Increasing the Representation of Women Institutional Transformation ADVANCE/AGEP

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ADVANCE PURDUE
CENTER FOR FACULTY SUCCESS

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Alice Eagley "Women and the Labyrinth of Leadership"

If one has misdiagnosed a problem, then one is unlikely to prescribe an effective cure. This is the situation regarding the scarcity of *women in STEM careers* and top leadership. Because people with the best of intentions have misread the symptoms and as a result the solutions… are not making enough of a difference.

Data to Education to Programing to Policy to Transformation

- Why have we not achieved equity?
- ADVANCE
- AGEP
- Native American Career Paths Study

Why Have We Not Yet Achieved Equity?

"It is not a lack of talent, but unintentional biases and outmoded institutional structures that are hindering the access and advancement of women."

National Academy of Sciences, National Academy of Engineering, and Institute of Medicine of the National Academies, *Beyond Bias and Barriers* 2007

Institutional Structures

- How organizations are structured
- Practices and Policies – that inadvertently disadvantage and exclude individuals not in the majority group
- Leaders often hire and promote those will similar attitudes, behaviors and traits
- "prototype for success"
- Those not in the majority are often excluded from important conversations, etc

Unintentional (Implicit) Bias

- Attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner

- Can be favorable and unfavorable assessments

- Activated involuntarily and without an individual's awareness or intentional control

IMPLICIT BIAS CHARACTERISTICS

Ordinary

Learned from culture

Pervasive

Often conflict with consciously endorsed beliefs

Consequential

Constrain the opportunities of individuals or groups that are targets of implicit bias

Common Social Assumptions or Expectations

When shown photographs of people of the same height, evaluators overestimated the heights of male subjects and underestimated the heights of female subjects, even though a reference point, such as a doorway, was provided (Biernat et al., 1991).

So what?

- This and many other studies show that we often apply generalizations that may or may not be valid to the evaluation of *individuals*.

- If generalizations can lead us to inaccurately evaluate characteristics as objective and easily measured as height, what happens when the qualities we are evaluating are not as objective or as easily measured?

- What happens when generalizations are not accurate?

Biases that Affect Evaluation of Applicants and Performances

When symphony orchestras adopted "blind" auditions by using a screen to conceal candidates' identities, the hiring of women musicians increased. Blind auditions fostered impartiality by preventing assumptions that women musicians have "smaller techniques" and produce "poorer sound" from influencing the evaluations (Goldin & Rouse, 2000).

Biases that Affect Evaluation of Academics

Science faculty rated the male applicant as more competent and hirable than the identical female applicant.

They also selected a higher starting salary and offered more career mentoring to the male applicant (Moss-Racusin, Dovidio, Brescoli, Graham, & Handelsman, 2012).

Biases that Affect Evaluation of Academics

In a national study, 238 academic psychologists (120 female) evaluated a curriculum vitae randomly assigned to a male or female name. Vitae with male names received better evaluations for teaching, research, and service experience and were more likely to be hired (Steinpreis et al, 1999).

NSF ADVANCE: Institutional Transformation

- To stem the leaks and eradicate the barriers, in 2001 NSF initiated the ADVANCE Institutional Transformation (IT) program for increasing the participation and contributions of women in the S&E workforce (www.nsf.gov/advance)

- ADVANCE IT award goal: to result in the "full participation of women in all levels of faculty and academic administration through the transformation of institutional practices, policies, climate and culture" (National Science Foundation, 2005)

ADVANCE-Purdue Team

- France Cordova, Tim Sands, Laurel Weldon

- Alice Pawley, Klod Kokini, Mary Sadowski, Linda Mason, Barb Clark, Suzanne Zurn-Birkhimer, De Bush, Valeria Chapman, Chris Sahley

- Ragu Balakrishnan, Greg Buzzard, Andy Hirsch, Laurie Jaeger, Fatma Mili, Clint Chapple

ADVANCE-Purdue

1. Increase the number of women of color in STEM faculty positions

2. Improve the success of all women STEM faculty

3. Engage all faculty in transforming Purdue

Data to Education to Programing to Policy to Transformation

- Faculty Hiring Workshops
- Career Paths of Native American STEM Ph.D. women
- Course evaluations
- Stopping the tenure clock
  - "opt out"
- Accountability
  - Hiring Data Analyses
  - Review of short list

Faculty Hiring Workshop

- Goal: education of faculty search committee members on best practices to conduct a search
  - So that all applicants receive a thorough and fair evaluation of their credentials.
  - Combines discussions of personal and structural biases that impact evaluations followed by skills and practices to eliminate the biases and level the playing field.

- Outcomes:
  - Evaluations comment on the fact that the experience changed ways of thinking and attitudes as well as providing important skills and practices/procedures. The face to face interactive structure of the workshop is also thought to make the workshops effective.

STEM Women of Color Tenured/Tenure-Track Faculty
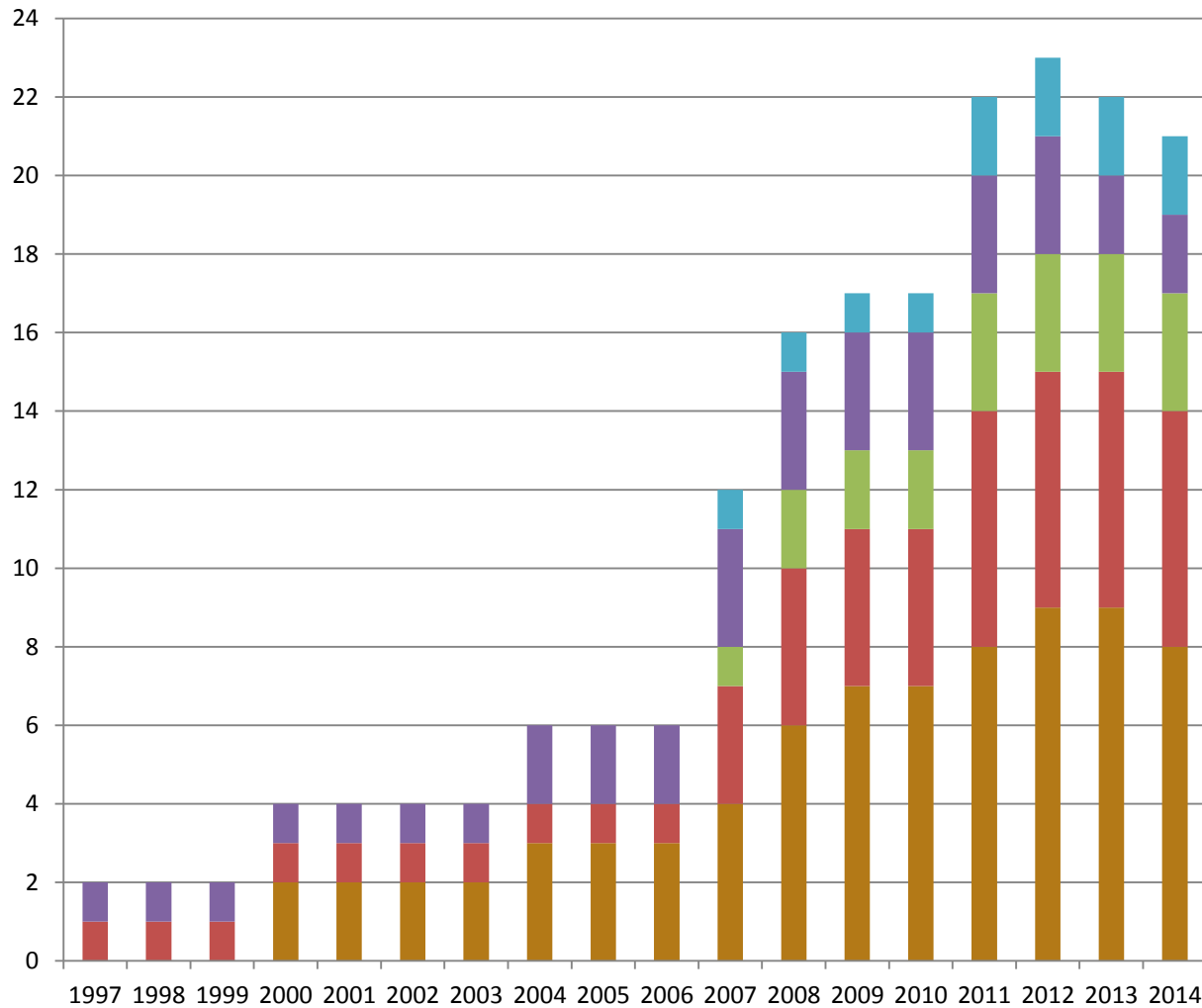
Big Ten Academic Alliance AGEP-T Professorial Advancement Initiative (PAI)

Goal: Double the rate at which member institutions hire underrepresented minority (URM) faculty in the science, technology, engineering, and mathematics (STEM) fields at the participating institutions.

Strategy : two-pronged approach:
- 1) creating a pool of URM postdoctoral fellows who are well prepared and trained to enter the academy as tenure-track faculty members
- 2) educating mentors, faculty, and faculty search committees about unconscious bias and best practices to level the playing field.

AGEP – PAI Team

- Mark Smith, Linda Mason, Chris Sahley
- Charity Farber, Big Ten Academic Alliance (CIC)

AGEP – PAI participants

Illinois, Indiana, Iowa, Michigan, Michigan State, Minnesota, Nebraska, Northwestern, Ohio State, Pennsylvania State, Purdue, and Wisconsin.

Goal 1 – Key Findings

Create a pool of URM postdoctoral fellows who are well prepared and trained to enter the academy as tenure-track faculty members.

URM postdocs participating in PAI:
AY14-15: 61, AY15-16: 86, AY16-17: 86

Faculty mentors participating in PAI:
AY14-15: 51, AY15-16: 96, AY16-17: 129

Goal 2 – Key Findings

Increase the number of URM STEM faculty members (U.S. citizens) hired within the Big Ten Academic Alliance CIC:

AY 2009-2012: 24(average-baseline)

AY13-14: 52

AY14-15: 65

AY15-16: 56

- Two pronged approach important for success
  - Working with the postdocs
  - Working with the institutions

Hiring Workshop Analysis – Key Findings

Increasing the probability of hiring a woman

- Women search committee chairs – yes

- Multiple simultaneous searches – yes

- The greater the number of faculty in a given department who have participated in the workshop – yes

- If only the search chair participated in the workshop - NO

Accountability: Data to Policies

- Department heads are required to choose search committee members from those who have participated in the workshop.

- Diversity and Inclusion language now required in job postings.

- Contributions to diversity and inclusion encouraged as evaluation criteria.

Native American Women in the Academy:
career pathways in stem

Felica Ahasteen-Bryant — Director, NAECC, Purdue University, IN

Christie Sahley, Ph.D. — Professor, Purdue University, IN

Suzanne Zurn-Birkhimer, Ph.D. — Associate Professor, Saint Joseph's College, IN

Goal

To gather insights about factors that influenced career decisions of Native American, Native Hawaiian, and Alaska Native (NA/NH/AN) women who have earned doctorates in STEM fields.

- *it's been a challenge wanting to ensure that you're an advocate for the indigenous voice* [I006]

SIGNIFICANCE

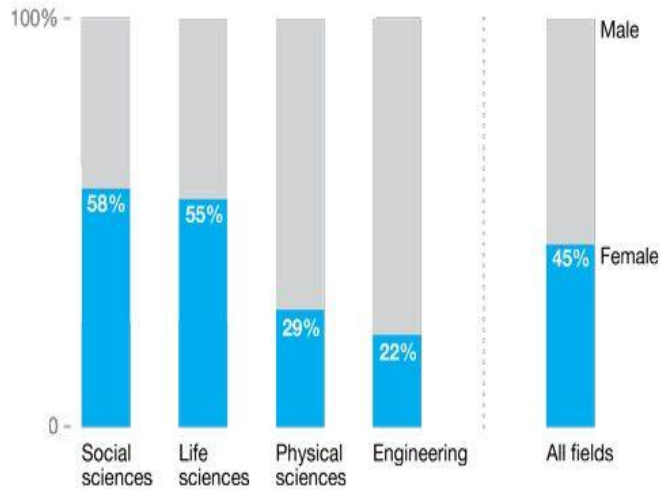CAREER PATHWAYS OF NATIVE AMERICAN WOMEN IN STEM

To utilize the information we find to increase the number of NA/NH/AN women in STEM careers – but specifically as faculty members.

- Bring diverse ideas and viewpoints

- Role models for students
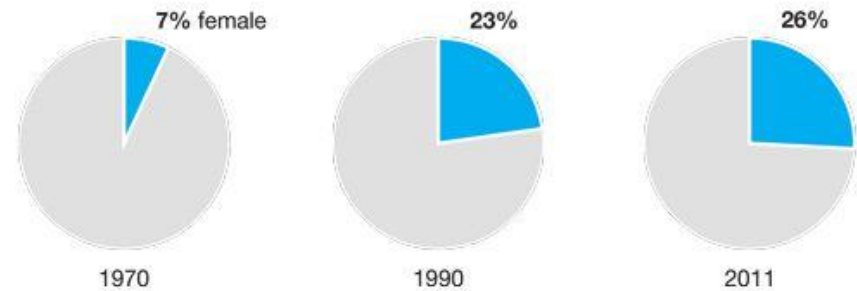
- Tribal leaders and decision makers

Selected doctorates awarded, by gender, 2012
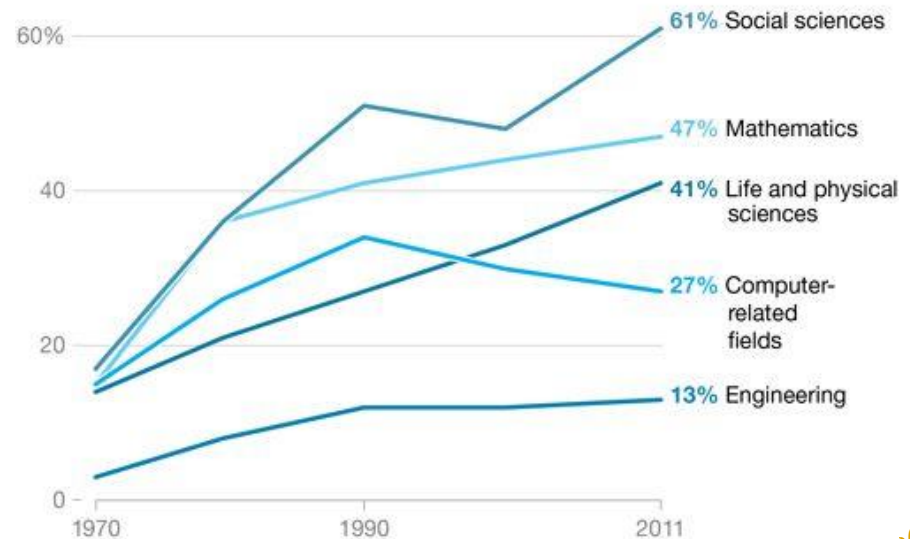Share of academic field

Women in STEM occupations
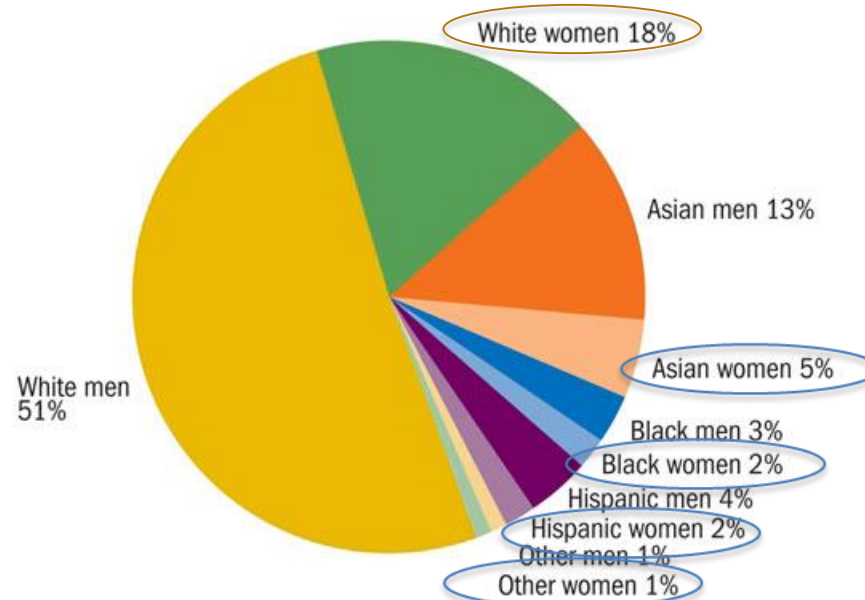Share of total STEM workers

Women working in STEM occupations
Share of total STEM workers

From IEEE, 2012

significance

Scientists and engineers working in science and engineering occupations: 2010

White women 18%
Asian men 13%
White men 51%
Asian women 5%
Black men 3%
Black women 2%
Hispanic men 4%
Hispanic women 2%
Other men 1%
Other women 1%

NOTE: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race.

Women, Minorities, and Persons with Disabilities in Science and Engineering: 2013
www.nsf.gov/statistics/wmpd/

CAREER PATHWAYS OF NATIVE AMERICAN WOMEN IN STEM

The Double Bind: The Price of Being a Minority Woman in Science

Malcom et al (1976)

Malcom & Malcom (2011)

➢ *Now it is less about rights versus wrongs and more about support versus neglect*

➢ *Less about the behavior of individuals and a culture that was accepting of bias as the 'natural order of things' and more about the responsibilities and action (or inaction) of institutions*

Relationships and Resources

CAREER PATHWAYS OF NATIVE AMERICAN WOMEN IN STEM

Elliot et al (2010) interviewed 5 female Native American medical school faculty to document how they describe success.

➤ The participants defined their place in the world through their primary *culture*: values, relationships and expectations.

➤ *Mentorship* was also important for professional development.

Relationships and Cultural Connections

CAREER PATHWAYS OF NATIVE AMERICAN WOMEN IN STEM

Identity: View of one-self and the "source" of that view (internal or external).

The majority of our participants defined themselves by the work that they do.

main connection between my personal identity and my work life is that I have a passion for building community and for serving... [I005]

R I

C R

Factors that influenced career decisions:

- Relationships   *DB NA*
- Identity
- Cultural Connections   *NA*
- Resources   *DB*

FUTURE WORK

CAREER PATHWAYS OF NATIVE AMERICAN WOMEN IN STEM

To examine the nature of the relationship between the 4 factors.

Why we do this work….

helpful to have programs centered on developing our identities as Native women, as scholars, as teachers, and as community members. I often feel somewhat lost. [I005]

Putting it all together

- Data
  - Allow for better diagnoses
  - Lead to effective solutions that make a difference
- Problem is multidimensional and complex
  - Calls for comprehensive and nuanced initiatives
  - Must include changing institutions

Thank you, Questions?

- Breaking the Bias Habit – WISELI
- LiY! University of Washington ADVANCE
- Facebook - Managing Unconscious Bias

https://managingbias.fb.com/