



Equity Through Access: Mitigating Barriers to STEM for Marginalized & Minoritized Scholars

NAML

Public Policy Meeting

Panel Discussion:
Best Practices to Increase Diversity
in the Marine Sciences

March 24, 2022

Catalina Martinez (she/her)
Regional Program Manager
NOAA Ocean Exploration



“The language that we use to describe these groups and the results of racism matters.

In this vein, I do not use the terms underrepresented groups or underrepresented minorities and, in its place, I use the terms racialized, marginalized, minoritized, and/or excluded groups.

Marginalized or minoritized groups can generally apply to any of the identities that suffer from discrimination due to the multiple identities of race, ethnicity, sexual orientation, gender, religion, or ability, among others.

This choice of terminology offers a more accurate description. It removes the yoke of the problem from those individuals for whom damage is being done. Simply put, deficit language problematizes the victim.”

AGU Advances

Commentary |  Open Access |   

Combating Racism in the Geosciences: Reflections From a Black Professor

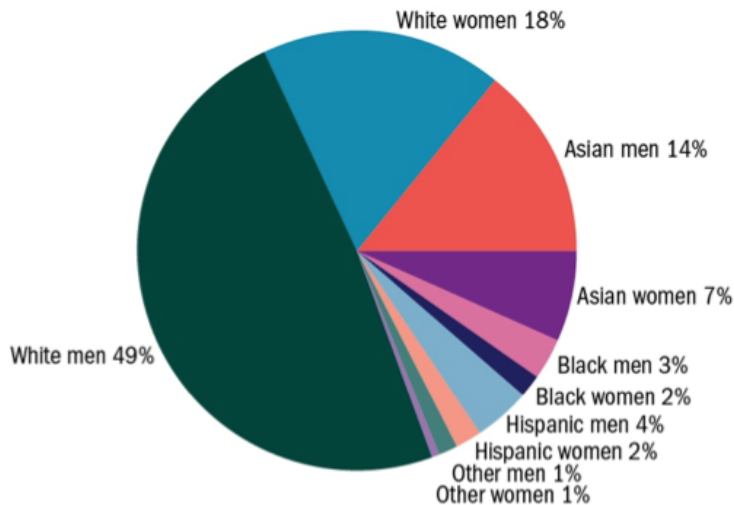
Vernon R. Morris 

First published: 25 March 2021 | <https://doi.org/10.1029/2020AV000358> | Citations: 3

Face of America is Changing

Face of STEM in America is not

Scientists and engineers working in science and engineering occupations: 2015

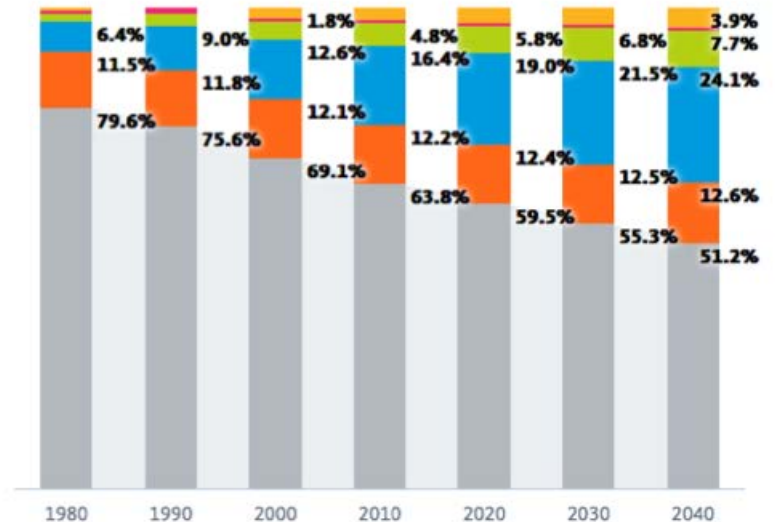


NOTES: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race. *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017*

Source: nsf.gov/statistics

Racial/ethnic composition US 1980-2040

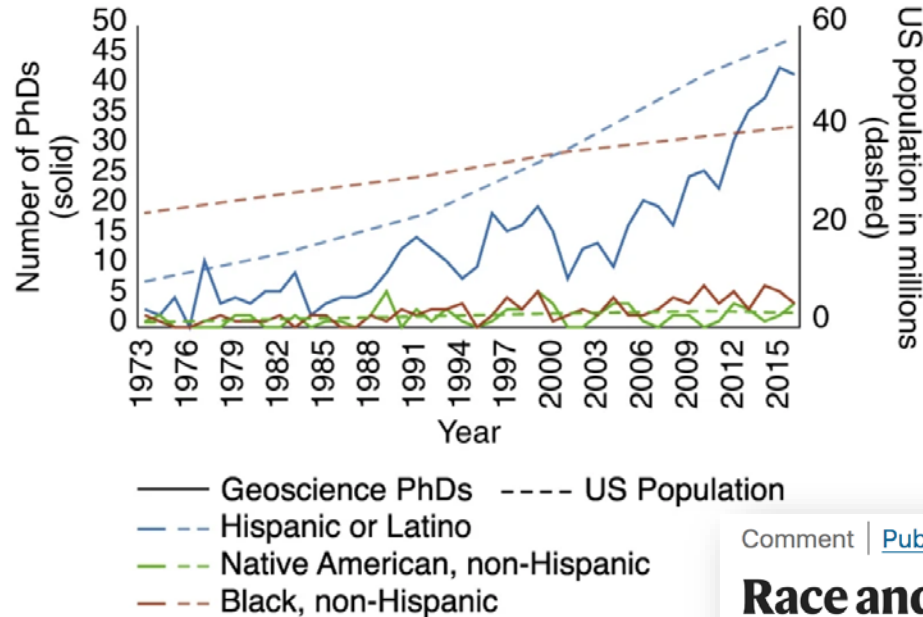
- White
- Black
- Latino
- Asian or Pacific Islander
- Native American
- Mixed/other
- U.S. percent white



Source: Pewresearch.org/fact-tank

Progress?

c For underrepresented minorities only (subfields combined)



Bernard and Cooperdock, 2018

The New York Times

By Emma Goldberg, Dec. 23, 2019

Earth Science Has a Whiteness Problem

Barely 10 percent of doctoral degrees in the geosciences go to recipients of color. The lack of diversity limits the quality of research, many scientists say.

Comment | [Published: 16 December 2019](#)

Race and racism in the geosciences

[Kuheli Dutt](#) ✉

[Nature Geoscience](#) 13, 2–3 (2020) | [Cite this article](#)

67k Accesses | 40 Citations | 1413 Altmetric | [Metrics](#)

Geoscientists in the United States are predominantly White. Progress towards diversification can only come with a concerted shift in mindsets and a deeper understanding of the complexities of race.



Diversity

- Is increasing
- Is essential
- Is a choice

What can we do?



Benefits of Experiential Opportunities

Mentors & Champions

Build Science Identity

Uncover Super Powers

Professional Networks

Strengthen Resume

Technical Skills

Sense of Social Belonging

Assess Interest

Build Relationships

Future Job Opportunities

Strategic Recruitment Practices



“I don’t see myself in their program.”

- Honest Marketing
- Be Intentional
- Be Relational
- Allocate Resources
- **Work doesn’t end here!**

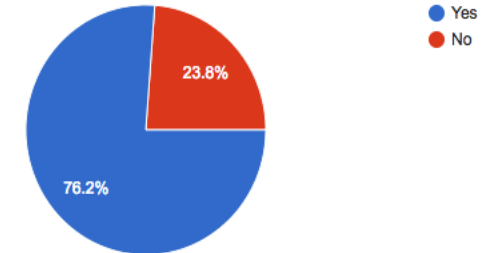


Bridge the Preparation Gap

- Guidance & assistance
- Mentoring & encouragement

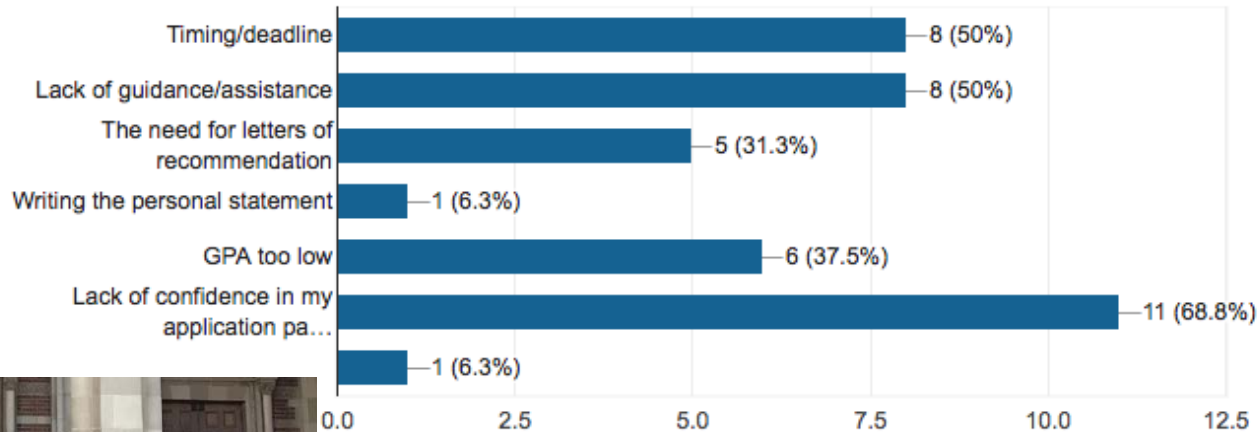
Have you ever started, but not completed an application for an internship, scholarship, and/or fellowship?

21 responses



If yes, what were the barriers to completion?

16 responses



Selection Criteria Embed Privilege & Bias

Example of Traditional Application Requirements

-	General	GPA, citizenship, school reputation, major
30%	Education	Relevant coursework
20%	Activities	Experiences, activities, awards, volunteering
20%	References	Letters from Academic Advisor or Professor
30%	Essay	Education/career plans

Privilege & Bias

GPA = Equal Opportunity Experience?

True reflection of ability, effort, potential?



What's the story behind the GPA?

- Economic advantages
- Cultural/political capital
- First generation
- Added responsibilities
- Commuting daily
- Transfer from 2-yr program
- Language/cultural barriers
- Difficult semester (illness, loss)

Selection Criteria Embed Privilege & Bias

- Lets of Recommendation
- Personal Statements/Essays

Shiva Bhaskar
Oct 31, 2018 · 7 min read

Personal Statements For College Admissions Should Be Eliminated




Photo credit: Forbes.com

themuse Search Jobs

Unconscious Racial Bias Can Creep Into Recommendation Letters—Here's How to Avoid It

by Asmeret Asefaw Berhe and Sora Kim

Avoiding gender bias in reference writing

Got a great student? Planning to write a super letter of reference? Don't fall into these common traps based on unconscious gender bias.

Mention research & publications

Letters of reference for men are 4x more likely to mention publications and twice as likely to have multiple references to research. Make sure you put these critical accomplishments in every letter!

Don't stop now!

On average, letters for men are 16% longer than letters for women and letters for women are 2.5x as likely to make a minimal assurance ('she can do the job') rather than a ringing endorsement ('she is the best for the job').

Emphasize accomplishments, not effort

Letters for reference for men are more likely to emphasize accomplishments ('his research', 'his skills', or 'his career') while letters for women are 50% more likely to include 'grind-stone' adjectives that describe effort. 'Hard-working' associates with effort, but not ability.

We all share bias

It is important to remember that unconscious gender bias isn't a male problem. Research shows that women are just as susceptible to these common pitfalls as men. This is a problem for all of us - let's solve it together!

Keep it professional

Letters of reference for women are 7x more likely to mention personal life - something that is almost always irrelevant for the application.

Also make sure you use formal titles and surnames for both men and women.

Stay away from stereotypes

Although they describe positive traits, adjectives like 'caring', 'compassionate', and 'helpful' are used more frequently in letters for women and can evoke gender stereotypes which can hurt a candidate. And be careful not to invoke these stereotypes directly ('she is not emotional').

Be careful raising doubt

We all want to write honest letters, but negative or irrelevant comments, such as 'challenging personality' or 'I have confidence that she will become better than average' are twice as common in letters for female applicants. Don't add doubt unless it is strictly necessary!

Adjectives to avoid: Adjectives to include:

caring	successful
compassionate	excellent
hard-working	accomplished
conscientious	outstanding
dependable	skilled
diligent	knowledgeable
dedicated	insightful
tactful	resourceful
interpersonal	confident
warm	ambitious
helpful	independent
	intellectual

brought to you by:



THE UNIVERSITY OF ARIZONA

Commission on the Status of Women

Trix, F & Psenka, C. Exploring the colors of recommendation for female and faculty. *Discourse & Society*, 2003; and ebl, M.R., & Martin, R.C. Gender and mndation for Academia: Agenti Differences. *Journal of Applied* 109.



THE UNIVERSITY OF ARIZONA

Follow us on www.facebook.com/uacsw



Holistic Review Process



WOODSHOLEDIVERSITY.ORG

Woods Hole Partnership Education Program

The Woods Hole Partnership Education Program: Increasing Diversity in the Ocean and Environmental Sciences in one influential...



Human Potential, though not always apparent, is there waiting to be discovered and invited forth. William W. Purkey

Diversify Reviewer Pools & Selection Committees

“We want the best and the brightest!”
“He’ll fit into the group more easily.”
“I went to grad school with his advisor: I trust them.”
“Can’t go wrong with a Stanford student.”



SHIFT THE MINDSET: Select for culture ADD not culture FIT

The Environment Matters

Published: 19 July 2014

Women scientists sexually harassed while doing fieldwork

Anna Simmonds

NEWS | 24 August 2020

Racism and harassment are common in field research — scientists are speaking up

Researchers call on universities to offer inclusive policies that make fieldwork safer.

Giuliana Viglione

NEWS | 27 June 2019

Discrimination drives LGBT+ scientists to think about quitting

Despite progress, many physical scientists from sexual and gender minorities experience exclusion or harassment at work, finds UK survey.

Elizabeth Gibney

Eos
Science News by AGU

SIGN UP FOR NEWSLETTER

ABOUT SPECIAL REPORTS TOPICS PROJECTS NEWSLETTER SUBMIT TO EOS

Women in Oceanography Still Navigate Rough Seas

Female scientists have weathered bias, lack of support, and unsafe work environments since the dawn of oceanography. Could recent initiatives, technology, and awareness chart the way to safer waters?

By Jenessa Outcumber 6 Jun 2018

Safety & Support

- Environment/Culture
- Mentor & mentee

The screenshot shows a Science magazine article. The main headline is "A COLD CASE" with a sub-headline: "Years ago, two women allege, their team leader sexually harassed them in Antarctica. Now they are taking action." Below the headline is a photograph of three people in red jackets sitting on a rocky, snowy slope in a mountainous region. To the right of the photo is a "SHARE" button and a social media share link: "Disturbing allegations of sexual harassment in Antarctica leveled at noted scientist". At the bottom right, there is a small box with the text: "Science's extensive COVID-19 coverage is free to all readers. To support our nonprofit science journalism, please make a tax-deductible donation." The top of the page has a navigation bar with "Science", "Contents", "News", "Careers", "Journals", and "Sign up for alerts".

Imposter Syndrome vs. Environment

ENVIRONMENT



Individual

Stop Telling Women They Have Imposter Syndrome

by Ruchika Tulshyan and Jodi-Ann Burey

February 11, 2021



The concept, whose development in the '70s excluded the effects of systemic racism, classism, xenophobia, and other biases



Belonging

IN STEM:

- Sense of belonging significantly impacts persistence and success, particularly for students of color and women
- Women experience a lower sense of belonging in comparison to men
- When race and gender intersected, both men and women of color reported a lower sense of belonging
- White men were most likely to report a sense of belonging whereas women of color were least likely

Source: Rainey et al. International Journal of STEM Education (2018) 5:10
<https://doi.org/10.1186/s40594-018-0115-6>

Systemic Racism & STEM

SCIENCE | ENVIRONMENT | CLIMATE CHANGE

Colonialism still influences the earth sciences today — and that's a big problem for research

Western biases still pervade research

By Justine Calma | @justcalma | Jan 4, 2022, 9:19am EST

Interrogating Structural Racism in STEM Higher Education

Ebony Omotola McGee

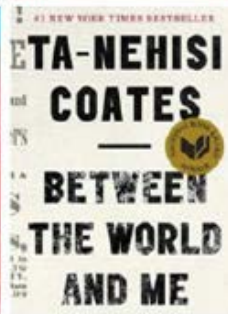
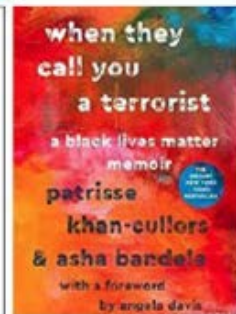
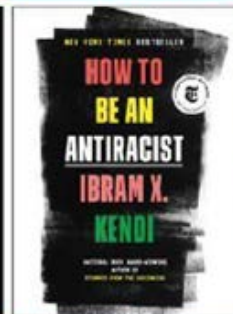
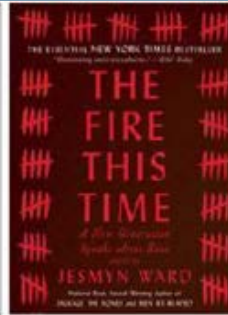
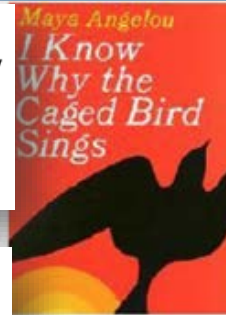
First Published November 13, 2020 | Research Article | [Check for updates](#)

<https://doi.org/10.3102/0013189X20972718>

Decolonising Science Reading List

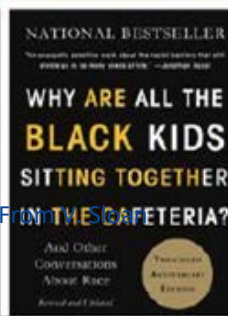
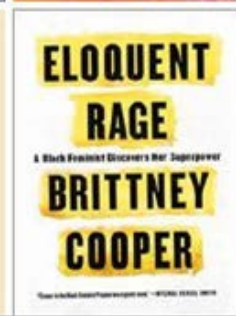
It's The End of Science As You Know It

Chanda Prescod-Weinstein, April 25, 2015



URGE
Unlearning Racism in Geoscience

TEAM | PODS | CURRICULUM | RESOURCES | RECORDINGS | ZOOM LINKS | DELIVERABLES | FAQs



Racial/Sexual/Gender Harassment & Assault

Published: 19 July 2014

Women scientists sexually harassed while doing fieldwork

[Anna Simmonds](#)

NEWS | 24 August 2020

Racism and harassment are common in field research — scientists are speaking up

Researchers call on universities to offer inclusive policies that make fieldwork safer.

[Giuliana Viglione](#)

NEWS | 27 June 2019

Discrimination drives LGBT+ scientists to think about quitting

Despite progress, many physical scientists from sexual and gender minorities experience exclusion or harassment at work, finds UK survey.

[Elizabeth Gibney](#)

Eos Science News by AGU

SIGN UP FOR NEWSLETTER

ABOUT SPECIAL REPORTS TOPICS PROJECTS NEWSLETTER SUBMIT TO EOS

Women in Oceanography Still Navigate Rough Seas

Female scientists have weathered bias, lack of support, and unsafe work environments since the dawn of oceanography. Could recent initiatives, technology, and awareness chart the way to safer waters?

By [Jessica Duncombe](#) 6 June 2019

BuzzFeed News The Smithsonian's #MeToo Moment

BuzzFeed News

WELCOME TO THE JUNGLE

INEQUALITY

The Smithsonian's #MeToo Moment

Many researchers dream of one day working at the Smithsonian's facility in Panama. But 16 women scientists told BuzzFeed News that their experiences there were nightmares ruled by prominent men who exploited their powers.

By [Nishita Jha](#)

Posted on December 9, 2021, at 8:00 a.m. ET

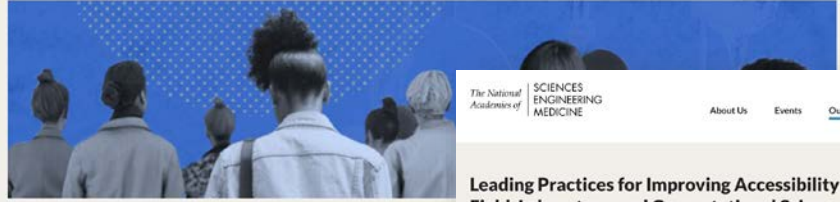
PICTURE A SCIENTIST

HOME ABOUT SCIENTISTS HOST A SCREENING FAQ PRESS TRAILER STORE



RESOURCES

Sexual Harassment in Academic Science, Engineering, and Medicine



Leading Practices for Improving Accessibility and Inclusion in Field, Laboratory, and Computational Science – A Conversation Series



GREEN DOT ETC.

The Green Dot etc. strategy aims to shift campus culture and increase proactive preventative behavior by targeting influential members from across a community with basic education, skill practice, and reactive interventions to high-risk situations. Every choice to be proactive as a bystander is categorized as a "new behavior" and thus a "Green Dot." Individual decisions (green dots) group together to create larger change.



AUTHORS

Dorothy Edwards, President of Alteristic

WEBSITE

<https://alteristic.org/services/green-dot/>

Report of the Workshop to Promote Safety in Field Sciences

oceanleadership.org/field-science-safety-workshop/

The Fieldwork Initiative
www.fieldworkinitiative.org

Prevention: FISST Training

Intervention: Emergency

Solidarity: "Women* in the Field" Support Network

FISST training poster. Photo by Jerika Loren-Heinze.



Use science to stop sexual harassment in higher education

Kathryn B. H. Clancy^{a,b,1}, Lilia M. Cortina^{c,d}, and Anna R. Kirkland^{d,*}





CREATING AN INCLUSIVE REU APPLICATION

*Christopher Atchison
Valerie Sloan
Rebecca Haacker
Gabriela Serrato Marks
Sean Thatcher*



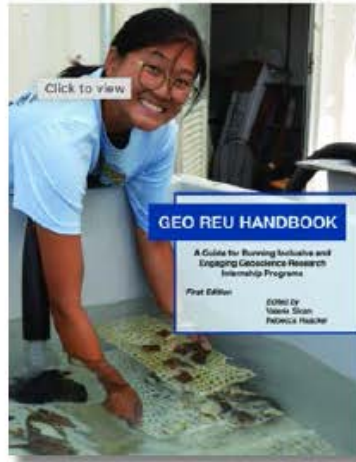
SELECTING A DIVERSE AND BALANCED COHORT

*Valerie Sloan
Barbara C. Bruno
Rebecca Haacker*



DEVELOPING AN ANTI-RACIST REU PROGRAM

*Rebecca Haacker
Vernon Morris
Valerie Sloan
Lisa White*



Source: V. Sloan

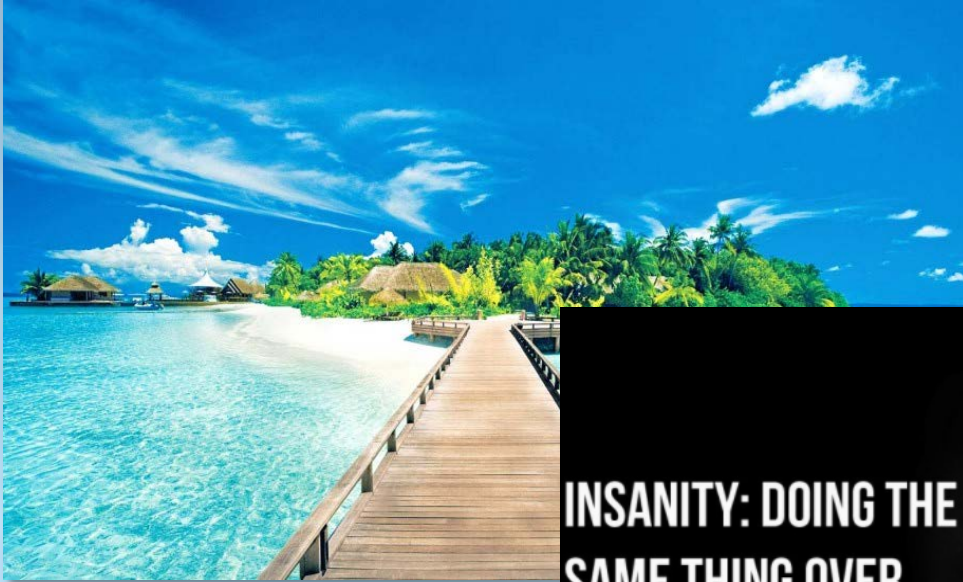


SEXUAL HARASSMENT PREVENTION

*Barbara C. Bruno
Rebecca Haacker
Michael Hubenthal
Erika Marin-Spotta*

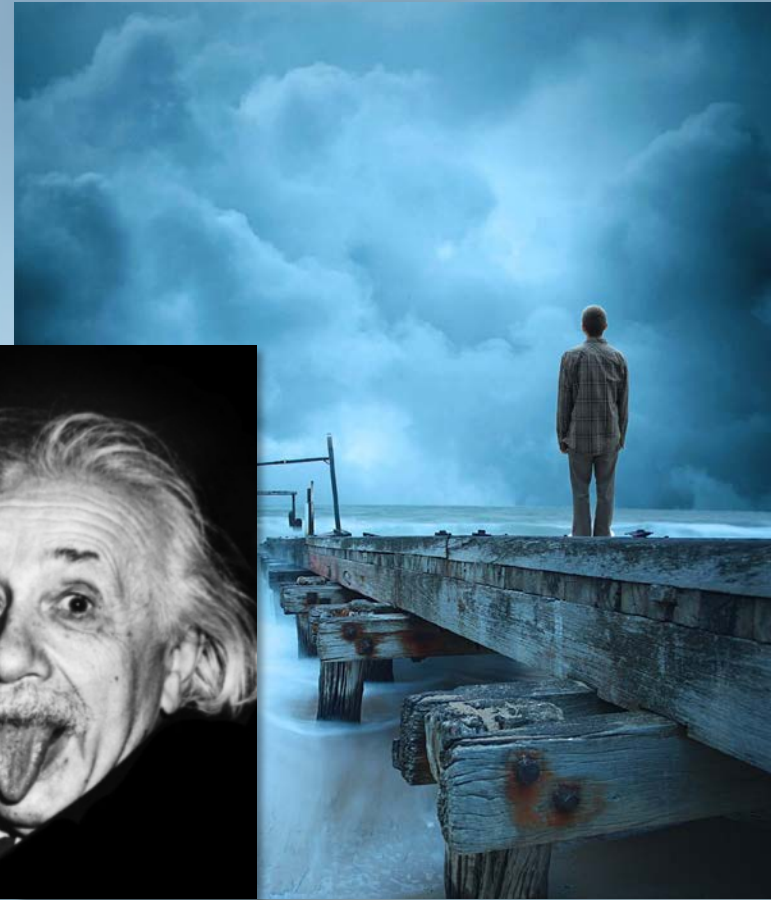
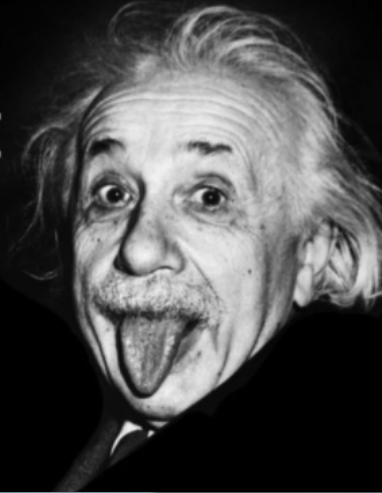
From V. Sloan

Be Intentional & Relational



Opportunity

**INSANITY: DOING THE
SAME THING OVER
AND OVER AGAIN,
AND EXPECTING
DIFFERENT RESULTS.**



Experience

Source: B. Jones