

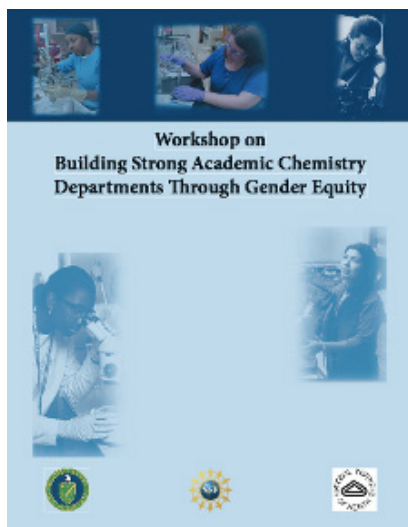
Recapitulation of Past Workshops

Shannon Watt

National Diversity Equity Workshop (NDEW) 2013
April 15, 2013

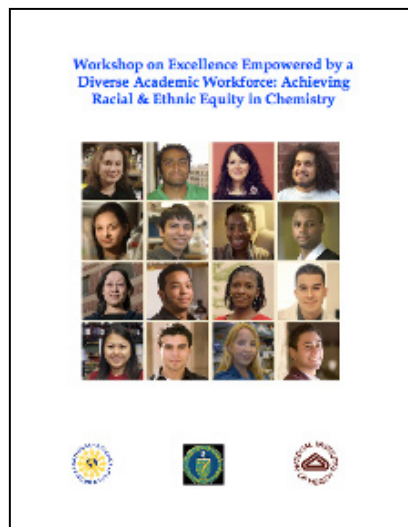
OXIDE: Open Chemistry Collaborative in Diversity Equity
oxide@chemistry.gatech.edu
www.oxide.gatech.edu

Preceding Diversity Workshops for Chairs



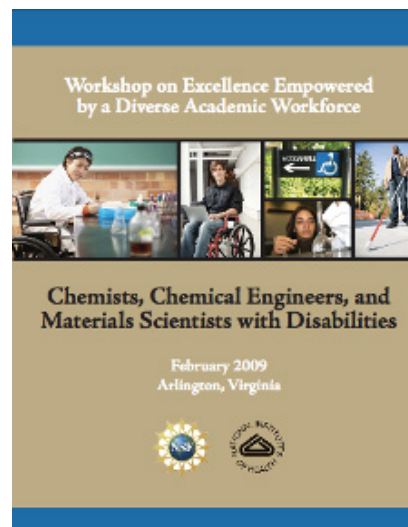
2006

Co-Chairs:
Cynthia Friend
Kendall Houk



2007

Co-Chairs:
Nicholas Turro
Isiah Warner



2009

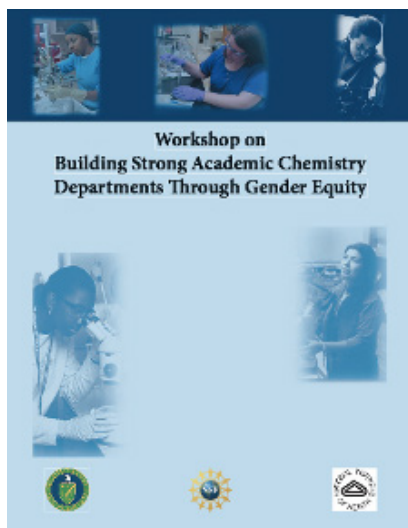
Co-Chairs:
David Benson
Tom Mallouk
Kristin Bowman-James

**First OXIDE
Biennial
National
Diversity
Equity
Workshop
(NDEW)**

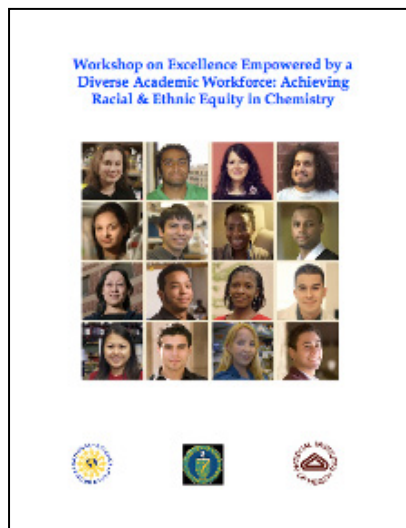
2011

OXIDE

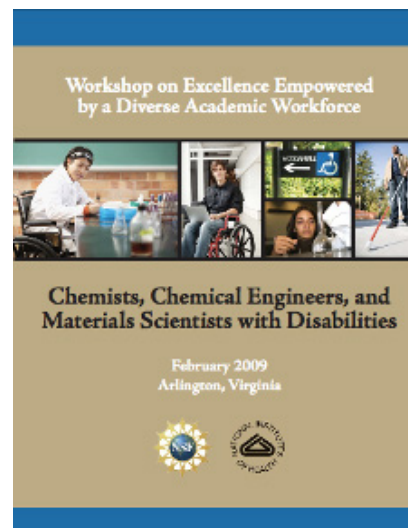
Preceding Diversity Workshops for Chairs



2006



2007



2009

**First OXIDE
Biennial
National
Diversity
Equity
Workshop
(NDEW)**

2011

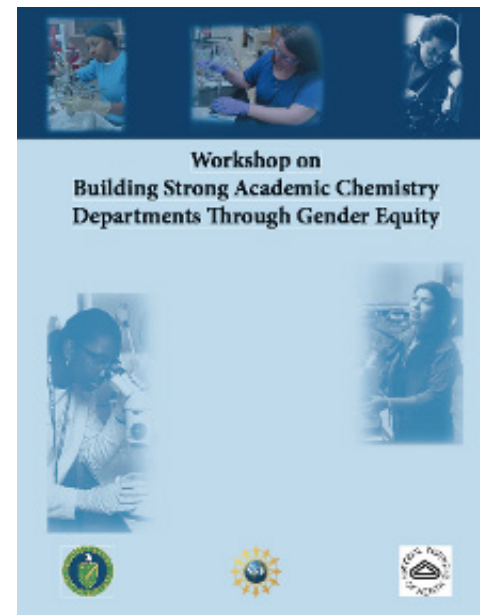
- ❖ First top-down workshops in these diversity areas to engage in a conversation about diversity equity with and among chemistry department chairs
- ❖ All were funded by NSF, NIH, and / or DOE
- ❖ Commonalities and differences exist

Outline

- ❖ Brief overview of each individual workshop
 - ❖ Gender equity
 - ❖ Racial & ethnic equity for under-represented minorities (URMs)
 - ❖ Disability equity
 - ❖ NDEW 2011
 - ❖ Including Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Questioning (LGBTQIQ) equity
- ❖ Interspersed: Discussion of broadly-applying knowledge gained
- ❖ Examples of recommendations

Gender Equity Workshop

- ❖ January 2006
- ❖ Goal: “To develop and implement strategies to significantly increase the number of women chemists in tenured academic positions in our research universities and eliminate the gender biases that negatively impact their career progress”



Workshop on Building Strong Academic Chemistry Departments Through Gender Equity (2006).

Gender Equity Workshop: The Numbers

	% Female	Note
B.S.	~50%	by 2002
Ph.D.	31.3%	1993-2002
Asst. Prof.	21.5%	AY 2002-03
Assoc. Prof.	20.5%	AY 2002-03
Full Prof.	7.6%	AY 2002-03
Dept. Head	< 10%	2006

**12.1%
female
faculty**

(Donna Nelson)



Field	% Female Asst. Prof.	% Female Ph.D.s ('93-'02)	Ratio
Biological sciences	30.2%	44.7%	0.676
Chemistry	21.5%	31.3%	0.687
Astronomy	22.0%	20.6%	1.07
Civil engineering	22.3%	18.7%	1.19
Mech. engineering	15.7%	10.4%	1.50

Workshop on Building Strong Academic Chemistry Departments Through Gender Equity (2006).

Gender Equity Workshop: Defining the Issues

- ❖ Valerie Kuck: women = 17% of top 50 hires
 - ❖ Increased degree attainment \neq increased faculty representation!
 - ❖ Support: women have earned $\geq 25\%$ Ph.D.s since mid 1980s
- ❖ ACS has 25% female membership
 - ❖ 2006: Women were 9 of 66 national award recipients ($<14\%$)
 - ❖ Large fraction of research-oriented awards had never been granted to a woman
- ❖ Academic chemistry's reward structure (promotion, awards) doesn't reward women
 - ❖ Accumulation of advantage (e.g., awards)
 - ❖ Stature to influence the field

Workshop on Building Strong Academic Chemistry Departments Through Gender Equity (2006).

Gender Equity Workshop: What Are Barriers?

- ❖ Critical mass of female faculty members may be essential to creating good general working environment for women
 - ❖ Role models for graduate students may aid faculty recruitment
 - ❖ Lack of female colleagues: barrier to faculty advancement
 - ❖ “Enough so you can just be yourself instead of a representative of an entire group” (Charles Vest, former MIT president)
- ❖ Unwelcoming departmental climate
- ❖ Promotion and retention
 - ❖ UC system, all fields: women 27% & 20% less likely than men to be promoted to associate & full professor, respectively (M.A. Mason)

Workshop on Building Strong Academic Chemistry Departments Through Gender Equity (2006).

Gender Equity Workshop: What Are Barriers?

- ❖ Mary Ann Mason: Academic lifestyle and family
 - ❖ Marital status, parental status, timing: far stronger impact on women's careers than men's
 - ❖ Women w/ (early) children: less likely to enter/stay
 - ❖ Married men / fathers: *more* likely to get tenure
 - ❖ Caregiving
 - ❖ Two-body problem
- ❖ Additional barriers to retention
 - ❖ Competition between tenure and biological clocks
 - ❖ Few entry points, mechanisms for 1-2 year career pause
 - ❖ Travel and self-promotion
- ❖ Recognizing and removing bias:
 - ❖ Good intentions do not guarantee fairness!



Workshop on Building Strong Academic Chemistry Departments Through Gender Equity (2006).

Schemas and Implicit Bias

- ❖ Schemas: hypotheses used to make sense of the world (V. Valian)
 - ❖ May be positive, negative, and / or neutral
 - ❖ Can include stereotypes, but more neutral connotation
 - ❖ Application, not existence, can be problematic
 - ❖ Contributes to implicit bias (non-conscious judgements)

- ❖ Implicit bias:
 - ❖ Applies to everyone, no matter how egalitarian or well-intentioned!
 - ❖ Informed by collective individual and cultural experiences
 - ❖ Non-conscious, rapid, and automatic
 - ❖ Usually distinct from conscious, explicit beliefs
 - ❖ Change with experience and / or exposure

OXIDE synthesis: references available upon request

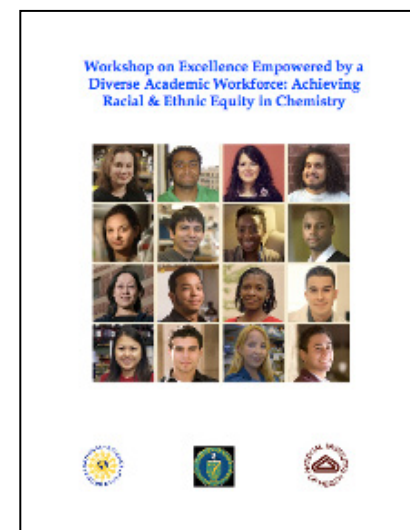
Schemas and Implicit Bias

- ❖ Can influence judgements even when objective criteria are present
 - ❖ Estimating male, female height from photos
 - ❖ Each male height matched to female height, included ref. object
 - ❖ Both genders consistently underestimated women's height, overestimated men's.
- ❖ Implicit bias tends to play a stronger role under non-ideal circumstances:
 - ❖ Time pressure
 - ❖ Ambiguous criteria or concept (e.g., “leadership”, “competence”)
 - ❖ Incomplete data
 - ❖ Competing tasks
 - ❖ Stress
 - ❖ Lack of critical mass prevents distinguishing as individuals

OXIDE synthesis: references available upon request

Racial & Ethnic Equity Workshop

- ❖ September 2007
- ❖ Objective: "...to assist in creating an informed & committed community of chemistry leaders who will create, implement, & promote programs & strategies to advance racial & ethnic equity in both the faculty and the student body with the goal of increasing the number of **U.S. citizen** underrepresented minorities (URM) participating in academic chemistry at all levels, with particular focus on the pipeline to chemistry faculty."



Workshop on Building Strong Academic Chemistry Departments Through Gender Equity (2006).

Racial-Ethnic Equity Workshop: The Numbers

	% URM in 2003
U.S. population	~30%
B.S.	16.6%
Ph.D.	6.4%
All faculty	3.6%



FY04: 62 URM of 1459 faculty! (D. Nelson)

- ❖ Valerie Kuck (via Nick Turro):
 - ❖ Faculty hiring rate at research-active institutions (1994-2003):
 - ❖ U.S.-trained URM = $\frac{1}{2}$ majority
 - ❖ URM hiring rate at top 32 schools: $\frac{1}{3}$ majority
 - ❖ 124 black Ph.D.s → 4 will be recruited
 - ❖ 224 Hispanic Ph.D.s → 10 will be recruited

Workshop on Excellence Empowered by a Diverse Academic Workforce: Achieving Racial & Ethnic Equity in Chemistry (2007).

URM Equity Workshop: Defining the Issues

- ❖ URM representation at all levels is quite small
 - ❖ Compared to majority counterparts
 - ❖ Compared to their representation in the U.S. population
 - ❖ Relative pool of domestic Caucasian scientists is shrinking as U.S. demographics transition to “majority-minority”
- ❖ URM representation has changed very little in at least prior 10 years
 - ❖ Even though the percentage of Ph.D.s earned by majority U.S. citizens & permanent residents has *decreased* considerably
- ❖ **Critical to increase the number of URMs who successfully transition through the (post)doctoral levels to the faculty**

Workshop on Excellence Empowered by a Diverse Academic Workforce: Achieving Racial & Ethnic Equity in Chemistry (2007).

URM Equity Workshop: What Are Barriers?

- ❖ Flawed hypotheses (i.e., myths) inhibiting change in approach:
 - ❖ Scarcity of URM candidates
 - ❖ Competition for those few URM candidates is high (resources)
 - ❖ Current system works, identifies all excellent candidates...right?
 - ❖ Reality: dearth of mechanisms to identify, encourage, & recruit
- ❖ Lack of effective mentoring, particularly as community-wide value
 - ❖ of URM students, postdocs, & faculty
 - ❖ of majority faculty on recruiting & retaining URM students
- ❖ Implicit bias undermines progress at all levels
 - ❖ Misapplication of schemas
 - ❖ Daniel Solorzano: Accumulation of (racial) microaggressions



Workshop on Excellence Empowered by a Diverse Academic Workforce: Achieving Racial & Ethnic Equity in Chemistry (2007).

Microaggressions and Their Accumulation

- ❖ Microaggressions remind an out-group member (“them”) that he / she is not fully embraced by the in-group member (“us”)
 - ❖ Like schemas, unconscious, automatic, & subtle
 - ❖ e.g., verbal, non-verbal, layered, and / or cumulative insults based on one’s demographics or background
 - ❖ e.g., “I don’t think of you as a *Mexican*...”
 - ❖ e.g., “You speak such *good* English.”
- ❖ Microaggressions are comparatively small in magnitude, but their impact accumulates
 - ❖ “Mountains are molehills piled one on top of another.” (V. Valian)

OXIDE synthesis: references available upon request

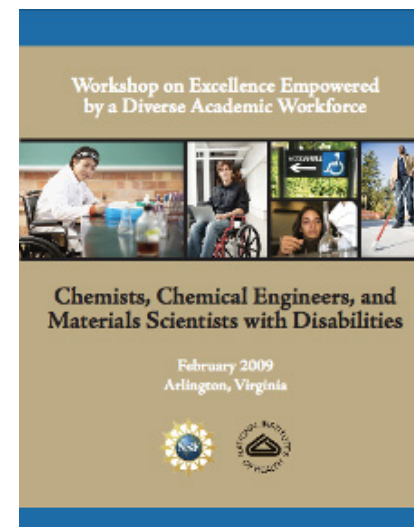
URM Equity Workshop: What Are Barriers?

- ❖ Academic climate: largely unsupportive, indifferent, or in some cases, even hostile
 - ❖ e.g., ability of URM students to succeed in “our” program
 - ❖ being held to higher standards
 - ❖ lack of access to information needed for success
 - ❖ can be perpetuated by lack of open discussion about racial issues, even if most department members don’t hold those views
- ❖ Lack of progress
 - ❖ Old strategies / tactics have failed or are inadequate
 - ❖ New, more effective strategies needed
 - ❖ **May be less about inherent deficiency of strategies, more about failure of institutional / organizational commitment to change the culture, processes, and practices.**

Workshop on Excellence Empowered by a Diverse Academic Workforce: Achieving Racial & Ethnic Equity in Chemistry (2007).

Disability Equity Workshop

- ❖ February 2009
- ❖ Goals (adapted from Karl Booksh, NDEW 2011):
 - ❖ Raise awareness of issues facing & contributions of scientists with disabilities
 - ❖ Foster sensitivity for people with disabilities
 - ❖ Educate regarding challenges of studying & accommodating people with disabilities in science
 - ❖ Create strategies for increasing the number of people with disabilities in the sciences
 - ❖ Discuss the latest advances in education & assistive technologies
 - ❖ Provide tools & tangible steps for everyone in the scientific community



Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

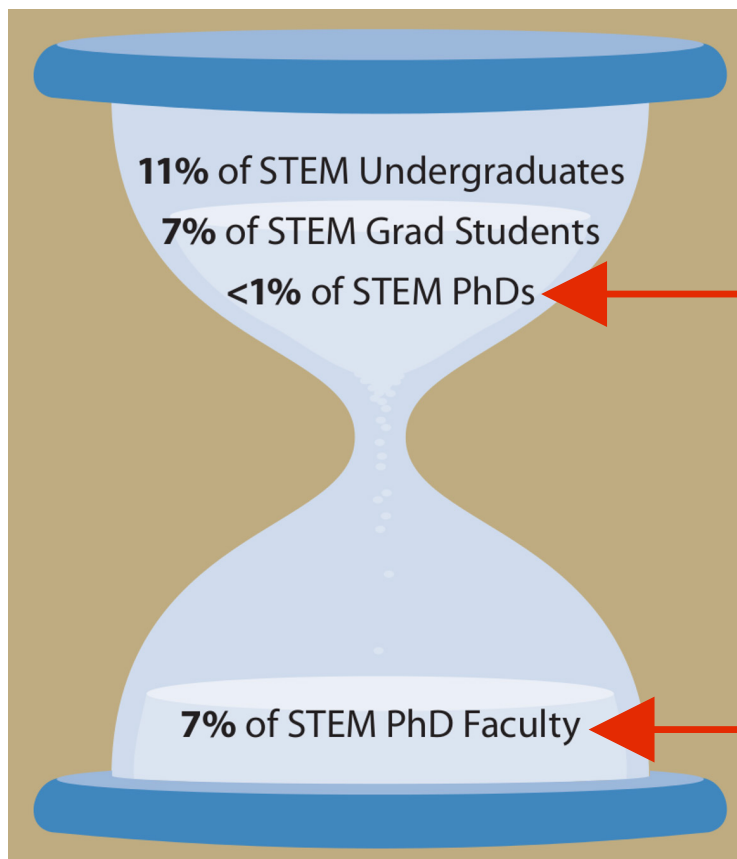
Disability Equity Workshop: Definition

- ❖ Disability (according to the Americans with Disabilities Act, ADA):
 - ❖ A physical or mental impairment that substantially limits one or more of the major life activities
 - ❖ e.g., seeing, hearing, speaking, walking, sitting, breathing
 - ❖ e.g., performing manual tasks, learning, lifting
 - ❖ e.g., thinking, concentrating, interacting with others
- ❖ Can be:
 - ❖ Congenital or acquired
 - ❖ Age-related
 - ❖ Visible or invisible

Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

Disability Equity Workshop: The Numbers

- ❖ U.S. population, ages 25-64: 16% have disabilities



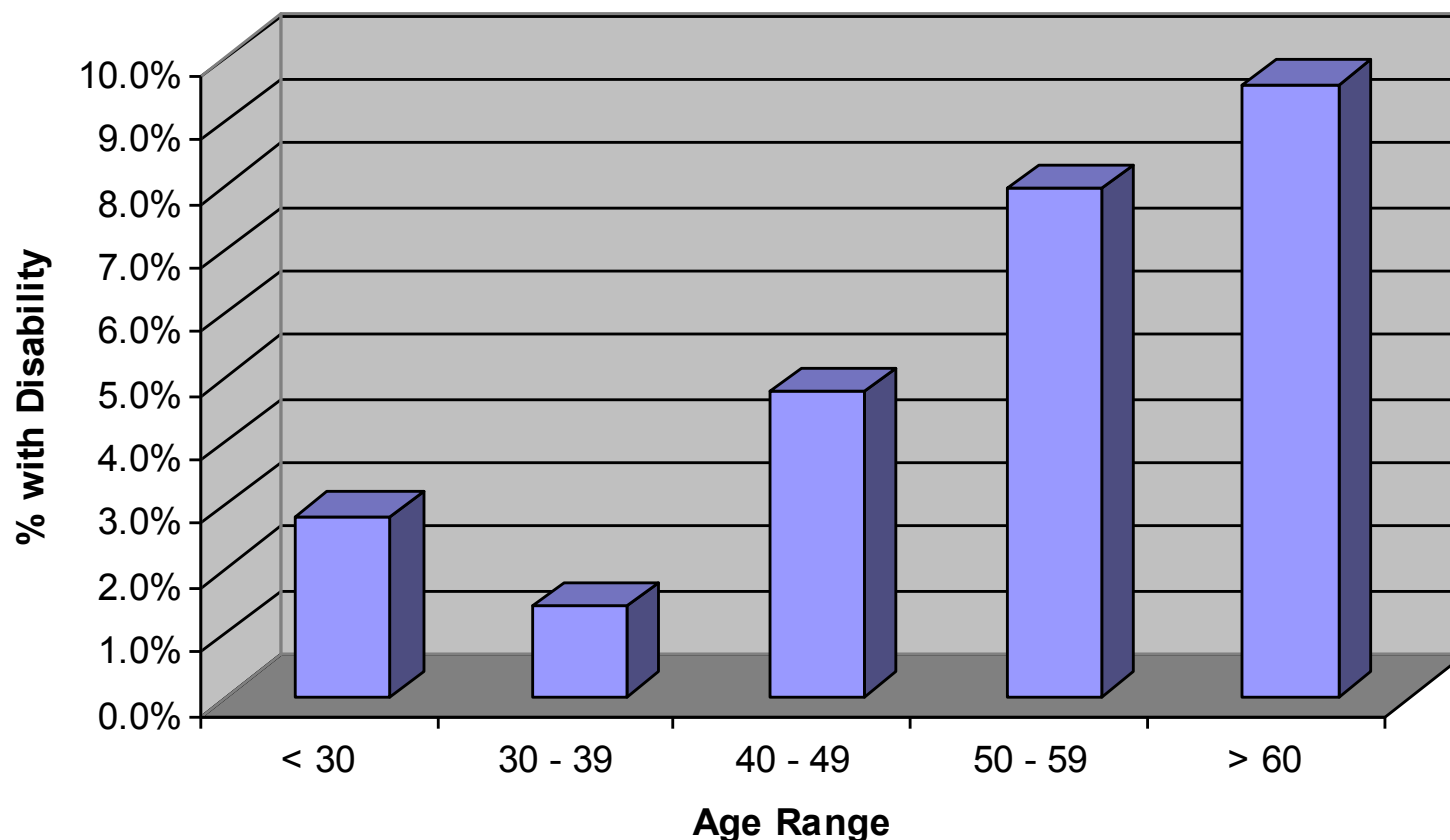
NSF: 10 years of data to achieve meaningful numbers (n = 238) for chemists, chemical engineers, & materials scientists!

Many age-related / acquired

Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

Disability Equity Workshop: The Numbers

- ❖ Disability status of employed chemists, chemical engineers, & materials scientists (2003)



Karl Booksh at NDEW 2011

Disability Equity Workshop: Defining Issues

- ❖ Joan Burrelli: “The data sets that exist are fragmentary, flawed, & unreliable. They come from multiple sources, are incomplete, & cannot be compared. But they are, for the moment, all we have.”
- ❖ No data between (some) undergraduate enrollment & Ph.D. attainment
- ❖ Only relatively recently become unified minority (1990s data)
- ❖ Diversity within the disability community
 - ❖ Inconsistent definitions
 - ❖ Inconsistent acquisition & application of data
- ❖ Disabilities are often undiagnosed and / or unreported



Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

Disability Equity Workshop: What Are Barriers?

- ❖ Many disabilities, particularly mental or learning, go undiagnosed
 - ❖ Victor Day: "...lots of people who have these disabilities & probably aren't even aware of it"
- ❖ Concerns:
 - ❖ e.g., privacy, pride, stigma, discrimination
 - ❖ Ian Shipsey: real fear that transcript will say 'Ph.D. was achieved with accommodations.'
- ❖ Targeted support: environment for success
 - ❖ Isolation, lack of encouragement
 - ❖ Expenditures of energy required
 - ❖ Existing programs not large, well publicized?



Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

Disability Equity Workshop: What Are Barriers?

- ❖ Reasonable accommodations
 - ❖ Required by ADA upon request
 - ❖ Many different definitions of 'reasonable'
- ❖ Tailored accommodations:
 - ❖ Case-by-case basis
 - ❖ Accessibility changes (e.g., levers vs. knobs)
 - ❖ Assistive technology (e.g., text-to-speech)
 - ❖ One size doesn't necessarily fit all, even for same disability
 - ❖ Also useful for cognitive / learning disabilities
 - ❖ Can be an administrative challenge, but helped by communication, creativity, & compassion



Talking LabQuest



Perkins Braille

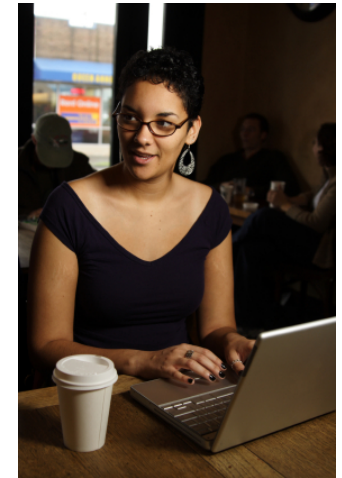
Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

Universal Design

- ❖ Universal design:
 - ❖ Potential alternative to creating new accommodations
 - ❖ “...is a design principle that entails creating products and environments that are usable by all people to the greatest extent possible without the need for accommodation or modification.”
 - ❖ Can be beneficial, regardless of disability status!



Main St.



OXIDE synthesis: references available upon request

Universal Design in Science: Examples

- ❖ Posting documents in accessible formats
 - ❖ Broad range of abilities, ages, racial / ethnic backgrounds
- ❖ Including notice to job applicants about how to request accommodations
- ❖ Adjustable / flexible work area and table:
 - ❖ People with range of physical abilities
 - ❖ Right- or left- handed students
 - ❖ People of different heights
- ❖ Adaptable equipment
 - ❖ e.g., tactile / Braille ruler
 - ❖ e.g., microscope with video camera



Workshop on Excellence Empowered by a Diverse Academic Workforce: Chemists, Chemical Engineers, & Materials Scientists with Disabilities (2009).

NDEW 2011

- ❖ January 2011
- ❖ Cohesive effort to address diversity writ large
- ❖ Address both overlapping & unique areas
- ❖ Four major focus sessions:
 - ❖ Contributing factors
 - ❖ Demographics and assessment
 - ❖ Reports from previous workshops
 - ❖ First inclusion of LGBTQIQ equity
 - ❖ Interventions
- ❖ Presentations available on NDEW2011 website!

**First OXIDE
Biennial
National
Diversity
Equity
Workshop
(NDEW)**

Why Continue To Have Workshops?

- ❖ Preceding workshops:
 - ❖ moved the needle
 - ❖ specifically mentioned insufficiency of one-time events
- ❖ Periodic (e.g., biennial) workshops continue momentum:
 - ❖ towards diversity equity (i.e., policy / climate)
 - ❖ towards parity (i.e., numbers)

NDEW 2011: Contributing Factors

- ❖ Denise Sekaquaptewa: Low representation → **solo status**
 - ❖ Actual university's goal: hire 1 African-American faculty per dept.
 - ❖ Five years later: 25 hired, but 18 left the university!
 - ❖ Being the only representative of a social category present
 - ❖ → heightened visibility, perceived scrutiny, stereotype threat
 - ❖ Impacts performance & outcomes
 - ❖ Different than tokenism, minority status



NDEW 2011: Demographics & Assessment

❖ Donna Nelson:

- ❖ Updated data on faculty gender, URM representation
- ❖ Provided context of other STEM disciplines

❖ Eric Kaler:

- ❖ National Research Council (NRC) rankings changes
- ❖ Role of diversity & its measures

❖ Jean Stockard:

- ❖ Preliminary analysis of pre-NDEW survey of department chairs
- ❖ Demographics
 - ❖ Dearth of data on LGBTQIQ, disabilities status
 - ❖ Balancing need for data, respect for privacy, showing support?
- ❖ Departmental policies & practices

NDEW 2011: LGBTQIQ Equity

- ❖ Reluctant to steal thunder from tomorrow's Focus Session...
- ❖ Larry Wagner:
 - ❖ Business case for diversity, including LGBT
 - ❖ Impact of stereotypes, bias
 - ❖ Metrics for LGBT workplace equity
 - ❖ Human Rights Campaign (HRC) equality index
 - ❖ Do's and don'ts

NDEW 2011: Interventions

❖ Frank Dobbin:

- ❖ Longitudinal data: equity program types aren't equally effective
- ❖ Key is to have administrative leadership

❖ Jean Stockard:

- ❖ Data on peer-review strategies & implications for diversity

❖ Cheryl Burgstahler:

- ❖ Universal design of instruction: effectively teaching all students, including those with disabilities
- ❖ Defines universal design as:
 - ❖ **An attitude**
 - ❖ **A goal**
 - ❖ **A process**
 - ❖ **Practices that make things welcoming, accessible, & useable for all**

Examples of Recommendations

- ❖ Academic chemistry community needs to commit to diversity as a core value & academic imperative in its own self-interest
- ❖ Recognize that diversity & excellence are not a zero-sum game!
 - ❖ Need for *action*, not “preferential hiring” or dilution of quality
- ❖ Recognize the existence & effects of implicit bias & other factors
 - ❖ Educate faculty & students, search committees, etc.
- ❖ Develop effective recruitment, promotion, & retention strategies
 - ❖ Includes leadership positions
- ❖ Create an inclusive educational & working climate
- ❖ Make chemistry careers in research workplaces more attractive

OXIDE synthesis: references available upon request

Examples of Recommendations

- ❖ Visible role models allow individuals to envision themselves succeeding in similar careers
- ❖ Disseminate best practices, within and between communities
- ❖ Establish and reward hands-on, proactive mentoring
 - ❖ for individuals within diversity communities
 - ❖ for faculty of all backgrounds who train diverse individuals
 - ❖ Does not require demographic congruence!
- ❖ Create a network to identify excellent students, postdocs, & faculty, analogous to existing one to identify excellent majority candidates
 - ❖ Will assist departments in identifying excellent candidates in an organized, systematic, and productive fashion
 - ❖ Support system to mitigate effects of isolation

OXIDE synthesis: references available upon request

Examples of Recommendations

- ❖ Establish effective mechanisms for assisting junior faculty career development, especially for members of under-represented groups.
- ❖ Increase representation of under-represented individuals among faculty candidate pools, seminar speakers, award nominees, etc.
- ❖ Ensure equity in proposal review
- ❖ Create department diversity plans
 - ❖ Promote buy-in
 - ❖ Action-oriented
 - ❖ Complement institutional plans
 - ❖ Gain resources and political power
- ❖ University-wide planning, with strong communication & rewards for success

OXIDE synthesis: references available upon request

Take-Away

- ❖ Success of workshops due to
 - ❖ readily identifying and recognizing the issues
 - ❖ the fact that chairs are especially knowledgeable and receptive
 - ❖ the mutual cooperation of peers to achieve a common goal
 - ❖ Atmosphere of mutual problem-solving is important
- ❖ Recognition that this is a work in progress
- ❖ “Consistent, creative follow-up & course correction” necessary
- ❖ A rising tide raises all ships!

Acknowledgements



Workshop predecessors

- ❖ Co-Chairs
- ❖ Steering Committees
- ❖ Speakers
- ❖ Participants



CHE-1048939