



Diversity Fuels Innovation

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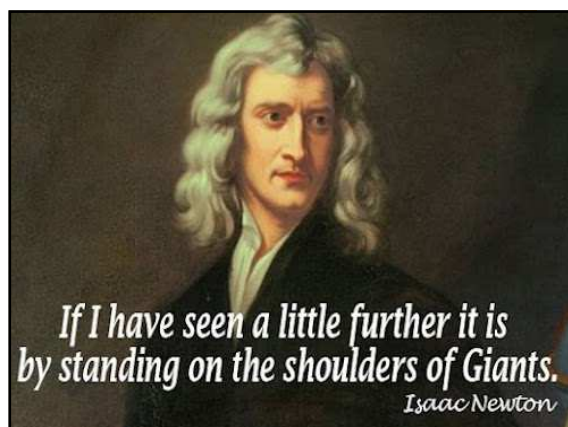




Agenda

- Personal introduction and acknowledgements
- Who are you?
- Why do we care about diversity and inclusion?
- Diversity in engineering
- Effective and authentic
- Creating an inclusive environment







Caveats

- Generalizations do not apply to every individual and every race/ethnicity
- Differences in style do not imply differences in "quality"
- Men and women are partners
 - In building the future
 - In advancing women (and all diversity) in engineering

Poll Questions


- Do you identify as:
 - A female individual contributor
 - A male individual contributor
 - A female supervisor/manager
 - A male supervisor manager



Poll Questions


- Years of experience:
 - 0-5
 - 6-10
 - 11-15
 - 16-25
 - 25+



Poll Questions


- What geographic region are you in:
 - Africa
 - Asia/Pacific
 - Europe
 - Middle East
 - North America
 - South America





Why Do We Care About Diversity & Inclusion?





If every country matched the progress toward gender parity of its fastest-improving neighbor, global GDP could increase by up to \$12 trillion in 2025.

Incremental 2025 global GDP over business-as-usual scenario, %	Incremental GDP, \$ trillion	
India	16%	0.7
Latin America	14%	1.1
China	12%	2.5
Sub-Saharan Africa	12%	0.3
North America and Oceania	11%	3.1
World	11%	11.8
Middle East and North Africa	11%	0.6
South Asia (excl. India)	11%	0.1
Western Europe	9%	2.1
Eastern Europe and Central Asia	9%	0.4
East and Southeast Asia (excl. China)	8%	0.9

*Sample = 95 countries.
Source: IHS; ILO; Oxford Economics; World Input-Output Database; national statistical agencies; McKinsey Global Growth Model; McKinsey Global Institute analysis

McKinsey & Company

<http://www.mckinsey.com/global-themes/employment-and-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth>





"New research makes it increasingly clear that companies with more diverse workforces perform better financially"

Diversity's dividend

What's the likelihood that companies in the top quartile for diversity financially outperform those in the bottom quartile?

15% more likely to outperform

Gender-diverse companies

35% more likely to outperform

Ethnically diverse companies

*Results show likelihood of financial performance above the national industry median. Analysis is based on composite data for all countries in the data set. Results vary by individual country. Source: McKinsey analysis

<http://www.mckinsey.com/business-function/organization/our-insights/why-diversity-matters>



"Progress and Innovation Depend on Leveraging Differences"

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graph LR
    A[Identity, Training, Experiential Diversity] --> B[Diverse Perspectives]
    B --> C[Better Outcomes]
  
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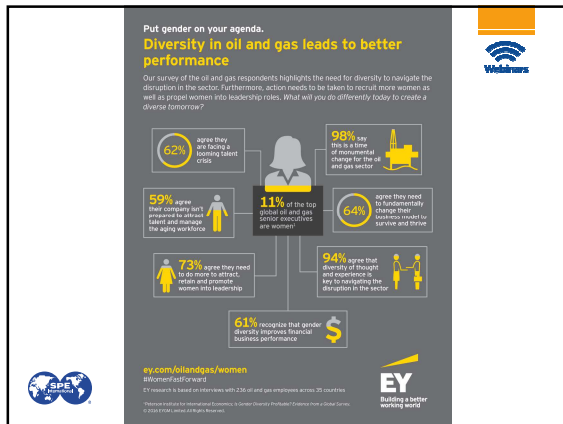
Scott Page, PhD, U. of Michigan

Cognitive Diversity

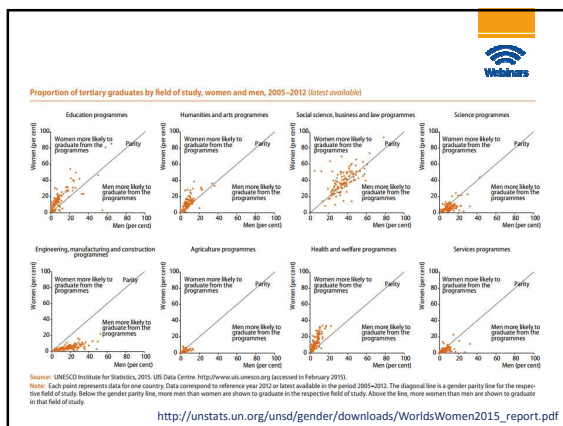
- Key explanatory variable in levels of performance for complex tasks or tasks requiring creativity and innovation
- Benefits of diversity depends upon people being able to "authentically" work together effectively.
- Identity diversity doesn't necessarily lead to cognitive diversity
 - Medical training leads doctors who are diverse in identity terms to become cognitively alike
 - Programs to "fix the women"

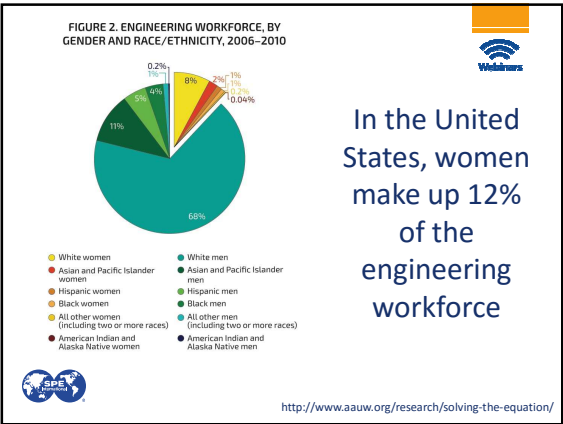
As a consequence of a lack of diversity, we pay an opportunity cost, a cost in designs not thought of, in solutions not produced.

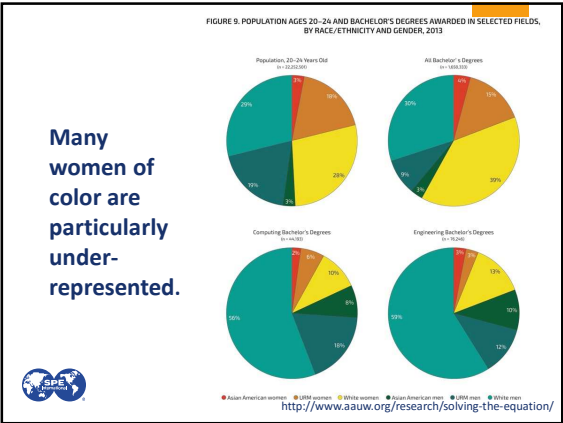
- William A. Wulf, Past President, National Academy of Engineering

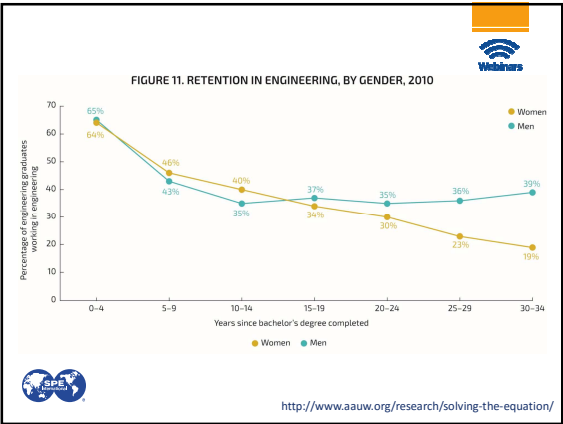














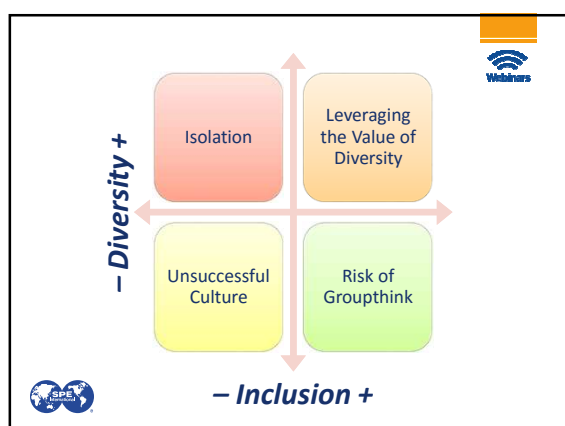
“Diversity” vs. “Inclusion”



Is the Engineering Profession...


- ... fair and includes all?
- ... using recruitment systems that get the best and the willing?
- ... a meritocracy where individuals are judged by their work?







***Implicit biases come from the culture.
I think of them as the thumbprint of the
culture on our minds.***

– Mahzarin Banaji
Harvard University, Project Implicit





Implicit Bias

- Prejudice and discrimination are commonly understood as intentional, conscious, and harm drive. While this can be true, often it's the exception.
- Psychological advances demonstrate that bias is often unintentional, automatic, and outside our awareness. It may also be contradictory to our conscious beliefs.
- Bias often exists within many well intentioned women and men of all different backgrounds.
- Men and women often exhibit the same bias trends





***"I believe that in no case was this
discrimination conscious or deliberate.
Indeed, it was usually totally unconscious
and unknowing. Nevertheless, the effects
were and are real."***

Dean Robert J. Birgeneau's introductory comments
MIT Report on the Status of Women
(Massachusetts Institute of Technology, 1999)





Mitigating Implicit Bias

- Acknowledge we are all influenced by biases
- Recognize where implicit bias may exist in your life
 - Harvard Project Implicit: implicit.harvard.edu/implicit/
- Seek exposure to people and experiences beyond your regular interactions



Project Implicit®





Vernā Myers:

How to overcome our biases? Walk boldly toward them

TEDxBeaconStreet - 17:49 - Filmed Nov 2014

22 subtitle languages

View interactive transcript






When you think backwards, what you think is normal is really cultural pressure that pushes you into bias, implicit and conscious.

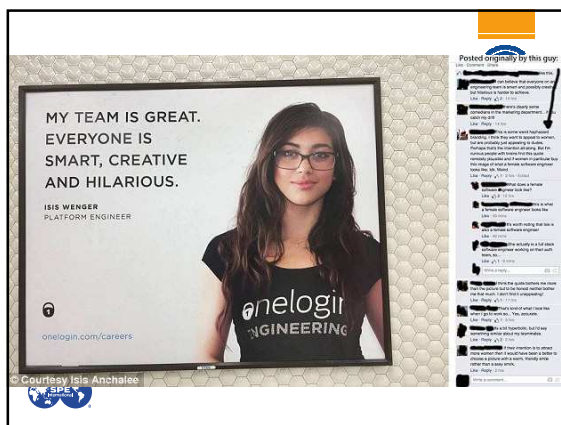
— Sociologist Charles Gallagher
Chair, Department of Sociology & Criminal Justice
LaSalle University



Gender Schema Theory



- Everyone has unconscious beliefs about girls and boys, men and women
- We over-rate men, under-rate women
- Men are taller, more capable, more independent, more rational, leaders
- Women (regardless) are shorter, less capable, followers, nurturing, expressive, caring
- = "Our schema for males is a better fit for professional success"



Illusion of Inclusion



- It appears women are better represented among engineers and more integrated into the profession of engineering than is the case.
- "A little visibility goes a long way." The presence of a few women engineers is interpreted as an indicator that women are an integral part of the engineering profession.
- The unwarranted assumption that academic degrees, professional certificates, and society membership are synonymous with inclusion.
- Women are often relegated to the "outer circle"
 - Number and % of positions of control of resources and make decisions
 - Number and % of position of membership in honorific societies and professional award recipients



Cheryl Leggon, PhD, Georgia Tech

Isolation



- "Protection" from jobs that are considered a risk for women, but considered opportunities for men
- Rewards and social activities are male-oriented
- Apologies are made to me for swearing
- Assuming I'll handle the logistics or take the minutes
- I need to shout just to be heard
- Risk averse manager

Each single experience seems trivial but taken collectively and experienced regularly they tend to alienate women

Accumulated Advantage (Matthew Effect)



- Small advantages or disadvantages cumulate over time and add up to larger advantage/disadvantage
- In a hypothetical organization of 8 levels...
 - a 1% advantage at each level for group A over group B
 - yields 65% group A membership at top level
- Small advantages are important
 - assignments, attention, encouragement, financial support,
 - evaluations, promotion, advancement, recognition, skills training,
 - peer network, mentoring, salary, status





Effective & Authentic

Understanding Our Paradigms





Imposter Syndrome

Pauline Clance & Suzanne Imes

- Research on high-achieving women
- Female clients unable to internalize their accomplishments
- External proof of intelligence and ability dismissed
- Successes credited to luck, timing, perseverance, fooling others
- Didn't fully enjoy successes and seize opportunities
- Overwork to compensate for supposed deficiencies



<http://impostorsyndrome.com/>



"I thought it was a fluke," Jodie Foster told '60 Minutes' after she won the Oscar for Best Actress for 'Accused' in 1988. "(It was) the same way when I walked on the campus at Yale. I thought everybody would find out, and they'd take the Oscar back. They'd come to my house, knocking on the door, 'Excuse me, we meant to give that to someone else. That was going to Meryl Streep.'"





Gender and the Impostor Syndrome



- Impacts women more than men
- Typically more intense in women
- Symptoms diminish a woman's impact in a male-dominated profession



Imposter Syndrome Symptoms



- Focus on weaknesses rather than strengths
- Don't ask for necessary resources to do the job – I can do it
- Self-defeating attitudes in speech
- Don't take credit for accomplishments

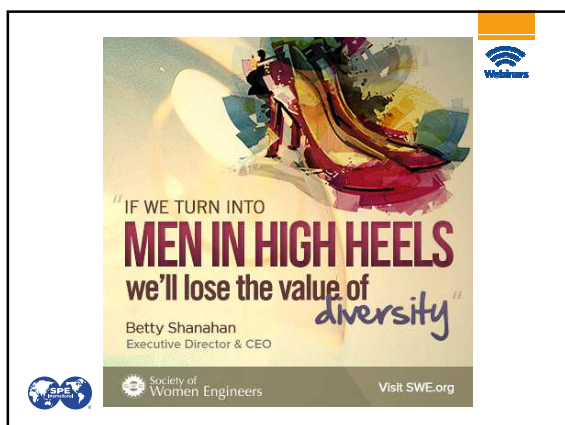


Interactions



- I can't say "no"
- I wait to be invited, others ask for opportunities
 - Promotions
 - Visible assignments
 - The "right groups"
- Communication style differences
 - My turn never happens
 - My points are ignored





Advancing Your Career

- Take charge of the next phase of your career; spread the word about what you want, seek guidance and have a plan
- Seek mentors to provide advice and guidance, and sponsors to endorse you across wider networks
- Consider focused networking to build relationships and connections beyond your existing networks

<http://www.ey.com/GL/en/Issues/Business-environment/ey-women-in-industry>

Creating an Inclusive Environment

Why Would Women Want to Leave?



- Current engineers' desire to leave engineering stems from role-related pressures, hostile climate, job dissatisfaction, inadequate training and development opportunities, and lack of advancement opportunities.
- No difference in self-confidence possessed by women engineers, regardless of whether they stayed or left.
- Women engineers who contemplate leaving their organizations also think about leaving the profession:
attrition from organization=attrition from profession



http://energy.gov/sites/prod/files/NSF_Stemming%20the%20Tide%20Why%20Women%20Leave%20Engineering.pdf

Why Do Women Stay in Engineering?



- They are satisfied with their jobs and careers
- They have supportive bosses and co-workers
- Their organizations "get it"
 - They recognize women's contributions and care about their well-being
 - They invest in their training & professional development
 - They provide clear, transparent paths for advancement
 - They have supportive work-life policies *and* a work culture that supports work-life balance for all



http://energy.gov/sites/prod/files/NSF_Stemming%20the%20Tide%20Why%20Women%20Leave%20Engineering.pdf

STEMMING the Tide Recommendations



- Create clear, visible, and transparent paths toward advancement
- Invest in providing substantial training and professional development
 - Improved skills
 - Improved job satisfaction
- Communicate clear work goals and relevance of individual tasks to the big picture
- Create an organizational culture that values employees' contributions



http://energy.gov/sites/prod/files/NSF_Stemming%20the%20Tide%20Why%20Women%20Leave%20Engineering.pdf

STEMMING the Tide Recommendations

- Root out uncivil and undermining behaviors in the workplace; create a culture that respects all
- Create a supportive network at work: supportive colleagues, supervisors, and mentors make a difference
- Create opportunities for formal and informal mentoring
- Offer work-life initiatives that are embedded in family supportive cultures
- Create climates that have zero tolerance for incivility

http://energy.gov/sites/prod/files/NSF_Stemming%20the%20Tide%20Why%20Women%20Leave%20Engineering.pdf

What Leaders Can Do

- Become a mentor and share your experience and knowledge with female colleagues
- Become a sponsor to help female colleagues navigate their career paths; endorse them within your networks
- Consider whether your team has sufficient diversity of thought and experience to avoid "groupthink" and develop innovative solutions
- Organize networking and social opportunities that involve activities and environments that make everyone feel welcome and comfortable
- Create a culture of diversity and inclusiveness that encourages both men and women to excel
- Consider critically where unconscious bias impacts your decisions about who to work with, who to hire and how to network and collaborate

<http://www.ey.com/GL/en/Issues/Business-environment/ey-women-in-industry>

We but mirror the world. All the tendencies present in the outer world are to be found in the world of our body. If we could change ourselves, the tendencies in the world would also change.

– Mahatma Gandhi

