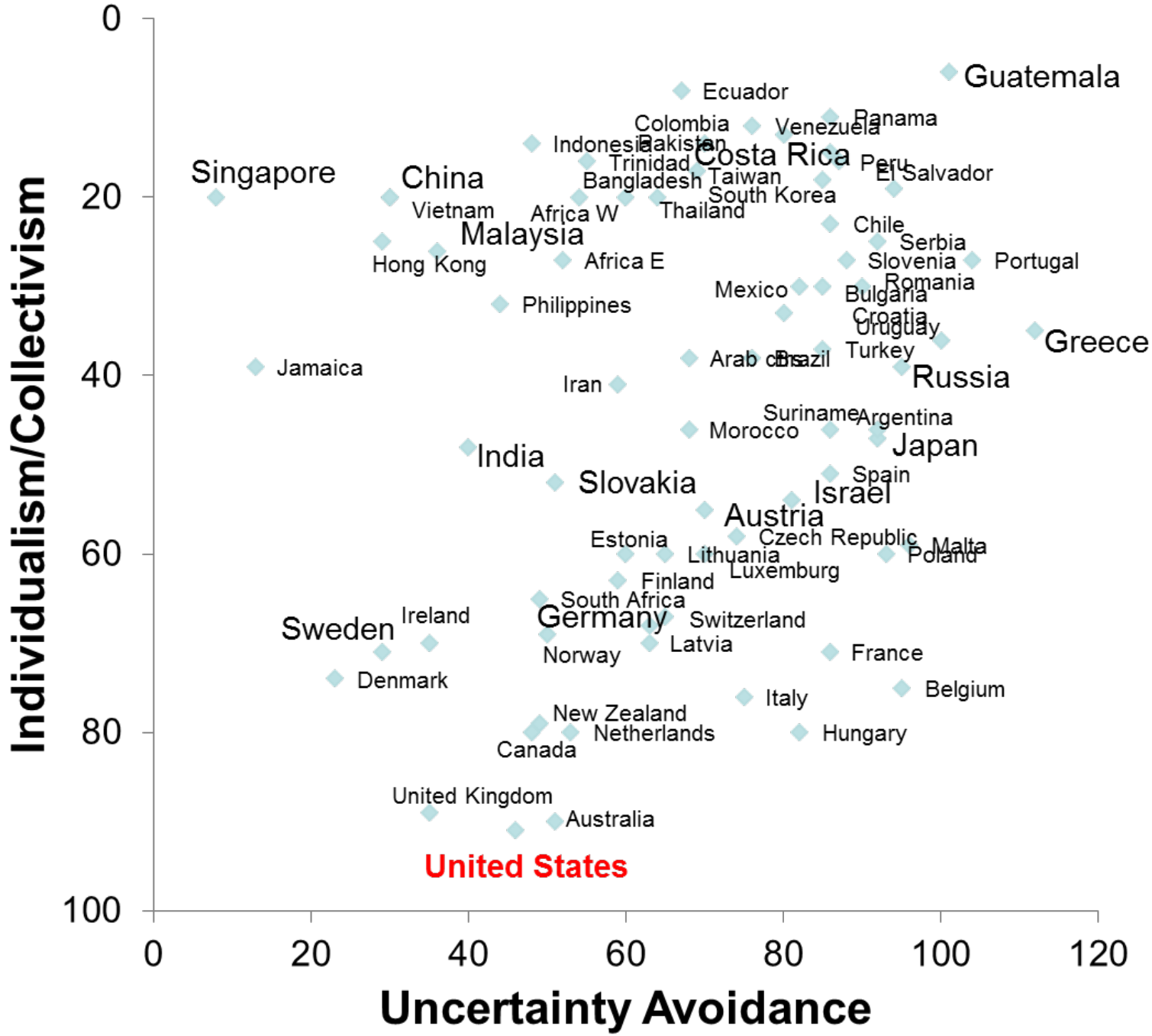
Large

Inequality is expected.

Students give teachers respect.

Subordinates expect to be told what to do.

The powerful should have privileges.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Greece
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Lithuania
Poland
Luxemburg
Finland
South Africa
Ireland
Germany
Switzerland
Sweden
Latvia
Norway
France
Denmark
Belgium
Italy
New Zealand
Netherlands
Hungary
Canada
United Kingdom
Australia
United States

Uncertainty Avoidance

Weak	Strong
Uncertainty is normal.	Uncertainty is a threat.
Teachers may say “I don’t know.”	Teachers are supposed to have all the answers.
There should be no more rules than strictly necessary.	There is an emotional need for rules, even poor ones.
Process is more important than outcomes.	Outcomes are more important than process.

Traditional academic culture

Achievement-oriented: “excellence”

Belief in meritocracy

Freedom and autonomy

Apprenticeship

High stress

Failure is stigmatized

Strong disciplinary silos

Faculty privilege and staff subordination

Does all this matter?

Who decides?

Who is in your organization?

MIT demographics, October, 2013

Category	Number	Female	Minority excl. Asian	International
Graduate students	6773	31%	7%	41%
Undergraduates	4528	45%	24%	10%
Lincoln Laboratory	3418	24%	4%	
Admin staff	2699	57%	9%	
Postdocs	1459	26%	2%	63%
Support staff	1451	78%	15%	
Faculty	1030	22%	7%	41%
Service staff	815	24%	18%	2%

NIST demographics, 2016

Category	Number	Female	Minority Excl. Asian
Associates	3017	24%	
Support staff (Admin)	926	73%	32%
Scientists	2037	24%	19%
Wage grade	168	4%	28%
Executives	73	11%	14%

Representation of women and underrepresented minorities

Group	Female	Minorities excl. Asian
Twitter Tech	10%	8%
Facebook Tech	15%	6%
Yahoo Tech	15%	8%
Google Tech	17%	6%
Lincoln Laboratory Tech	18%	4%
Apple Tech	20%	15%
MIT Faculty	22%	7%
Microsoft Professional	23%	9%
NIST Scientists	24%	19%
Intel Professional	25%	11%
MIT Postdocs	26%	2%
MIT Research Staff	32%	4%
MIT Academic Staff	36%	4%

Numbers don’t tell the whole story

Two factors in institutional success

Diversity

Having or being composed of differing elements; variety.

[Merriam-Webster]

Inclusion

A sense of belonging: feeling respected, valued for who you are; feeling a level of supportive energy and commitment from others so than you can do your best work.

[Miller and Katz 2002]

Competition for graduate students (2007 compilation by MIT students)

School	% women physics graduate students
Princeton	12.4
MIT	13.7
UIUC	13.7
U. Chicago	15.8
UCSB	16.4
Cornell	16.8
Stanford	18.2
Caltech	22.8
Columbia	35.8
Harvard	37.3

“You have to create a culture of caring in the department.”

MIT Physics, July 2007

10% of Physics PhDs were women, compared with 18% nationwide

6% of Physics faculty were women, compared with 10% in US PhD-granting departments in 2006 (18% in astronomy depts)

Enrollment of African American and Hispanic students was near zero

Morale was good among senior faculty, less good for others

MIT Physics, July 2014

16% of Physics PhDs were women, compared with 20% nationwide

8% of Physics faculty were women, growing to 12% today, compared with 12% nationwide in 2012

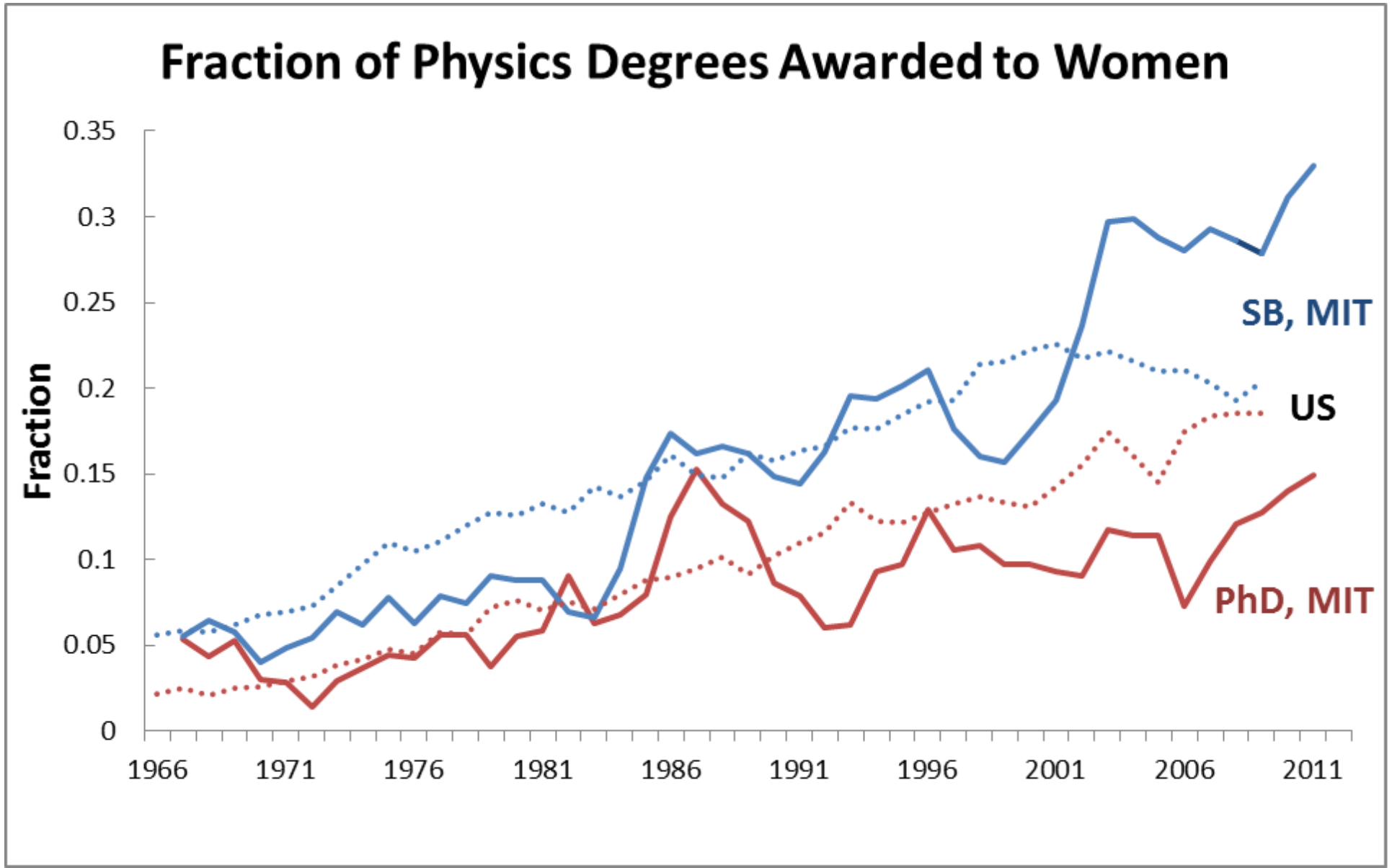
Enrollment of African American and Hispanic students, and female undergraduates, is best in class

Morale is improved for everyone

A Vision shared with the Department in 2008

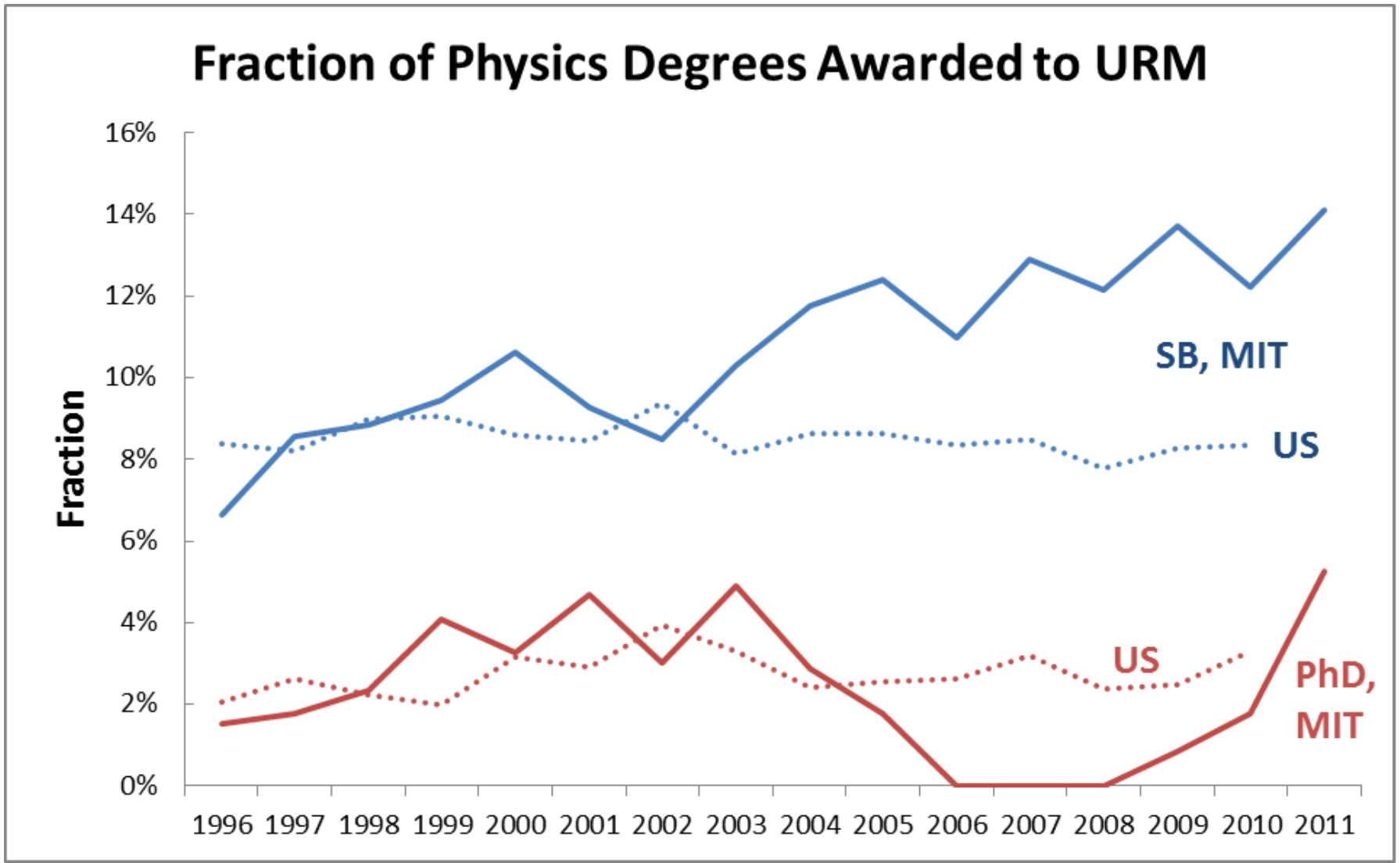
By 2012, women comprise more than 10% of the faculty and they join several underrepresented minority faculty. Women make up 40% of our undergraduate majors and 25% of our graduate student body. Underrepresented minority graduate students have doubled. There is an air of excitement about our recruitment, mentoring, and retention of diverse talent.

Results


Fraction of Physics Degrees Awarded to Women
Fraction
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
SB, MIT
US
PhD, MIT

2004 MIT Faculty Resolution

“By 2014, triple the percentage of URM graduate students”



Peer comparison of physics bachelors degrees, 2007-2011 (IPEDS)

Physics	% Women	Physics	%URM
Yale	31.8%	MIT	12.8%
MIT	30.5%	UCSB	12.2%
Cornell	25.8%	UC Berkeley	8.1%
Harvard	23.6%	Princeton	6.7%
UPenn	23.5%	Harvard	6.7%
UMichigan	22.5%	Caltech	6.4%
UC Berkeley	21.9%	Stanford	6.3%
UChicago	20.2%	UPenn	5.9%
UIUC	19.1%	UChicago	4.7%
Stanford	19.0%	Yale	4.5%
Caltech	18.5%	UMichigan	4.5%
Princeton	16.0%	UIUC	3.3%
UCSB	9.0%	Cornell	1.6%

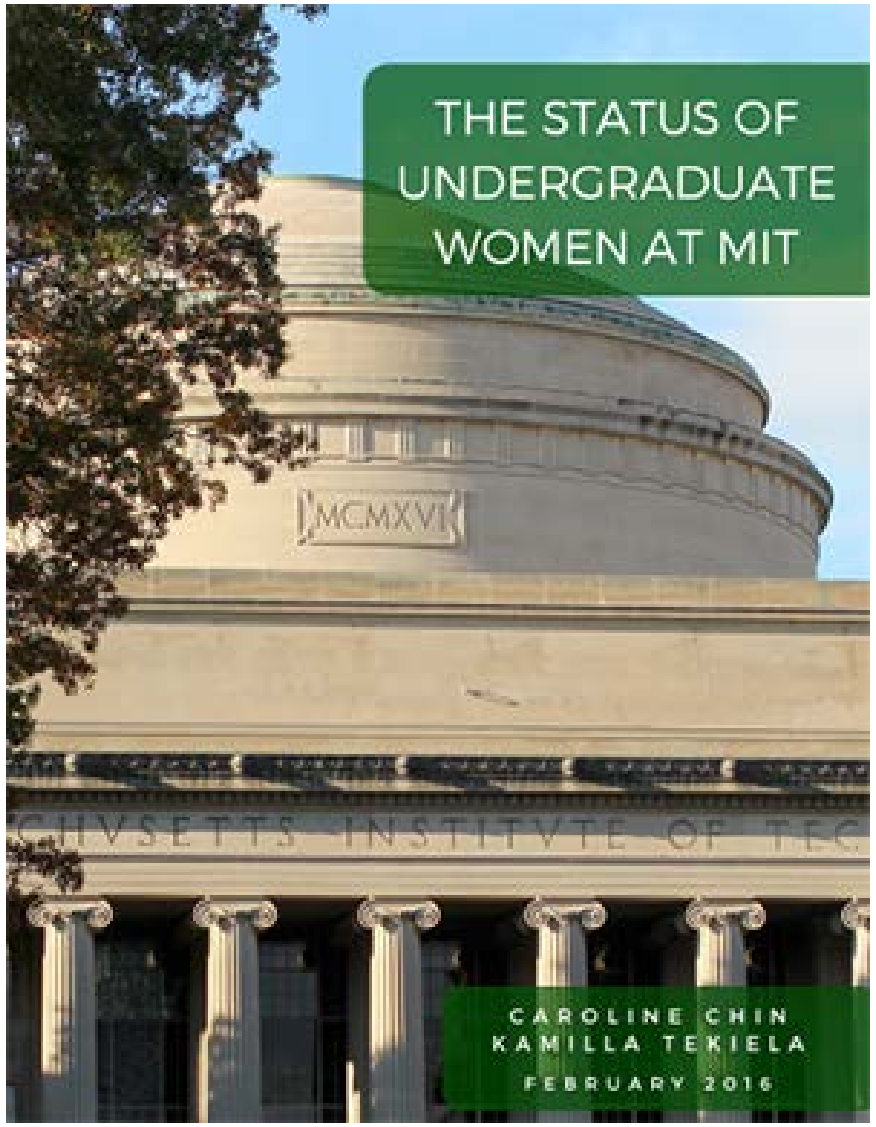
5 steps to a more inclusive department

Step 1

Actively listen to students and staff, with empathy

MIT Graduate Women in Physics group, 2008

Unequal experiences: gender in STEM



2016 report by MIT undergraduates Caroline Chin and Kamilla Tekiela

Despite high achievement, women are more likely than men to feel inferior, often because of how they are treated.

http://diversity.mit.edu/

Step 2

Create, communicate, and implement a Diversity and Inclusion Strategic Plan

Inclusive Excellence in Physics: A White Paper

October 18, 2009
Edmund Bertschinger, Department Head

Mission statement: The MIT Physics Department is committed to increasing the diversity of its faculty and student populations to improve our excellence and to better serve the society that supports our work.

Vision: By 2012, we will attract an even stronger group of students and new faculty than we did in 2008. Women comprise more than 10% of the faculty and they join several underrepresented minority faculty. We have underrepresented minority postdocs who work with faculty to recruit and mentor a diverse graduate population. We no longer lose the majority of strong female graduate school applicants to competitors with a more diverse faculty. Women make up 40% of our undergraduate majors and 25% of our graduate student body; underrepresented minority graduate students have doubled and after graduation they remain in academia with prestigious postdoc offers. There is an air of excitement about our recruitment, mentoring, and retention of diverse talent.

Step 3

Educate yourself and others: leadership skills, sociology and social psychology

THU, MAR 17 AT 11:30 AM, CAMBRIDGE, MA

Recognizing and Mitigating Unconscious Bias

By: Institute Community and Equity Office (ICEO)

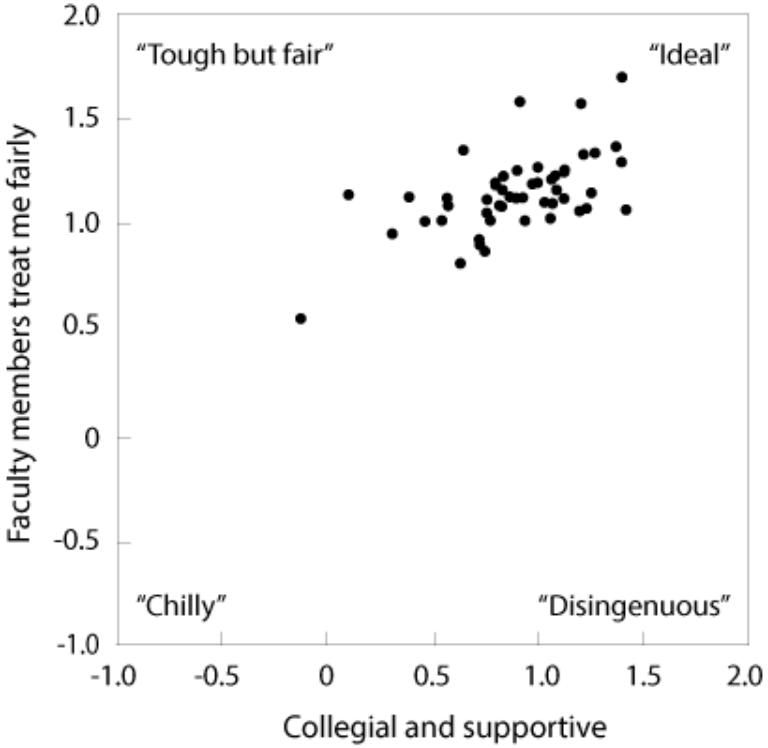
FREE

REGISTER

Step 4

Use data — climate measures as well as demographic data

Figure 5a. Students' responses to questions regarding community and equity at MIT, averaged into academic majors or programs with five or more responses.



Source: 2013 Student Quality of Life Survey, Institutional Research, Office of the Provost.

Note: Descriptive labels are shown for each of the extremes.

From
Advancing a Respectful and Caring Community: Learning by Doing at MIT,
http://iceoreport.mit.edu/

Step 5

Ally and collaborate with others across your organization

Black students' recommendations, 2015

10. **A formal statement from the leader of each MIT Department, Lab, Center on behalf of one's department or group affirming MIT's commitment to students' health, diversity, and inclusion with remarks including but not limited to:**

    "We care about the mental and physical health of our students before the quality of their work."

    "We value diversity in and inclusion of our students, faculty, and staff with regard to their backgrounds and opinions."

    "We are still committed to MIT's 2004 goal of doubling the percentage of URM faculty and tripling the percentage of URM graduate students within ten years."

    Departments only: "We pledge to create and to implement an action plan to meet and exceed MIT's 2004 goal of doubling the URM faculty and tripling the percentage of URM graduate students within ten years. This proposed action plan and its progress will be reviewed periodically together with an Institute Visiting Committee."

11. **Creation of a Diversity Representative within each Department**

    These representatives must have experience with and educational background specifically in diversity and URM recruitment and retention in higher education.

    These representatives must be tasked with leading the improvement of diversity and inclusion within the department.

People don’t care how much you know until they know how much you care.

T. Roosevelt

Top 5 tips for men

http://womeninastronomy.blogspot.com/2014/11/top-five-tips-for-men.html

- Avoid mansplaining, and speak up when you see others doing it
- Listen to women, to minorities, and to others unlike you
- Read: *Why So Slow?* & *Why So Few?* for starters
- Talk with other men committed to equity and inclusion
- Commit to making a difference

Conclusions and summary

Culture affects climate affects outcomes.

Academia and technical fields presents unique challenges for organizational culture.

Culture change is most effective at the Department level.

Male scientists have a leadership role in creating and sustaining effective organizations.

For more information

http://iceoreport.mit.edu/

"What I Learned as a Department Head," E. Bertschinger, May/June 2016 MIT FacultyNewsletter, http://web.mit.edu/fnl/volume/285/bertschinger.html

F. A. Miller and J. H. Katz, *The Inclusion Breakthrough*, 2002

V. Valian, *Why So Slow?*, 1999

American Association of University Women, *Why So Few? Women in STEM*, 2010, http://www.aauw.org/research/why-so-few/