



Safe Zone LGBTQ Ally Training

Creating a positive and inclusive environment for LGBTQ individuals in STEM

Level 2 Deep Dive: Engineering Culture

December 6, 2016



ASEE ACTION ON DIVERSITY

**PROMOTING LGBTQ
EQUALITY IN STEM**



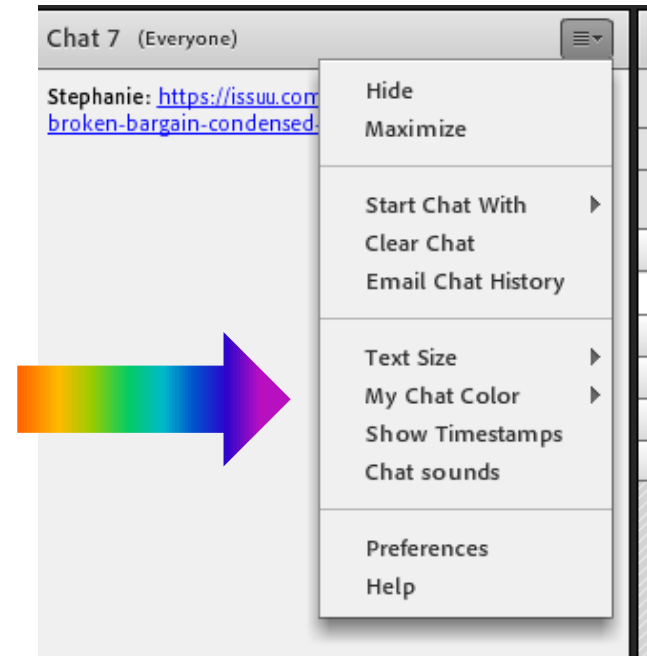
General Housekeeping Items

- Use the Adobe Connect reactions to let us know how we're doing.
- Please complete the post-workshop survey. Your feedback is important to us!
- Slides and recording will be sent via email.



Engaging with the Group

- If you have any questions, please **‘raise your hand’** and/or enter them in the chat box. We will have a Q&A portion at the end of the webinar.
- During today’s webinar, Erin will be asking questions to the audience. You can answer these in the chat box.
- Stand out from the crowd! You can change your text **size** and **color** in the chat window.



About the Project



ASEE ACTION ON DIVERSITY

**PROMOTING LGBTQ
EQUALITY IN STEM**



- Project Overview
- Facilitator Trainings
- Virtual Community of Practice
- Safe Zone Workshops

diversity.asee.org/lgbtq

Today's Facilitator



Erin Cech
University of Michigan



Professional Culture and Inequality in Engineering

Dr. Erin Cech

Assistant Professor, Department of Sociology, University of Michigan

Overview

- Question: How do taken-for-granted beliefs in engineering reproduce inequality?
 - Focus: Professional Culture

A Starting Place

- No longer primarily a “bad apples” problem
- Subtle beliefs and practices matter
- Won't necessarily improve with time
- Small disadvantages accumulate over time

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Culture Matters

- Professional culture of engineering can help reproduce inequalities
- 3 specific cultural ideologies
- How to undermine these ideologies

What are Professional Cultures?

- Professional cultures = rich and historically-rooted **meaning systems** built into and around professions' tasks and knowledge.
 - Give professional work meaning
 - Unite profession members
- Biases can be built into these cultures.



Three Specific Ideologies

Professional Cultures of STEM

Schemas of
Scientific
Excellence

Depoliticization

Meritocratic
Ideology

Schemas of Scientific Excellence

- Characteristics & skills assumed to be markers of professional competence
 - **Cultural yardsticks** for measuring “excellence”
 - Influence hiring, promotion, and funding decisions
- Not necessarily the characteristics *actually* required for success
- Can be *gendered, racialized, and heteronormative*

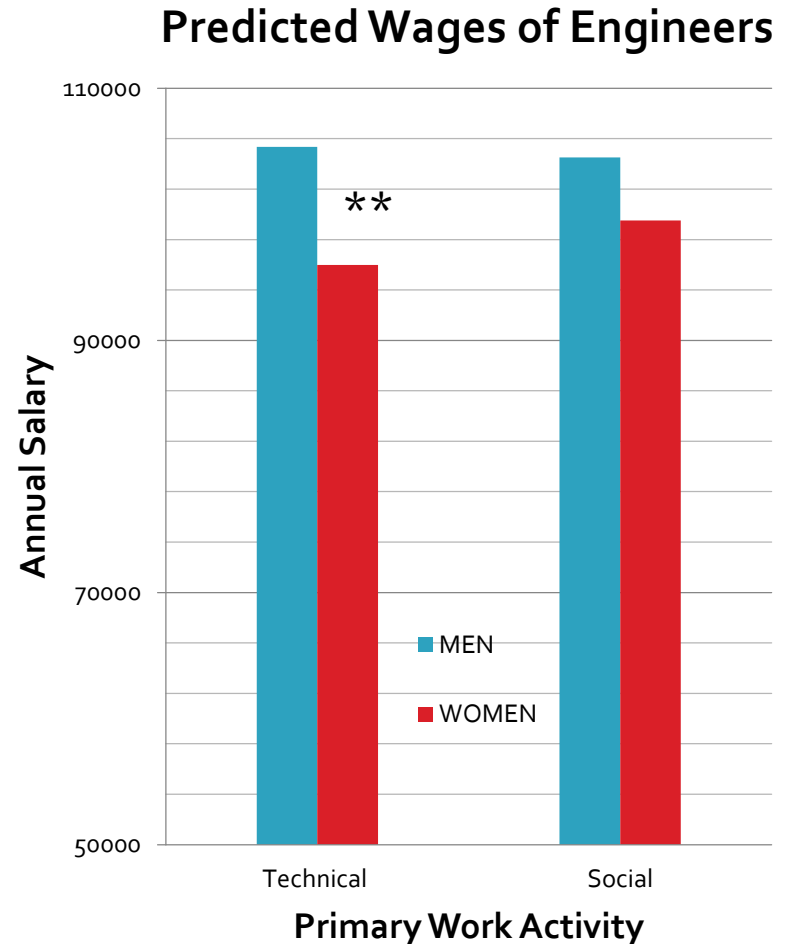


Technical/Social Dualism

- The ideological separation between “technically-focused” and “socially-focused” activities (Faulkner 2000)
 - “Technical” is more highly-valued than the “social”

Technical/Social Dualism

- Social stereotypes mapped on to this dualism:
 - Women versus men
 - African-American and Hispanic vs. white (and Asian-American)



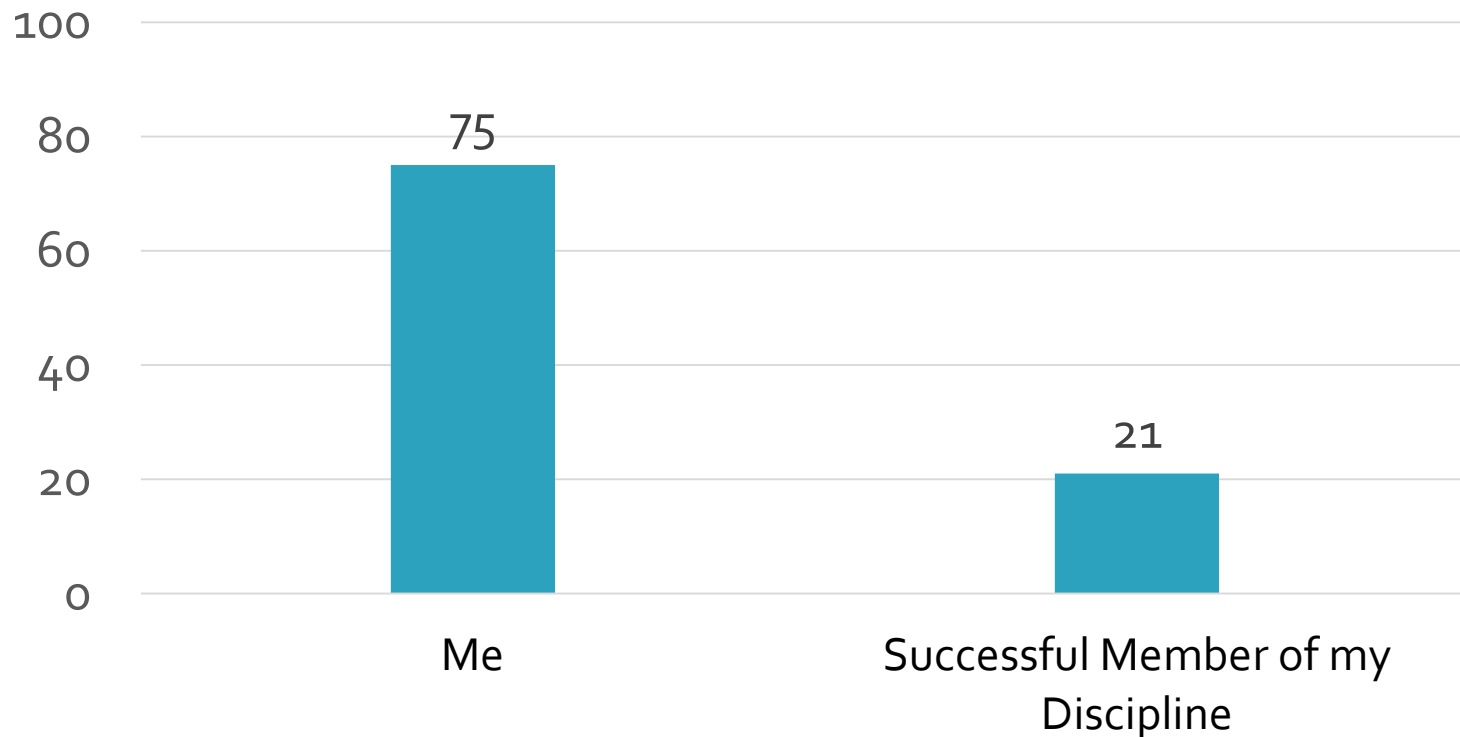
Source: (Cech 2013, *Social Forces*)



Sign seen at the bottom of the stairs in the Electrical and Computer Engineering building at UCSD, just adjacent to the Department Chair's office.

Schemas of Scientific Excellence

Percent of STEM Faculty who Agree that “Promoting Diversity” is Important to:



(Blair-Loy, Ferrante, Cech & Rogers, in progress)

Technical/Social Dualism

- Gay vs. heterosexual / lesbian vs. heterosexual

I mean, stereotypically, gay men are hairstylists and fashion designers...like, the people who act in the most stereotypically gay fashion have more non-technical jobs...like, there's no way you could be acting like that in a technical position...

(Brian, gay graduate student at "Gold University"; quote taken from Cech & Waidzunas 2011)

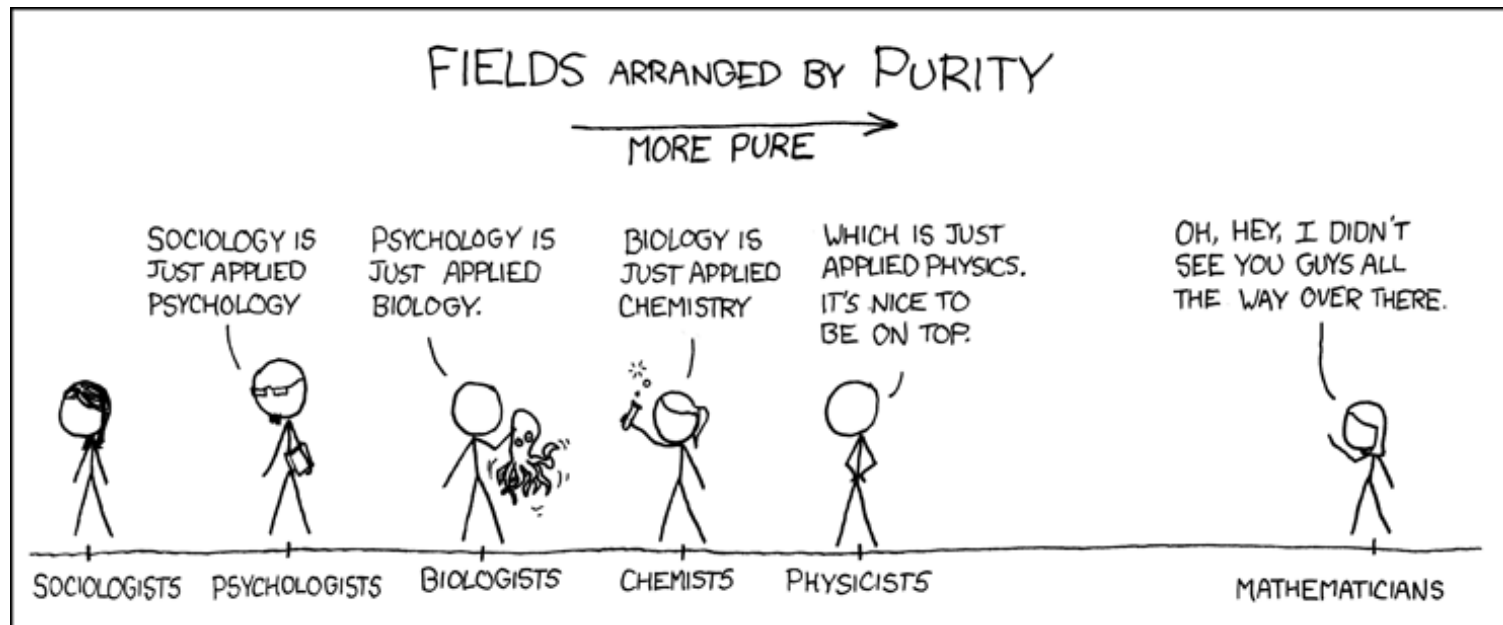
Schemas of Scientific Excellence

- Competence schemas undermines others' perceptions of women's and minority's *competence* as professionals.

Schemas of Scientific Excellence

Reflection Question: How is excellence judged in engineering? How might social stereotypes be mapped on to beliefs about competence?

Depoliticization



comic: <http://xkcd.com/435/>

When Scientists Write this...

High-purity...

Very High purity...

Extremely high purity...

They really mean this...

Composition unknown except for the exaggerated claims of the supplier...

When Scientists Write this...

...accidentally strained during mounting

They really mean this...

...dropped on the floor

When Scientists Write this...

...handled with extreme care throughout
the experiments

They really mean this...

...not dropped on the floor

When Scientists Write this...

A statistically oriented projection of the significance of these findings...

They really mean this...

A wild guess...

Depoliticization

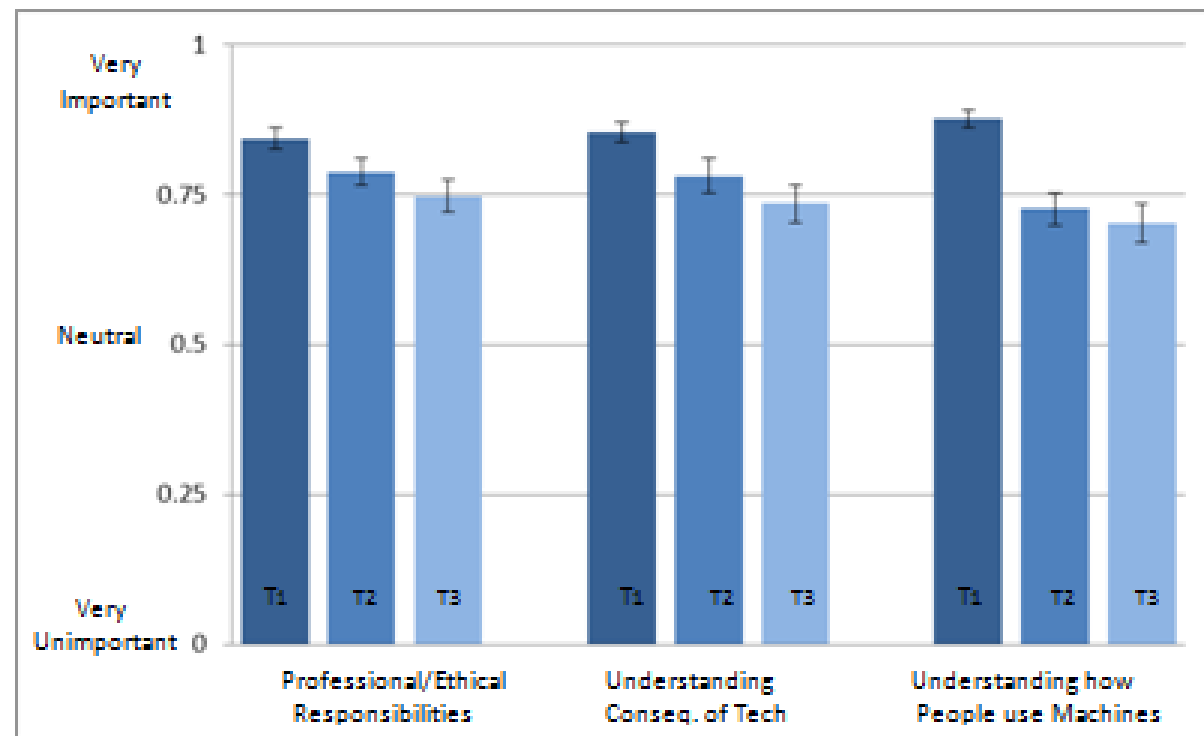
- Depoliticization: the belief that STEM is a “pure” space that *can* and *should* be stripped of political and cultural concerns.
 - ...But what to **study**, how to **define problems**, what to **fund** are *cultural & political* decisions

Depoliticization

- Depoliticization can *shut down* conversations about diversity and equality within engineering

Figure 3: Public Welfare Measures in Time 1, Time 2, and Post-Graduation Work (Time 3), among Engineering Students who Enter Engineering Jobs

- Affects Students:



(Cech 2014)

Depoliticization

- Depoliticization reinforces existing power structures within S&E:

In my department, [the issue of sexual identity] is sort of invisible. I think most of them are straight dudes who don't really think about the existence of people who are not like them. I think they have so much privilege that they can't understand what it's like for people who don't have that privilege.

(--taken from Cech and Waidzuans 2011, p. 11).

Depoliticization

Reflection Question: How might depoliticization silence conversations about diversity and inequality in your department or workplace?

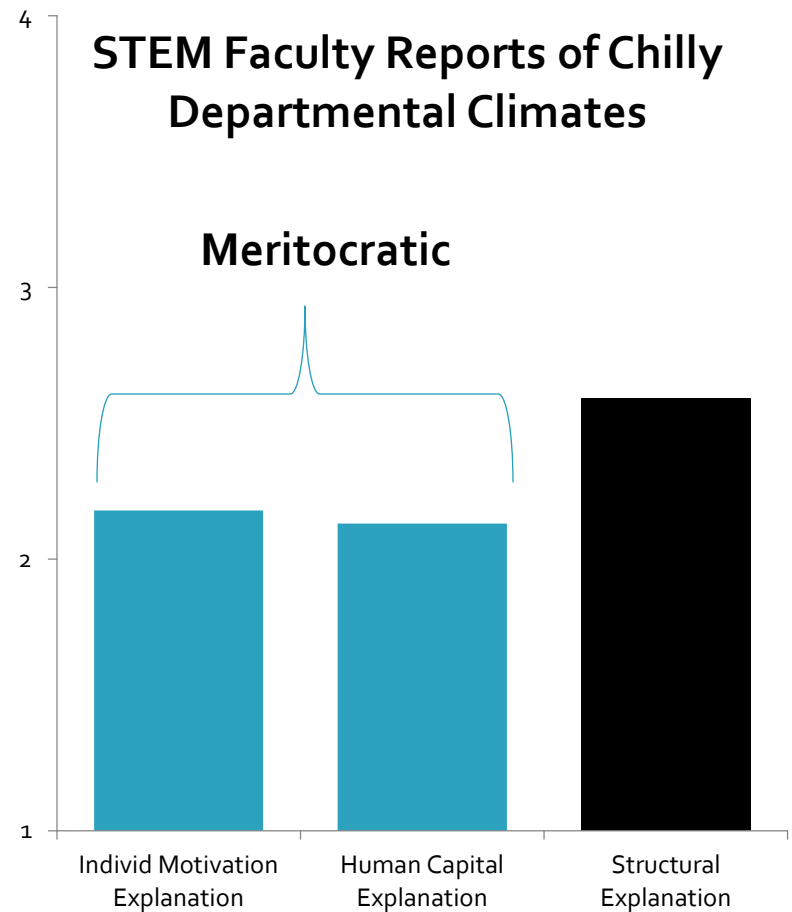
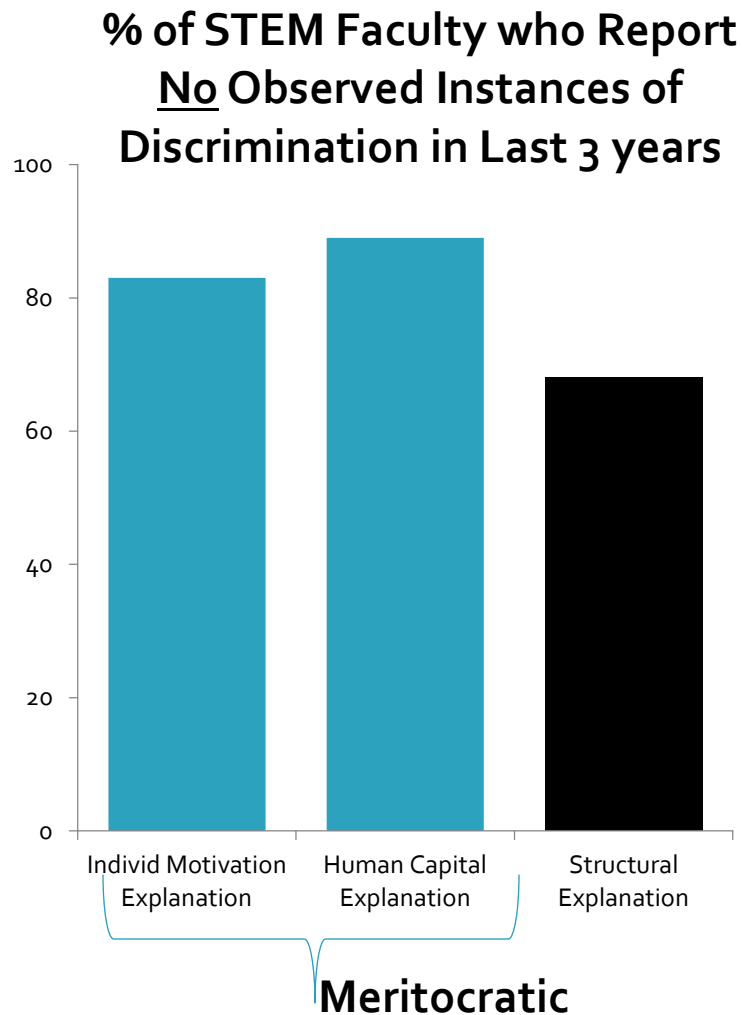
Meritocratic Ideology

- The belief that success is the result of individual talent, training, and motivation
- Frames inequalities in engineering as the fault of women and minorities, not the social system.

Cech & Blair-Loy 2010, Cech, Blair-Loy and Rogers 2017, Klugel and Smith 1989, McCall 2012



Meritocratic Ideology



(Cech, Blair-Loy & Rogers, in progress)

Meritocratic Ideology

Reflection Question: Who still needs to be convinced that unequal processes actually exist in engineering?

In sum...

- These 3 ideologies are part of the professional cultures of S&E
 - Difficult to *see*, hard to *change*
- Professional cultures can reproduce inequalities within S&E
- Do we contribute to these cultural processes?

What can be done?

- Not about “fixing” women or minorities to be more like white, heterosexual, cisgender men
- **Schemas of Scientific Excellence:** Be wary of discussions about “fit”
- **Depoliticization:** Legitimize topics of diversity and equality
- **Meritocratic Ideology:** First step—explain that there *is* a problem

Professional Competence Schemas: How is competence judged in engineering? How might social stereotypes be mapped on to beliefs about competence?

Depoliticization: How might depoliticization silence conversations about diversity and inequality in your department?

Meritocratic Ideology: Who still needs to be convinced that unequal processes actually exist?

Thank you

Questions?



Erin



Stephanie

Thank you!

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