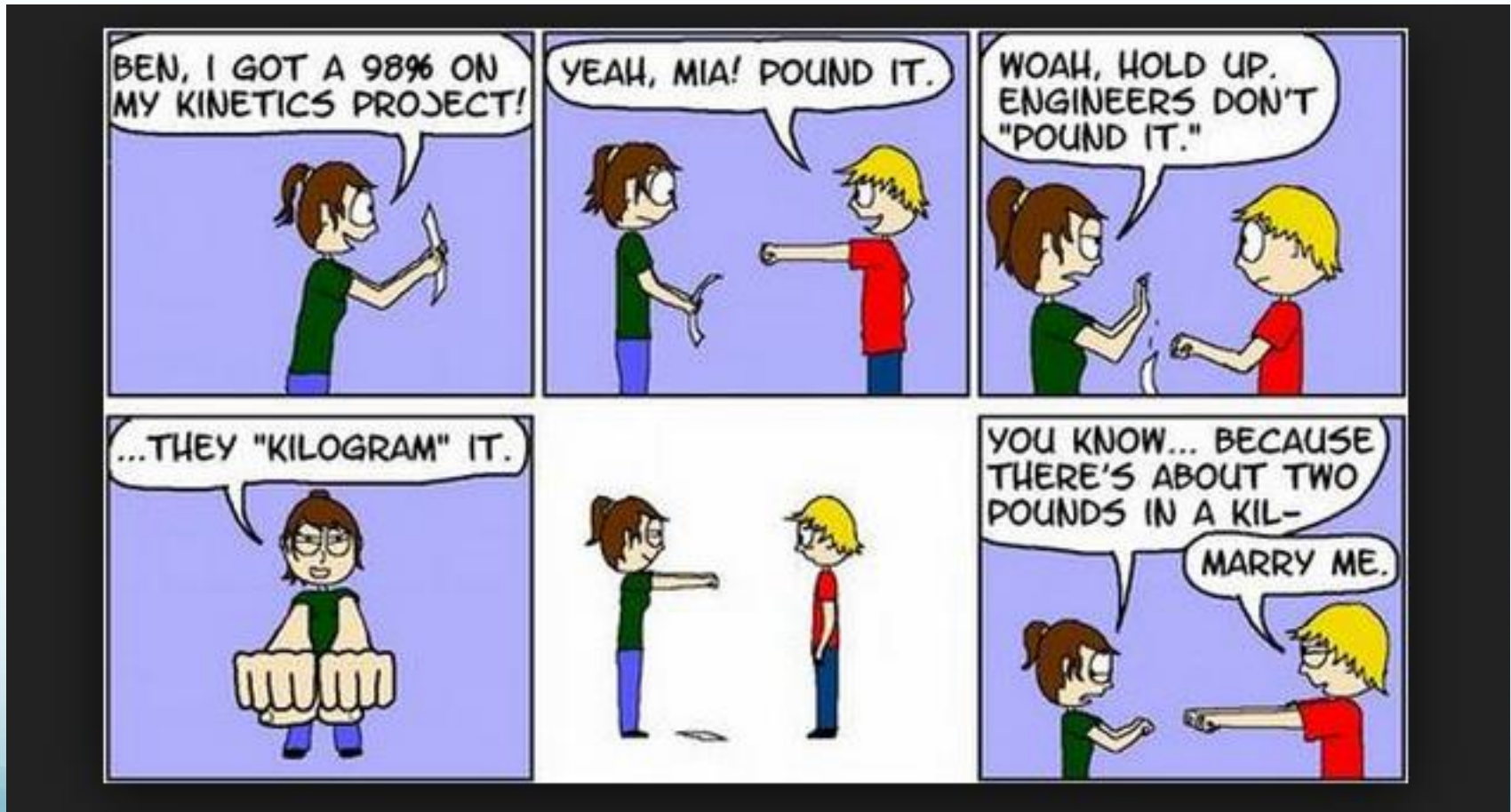


# Effect of Mentoring Tech Trek Campers Subsequent to Tech Trek Camp Participation



# We're Coming to Make Sure You Get into College!



# ONLY 3 THINGS TO REMEMBER: Interest, STEM and Early Preparation

1. Girls lose interest in Science and Math in 7<sup>th</sup> grade

# ONLY 3 THINGS TO REMEMBER: Interest, STEM and Early Preparation

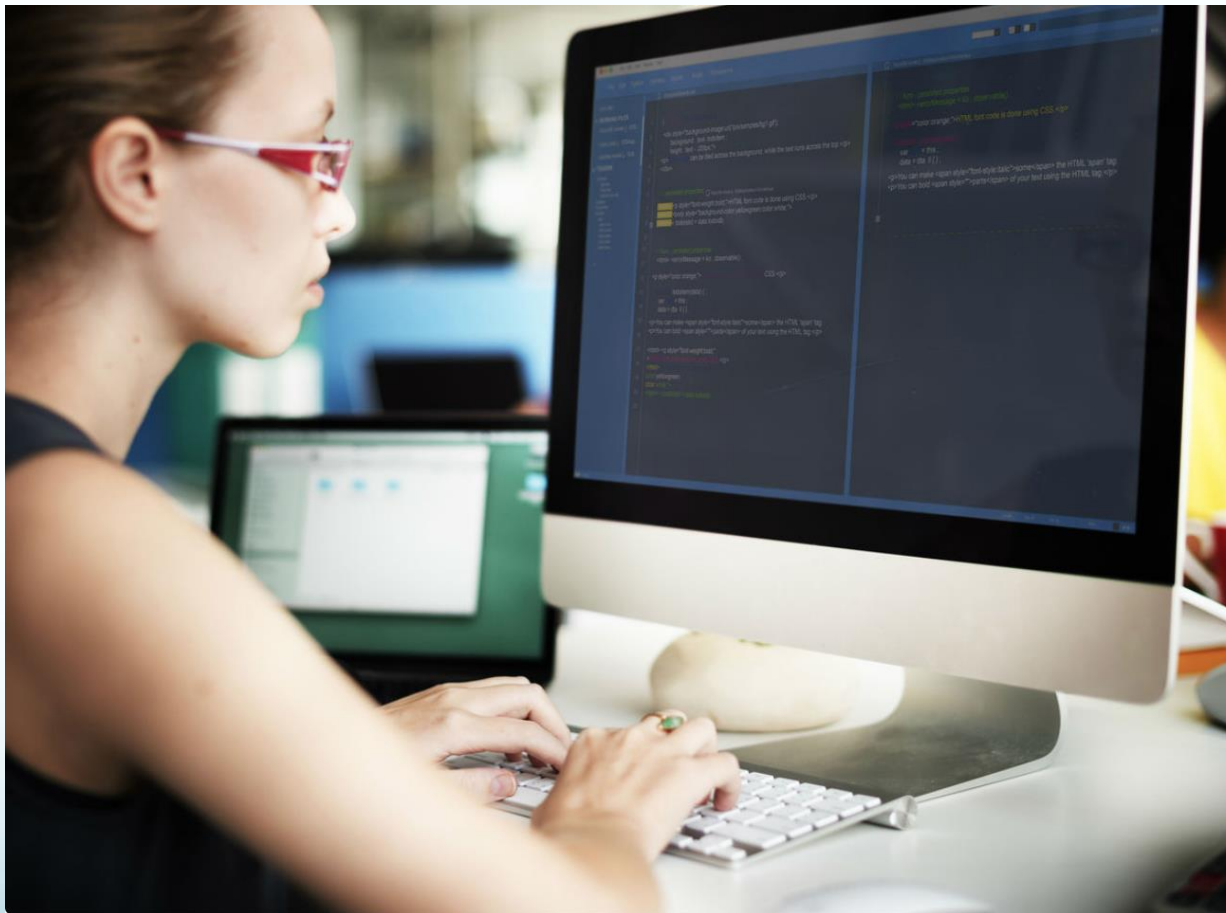
1. Girls lose interest in Science and Math in 7<sup>th</sup> grade
2. STEM and Health Fields are creating the greatest number of jobs for the future

# ONLY 3 THINGS TO REMEMBER: Interest, STEM and Early Preparation

1. Girls lose interest in Science and Math in 7<sup>th</sup> grade
2. STEM and Health Fields are creating the greatest number of jobs for the future
3. Much early preparation is needed for students to attend college

Number One

Year : Girls start to *lose interest* in Math & Science in 7th Grade, & never gain it back



# ONLY 3 THINGS TO REMEMBER: Lose Interest, STEM & Early Prep

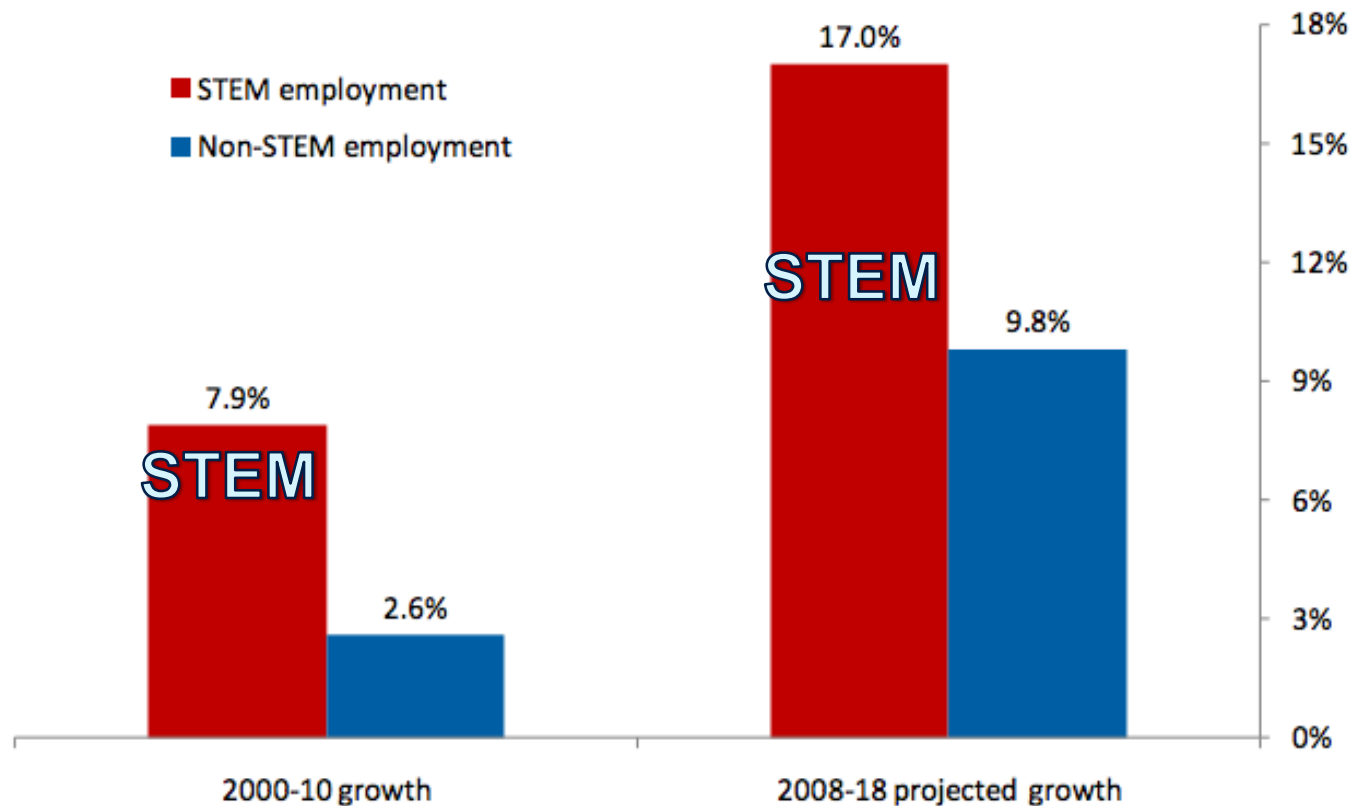
## REVIEW

1. Girls \_\_\_\_\_ in Science and Math in \_\_\_\_\_ grade

# STEM: Good Jobs Now and for the Future

Number Two

U.S. Department of  
Commerce  
Economics and  
Statistics  
Administration

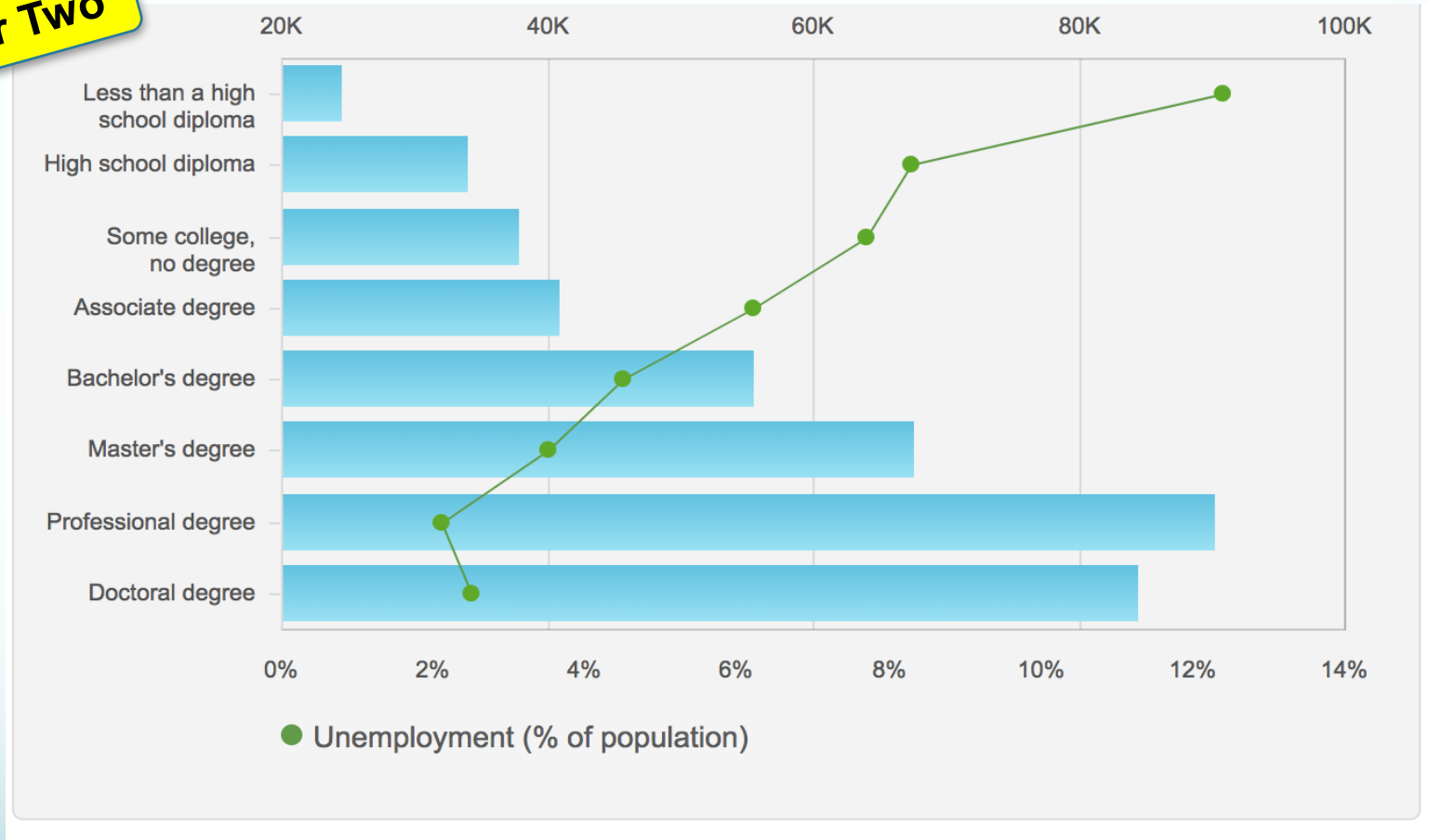


Source: ESA calculations using Current Population Survey public-use microdata and estimates from the Employ-



# STEM & Health Field Careers are creating the most stable jobs for future

**Number Two**



# ONLY 3 THINGS TO REMEMBER: Interest, STEM and Early Prep REVIEW

1. Girls lose interest in Science and Math in 7<sup>th</sup> grade
2. \_\_\_\_\_ and \_\_\_\_\_ Fields are creating the greatest number of jobs for the \_\_\_\_\_

# Early Preparation

Number Three

## Teens: Preparing for a Career Starts Now

CAREERS

POSTED BY MARISA SANFILIPPO ON AUGUST 30, 2017 AT 10:00 AM



# Much early preparation is needed for students to attend college

**Number Three**



# ONLY 3 THINGS TO REMEMBER:

## Interest, STEM and Early Prep

REVIEW

1. Girls lose interest in Science and Math in 7<sup>th</sup> grade
2. STEM and Health Fields are creating the greatest number of jobs for the future
3. Much \_\_\_\_\_ is needed for students to attend college and get into Health or STEM fields.

# ONLY 3 THINGS TO REMEMBER: Interest, STEM and Early Preparation

REVIEW  
W

1. Girls lose interest in Science and Math in 7<sup>th</sup> grade
2. STEM and Health Fields are creating the greatest number of jobs for the future
3. Much early preparation is needed for students to attend college



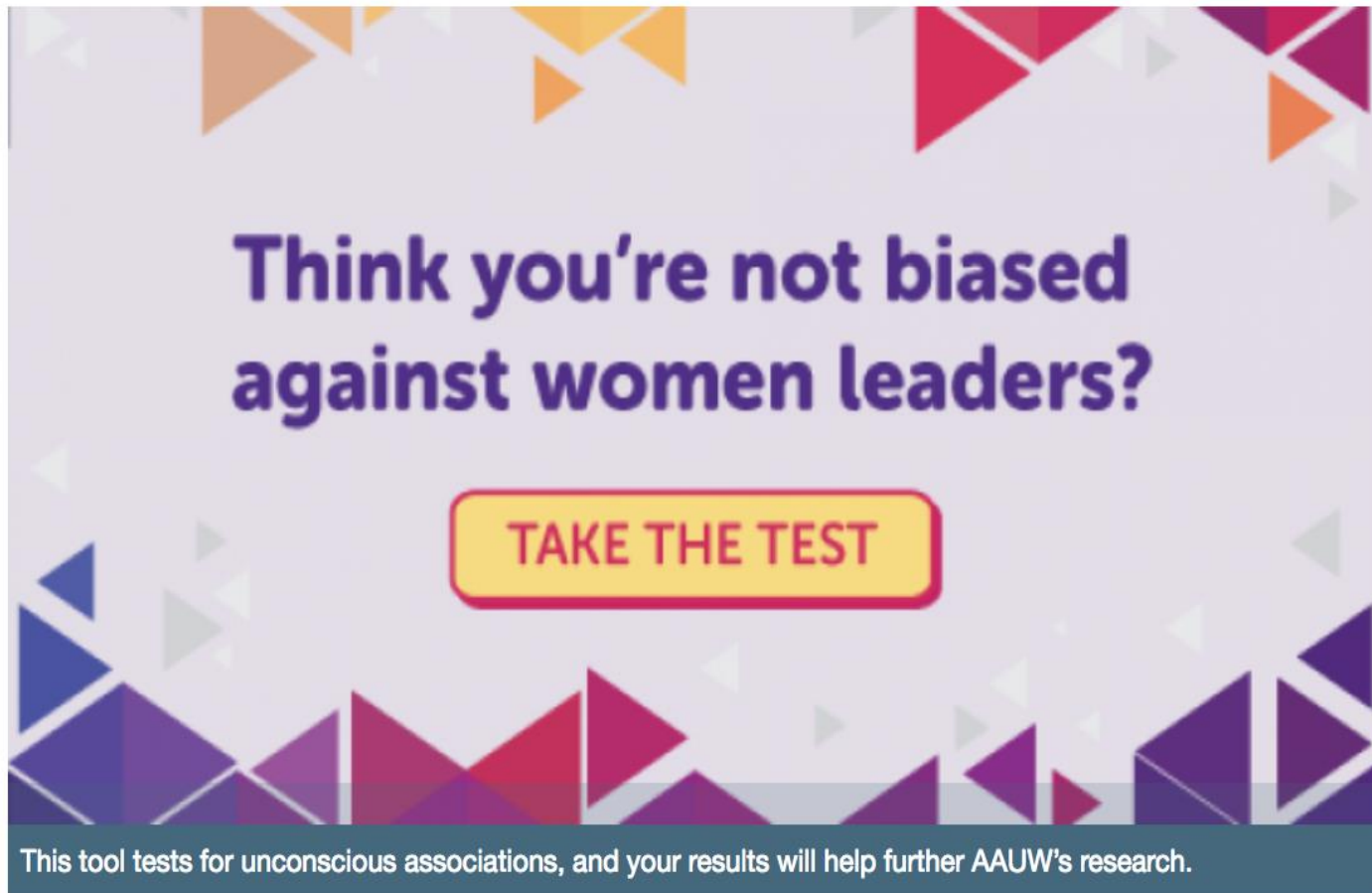
# Additional Obstacles:

Even if the girl remains interested in STEM courses and STEM careers and has been preparing for college since the 8<sup>th</sup> grade, there are still more obstacles in her way.



# Obstacle #1:

## Implicit Bias

An advertisement for an implicit bias test. The background is light purple with scattered geometric shapes in shades of orange, red, and blue. The main text is in a bold, dark purple font. A yellow button with a red border contains the text 'TAKE THE TEST'. At the bottom, a dark blue bar contains white text.

**Think you're not biased  
against women leaders?**

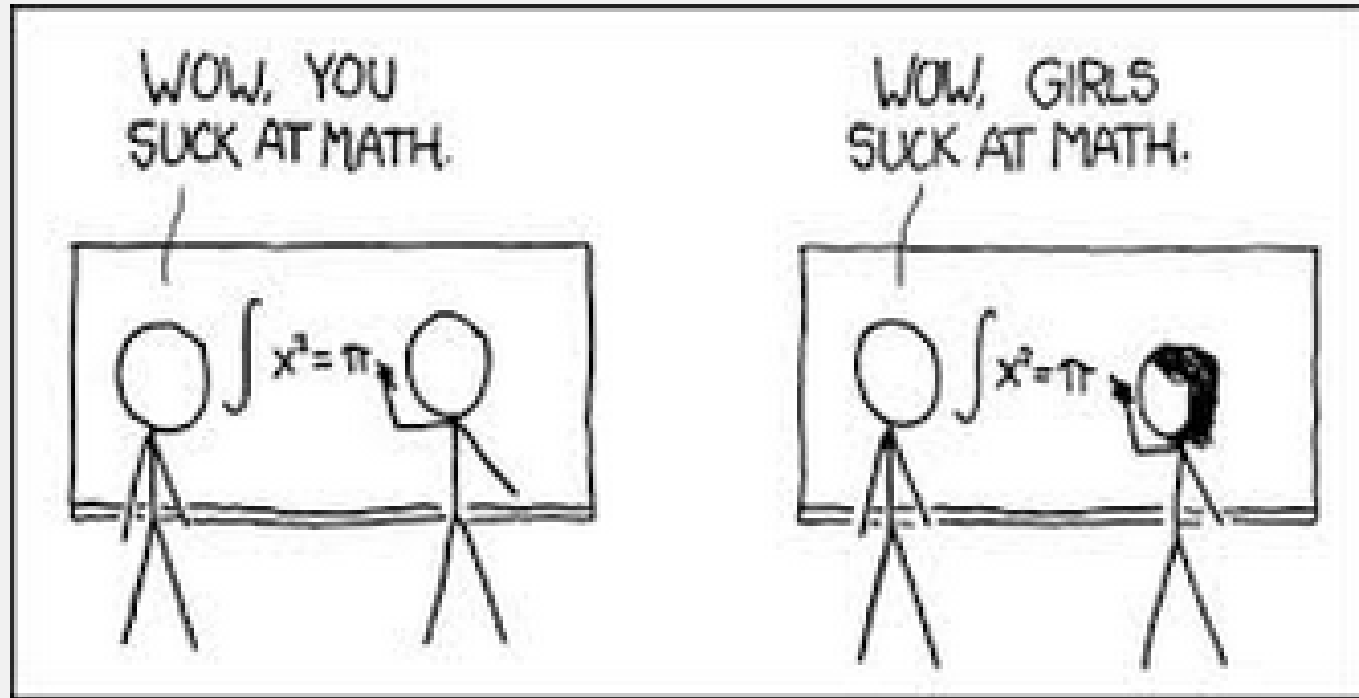
**TAKE THE TEST**

This tool tests for unconscious associations, and your results will help further AAUW's research.

**Take the test\* » | Read more »**



# WHERE IS THE BIAS?



**Take a test to learn about your unconscious bias at:**  
<https://implicit.harvard.edu>

# Barriers and Bias



# Example of Unconscious or Implicit Bias: Throw Like a Girl



## **Obstacle #2:**

**Equity: Access to education**

The California League of Women Voters' Study of Public Higher Education in California 2014-2016 was entitled:  
“Access Denied: Rising Selectivity at California’s Public Universities”

## **Obstacle #2:**

### Equity: Access to education

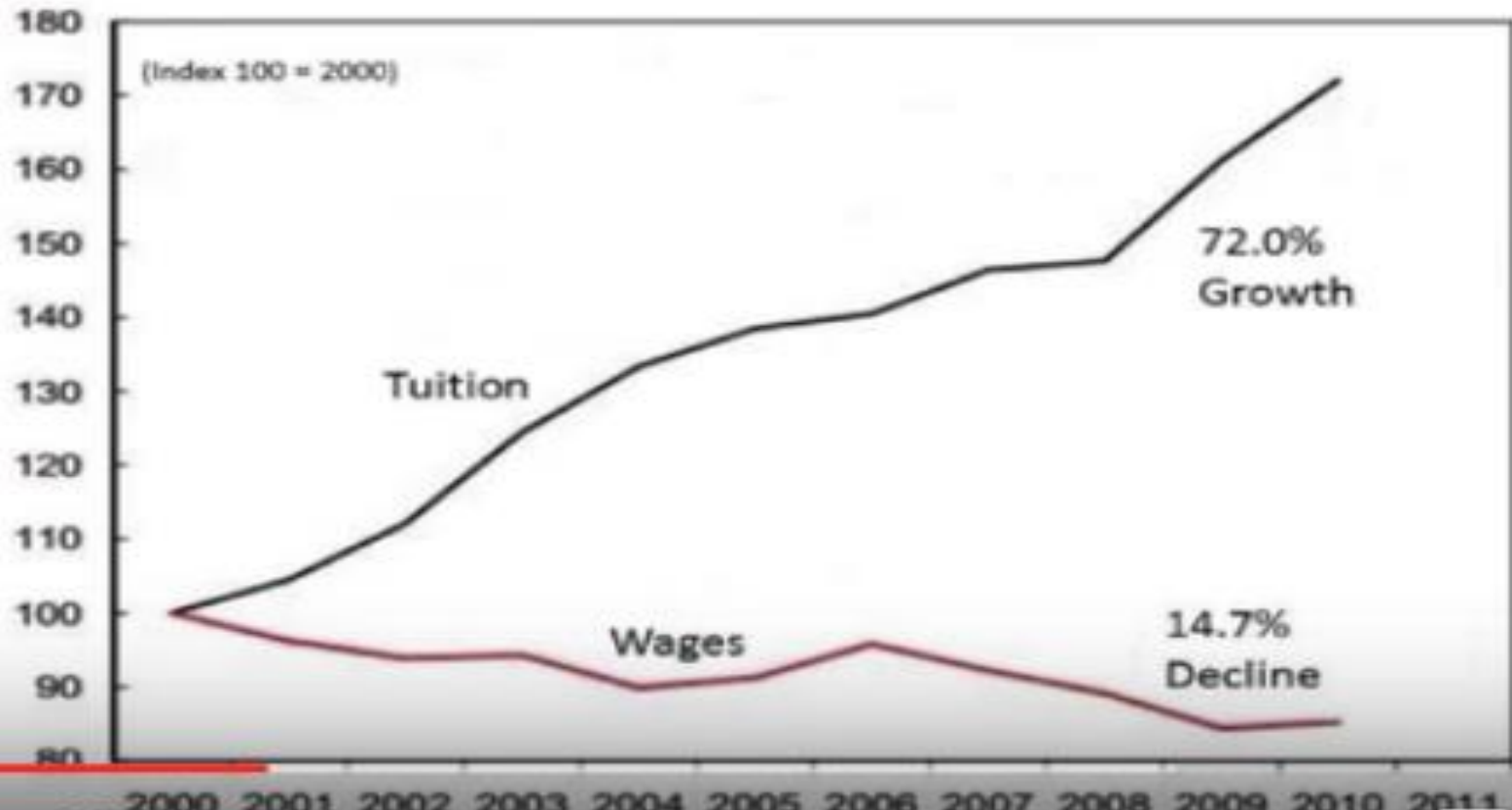
You can't continue to have higher education tuition grow at a multiple much more than the rate of inflation.

Mitt Romney

# Obstacle #2

## EQUITY: ACCESS TO

# BUT WAGES ARE STAGNANT



3:37 / 12:25



# Obstacle #3: UN-PREPAREDNESS

**Table 3. Completion Rates for Prepared and Unprepared Community College Students**

Student Group	College Prepared	College Un-Prepared
African American	63.6	32.9
Hispanic	62.7	34.2
White	69.1	41.8
Asian	81.5	55.6

Source: Data from California Community College Chancellor's Office 2015 Student Success Scorecard.

- **In 2011, CSU identified as needing remediation:**
  - 77% of low-income students
  - 75% of Latino students
  - 83% of African American students
  - 41% of white students

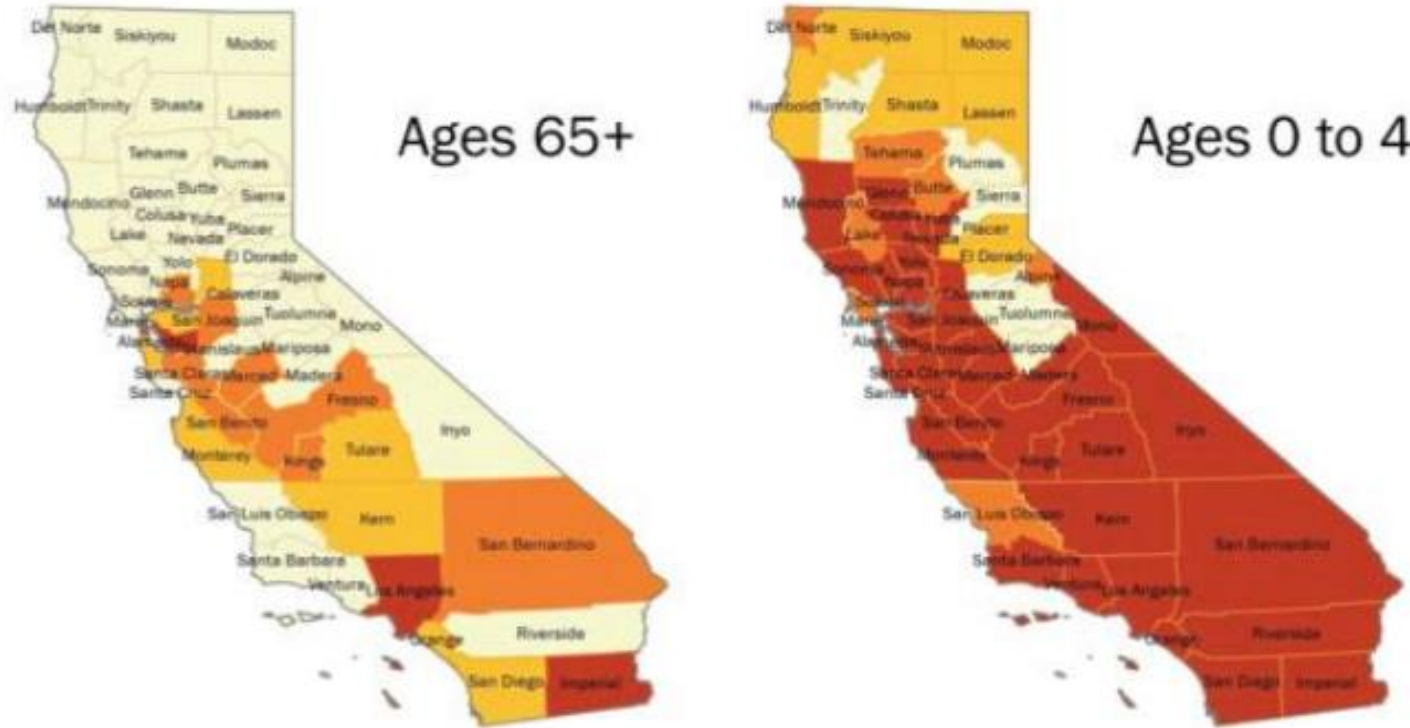
**Obstacle #3: UN-Preparedness**



# Obstacle #4: Changing Demographics

Figure 2. A New Generation Gap?

The Diverging Demographics of Seniors and Youth



Percent People of Color by County

0 30 40 50%



Sources: 2010 Census (Summary File 1), Census TIGER/Line, NHGIS, and ESRI.

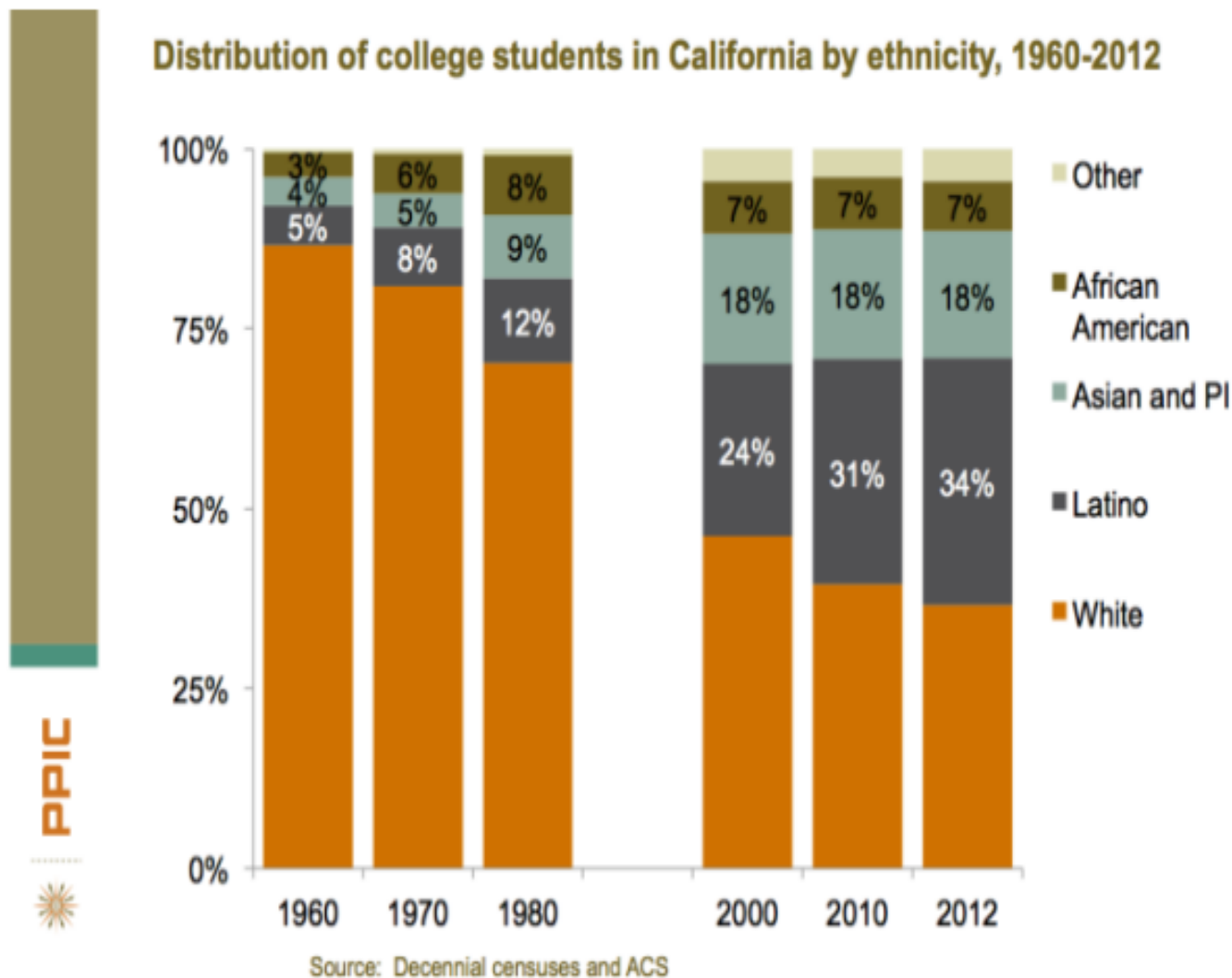


Copyright ©2011 PolicyLink and PERE

Source: Lizardo, 2014.

# Obstacle #4: Changing Demographics

Figure 3. Dramatic Increase in Ethnic Diversity of Students



Source: Johnson, January 2015.

# Obstacle #5: Priorities



## **Obstacle #5: Priorities**

California

# **The 1960 Master Plan: Now**

**Access to what? for whom?**

**In 1960 –**

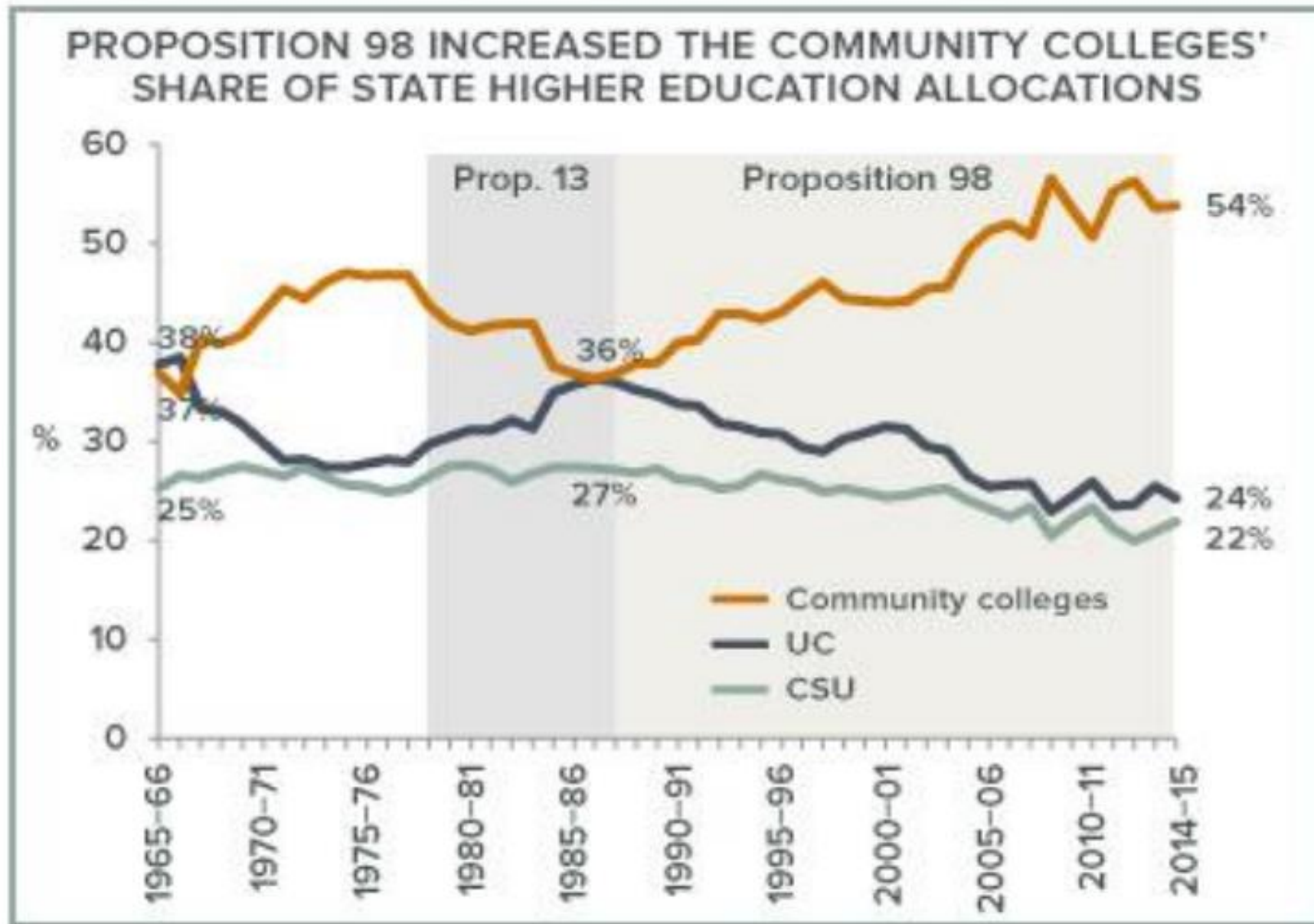
- UC and CSU received  $\approx 90\%$  of their funding from the state
- CCC charged no fee  $\approx 100\%$  of revenues came from the state & local property taxes

## **Obstacle #5: Priorities**

California Community Colleges  
(CCC) ...

...historically were funded by local property taxes, but are now mostly funded by the State following the passage of Proposition 13. Prior to 1984 CCC charged no fee.

Figure 9. State Appropriations to Higher Education 1965-2014



# Base Budget R&D by Agency, FY 2017

budget authority in billions of dollars, excluding new mandatory proposals in FY 2017

## Obstacle #5: Priorities

Commerce, \$1.9

USDA, \$2.6

All Other, \$6.0

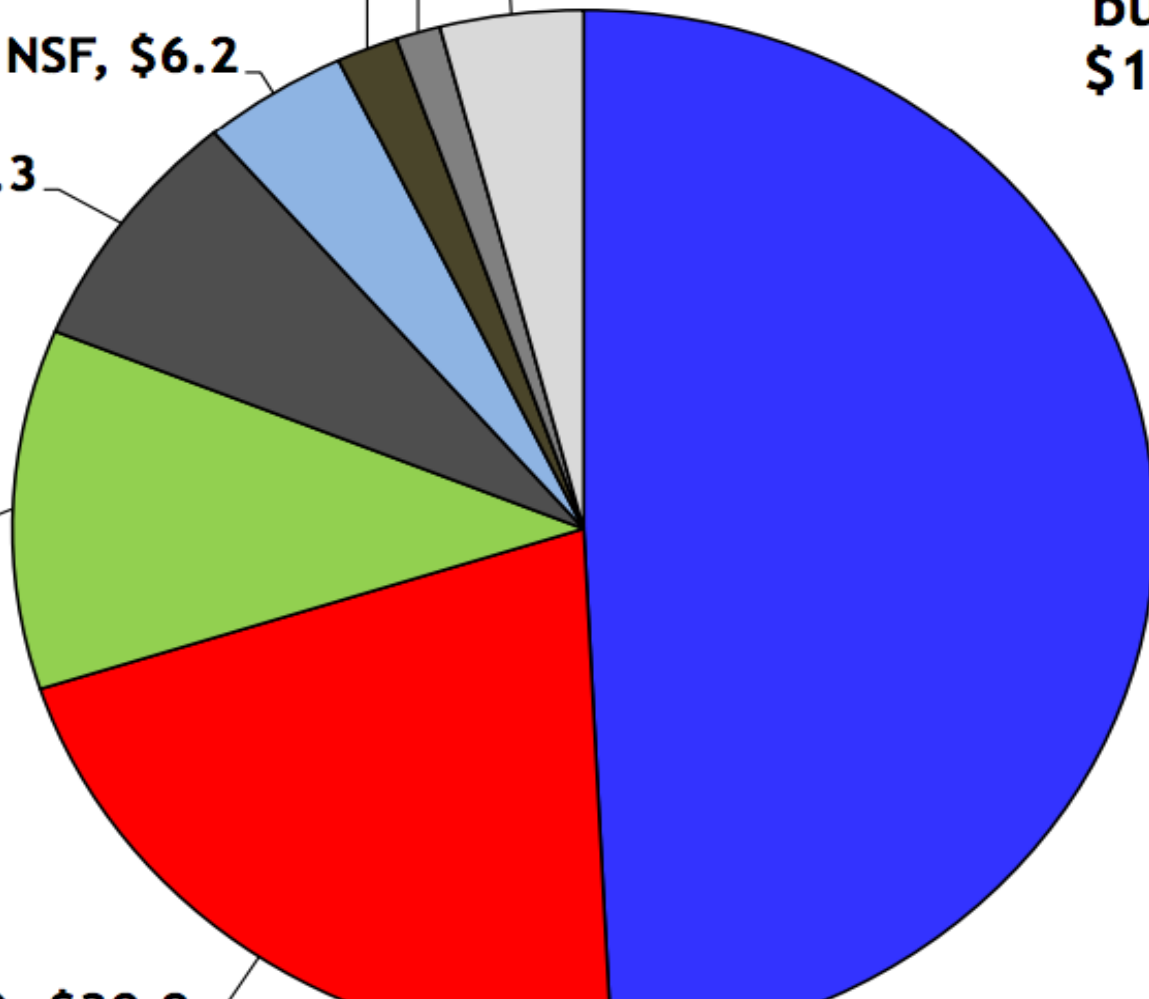
Total base  
budget R&D =  
\$148.8 billion

NSF, \$6.2

NASA, \$11.3

DOE, \$16.6

DOD, \$73.2



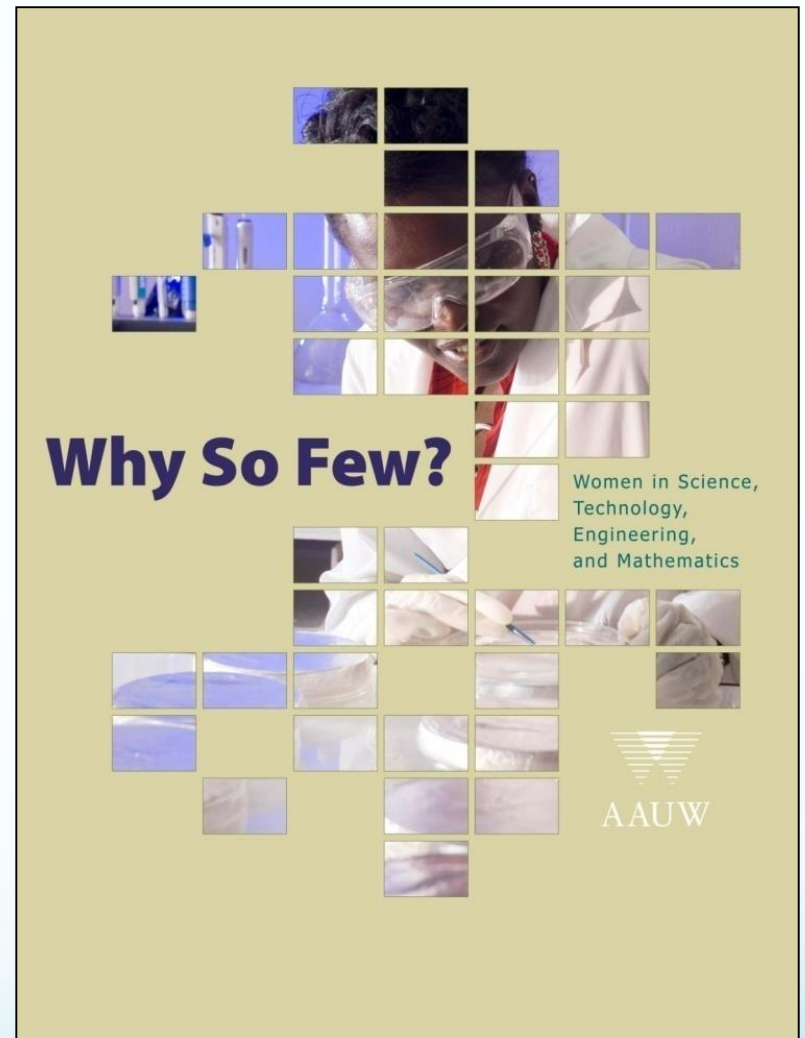
# NY Times article-----“Student Debt and the Crushing of the American Dream”

By JOSEPH E. STIGLITZ MAY 12, 2013

“Robust higher education was once the linchpin in a system that promised opportunity for dedicated students of any means.” Instead student debt has **become a key part** of the story of American inequality. “



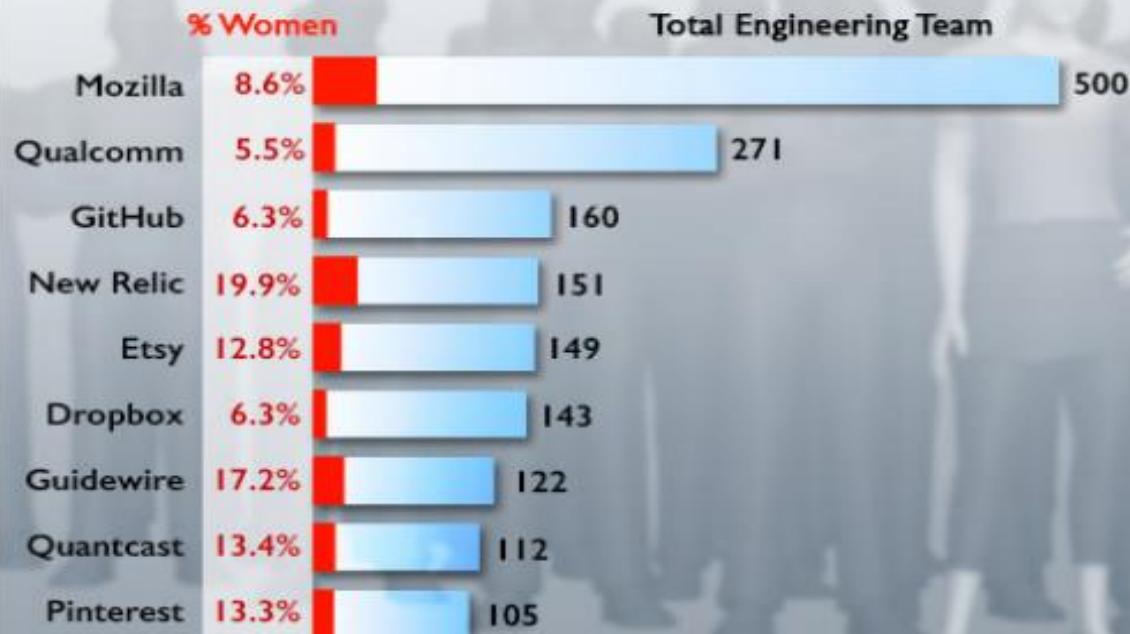
# AAUW's 2010 Research: Why So Few? Women in Science, Technology, Engineering, and Mathematics



# Companies Rarely Hired Women

## 100+ Engineering Team, But Few Women

Although 25 percent of engineering teams are comprised of women based on the industry standard, the figure is sometimes far less among companies with more than 100 engineers.



Source: Tracy Chou women engineering data

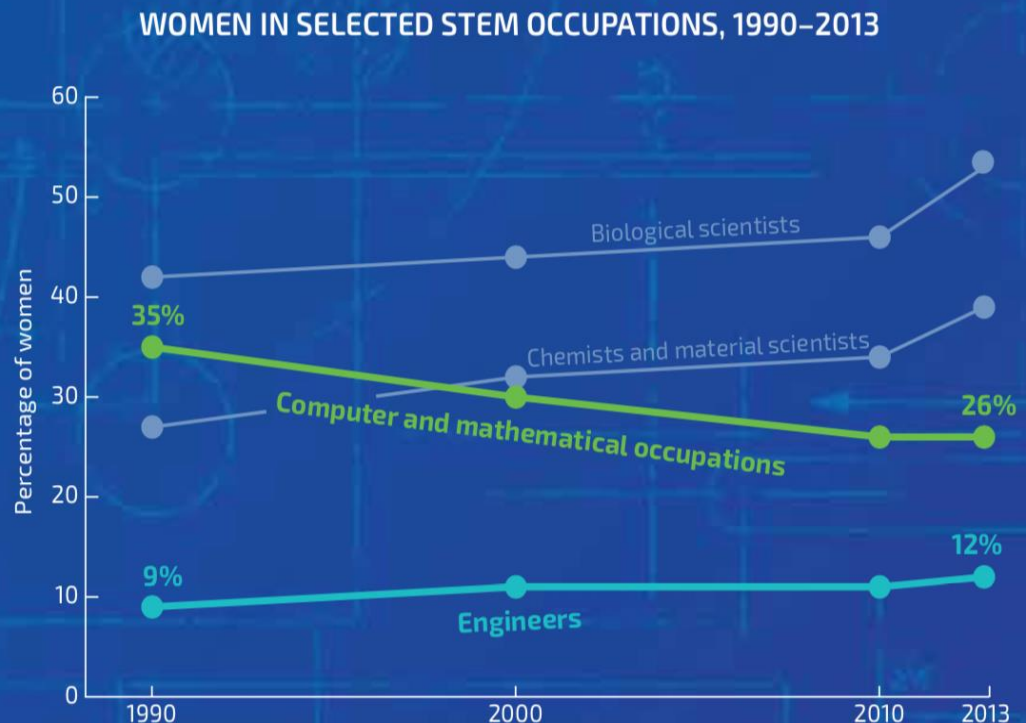
# Obstacle #7: Women Leaving STEM Jobs after 2 Years?



# AAUW's 2015 Report: Why are There Still So Few?

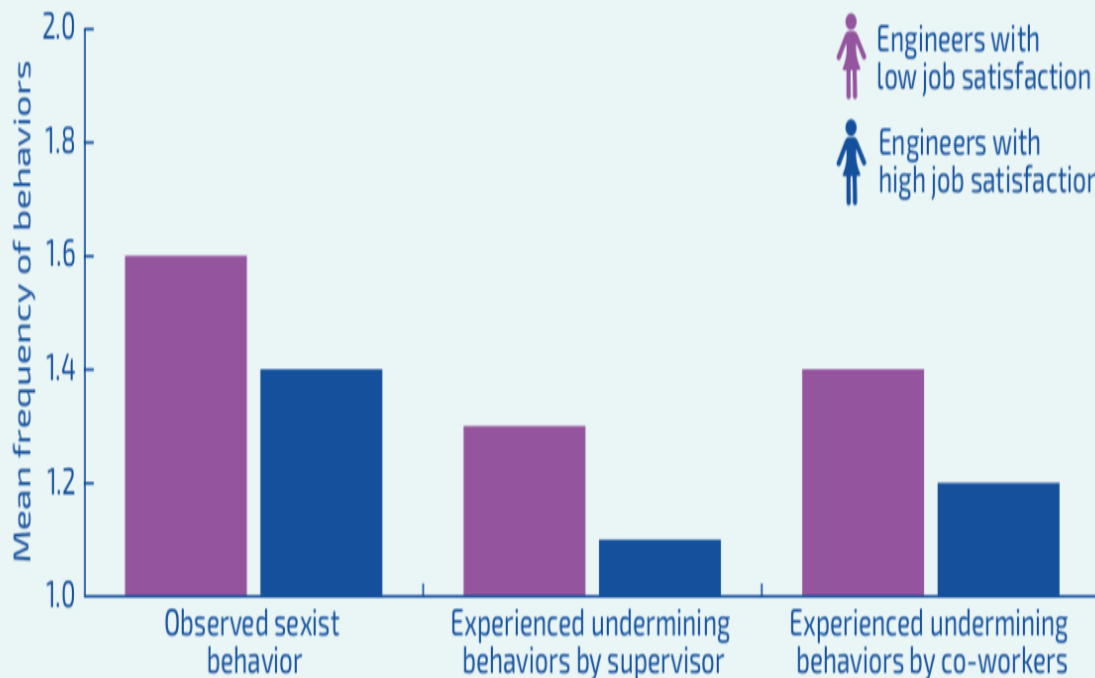
## WHY ARE THERE STILL SO FEW WOMEN IN ENGINEERING AND COMPUTING?

Just 12% of engineers are women, and the number of women in computing has fallen from 35% in 1990 to just 26%.



# Obstacle #7: Job Satisfaction of Women Engineers

JOB SATISFACTION OF WOMEN ENGINEERS IN THE WORKFORCE



One study found that the women who leave engineering are just like the women who stay. The difference is the workplace culture.

# What are Possible Solutions?

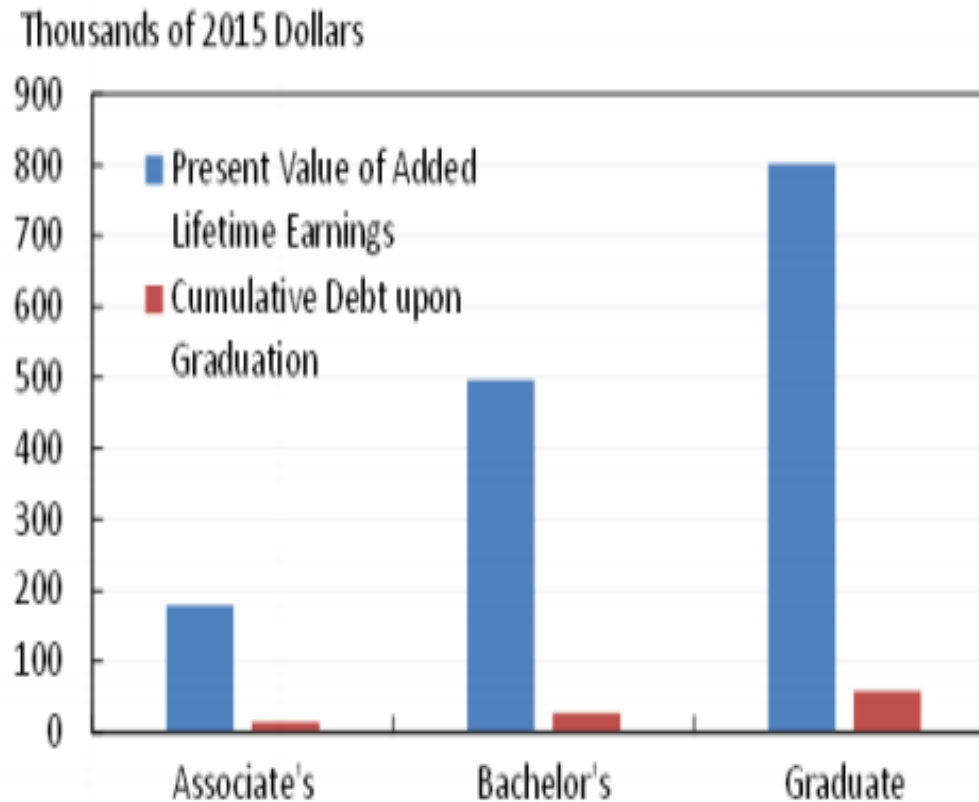
“You do not need to know precisely what is happening, or exactly where it is all going. What you need is to recognize the possibilities and challenges offered by the present moment, and to embrace them with courage, faith and hope.”

— Thomas Merton

# Tools We Can Use Today

# Tools

Figure 2. Present Value of Added Lifetime Earnings and Cumulative Student Debt



Note: Lifetime earnings are calculated by summing median annual earnings for full-time, full-year workers at every age between 25 and 64 by educational attainment, subtracting earnings for the same type of worker with only a high school degree, and converting to present value using a 3.76% discount rate.

Source: CPS ASEC 2014 and 2015; NPSAS 2012



# Tool

s

## SUPPORT COMMUNITY COLLEGE



**Advocate for  
Economic  
Reforms**

*Stieglitz: We ought to go back to the premise we had after World War II that access to education is absolutely essential to the future growth of our country*

Joseph Stieglitz: Columbia University Professor  
& Nobel Prize winning economist

# Tool

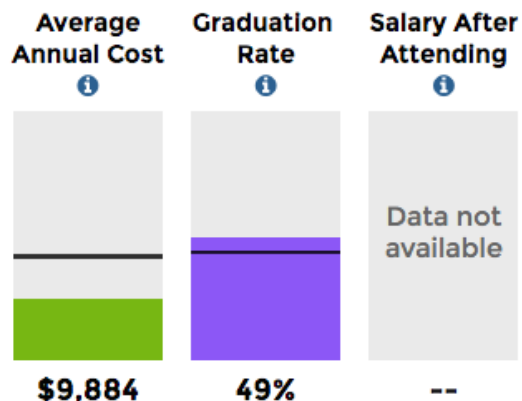
The U.S. Department of Education's College Scorecard

# S

The U.S. Department of Education's College Scorecard  
Colleges Ranked by cost, graduation rate and post-school salary

## Columbia Southern University

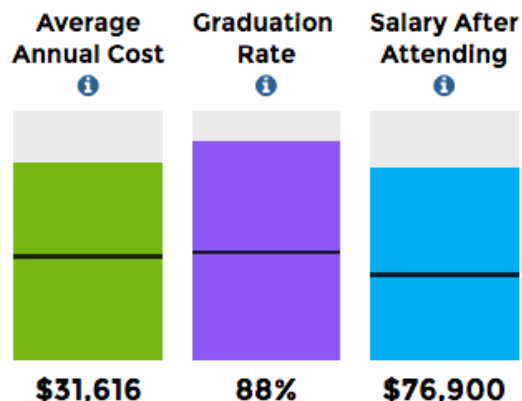
Orange Beach, AL  
15,286 undergraduates



National Average

## Bentley University

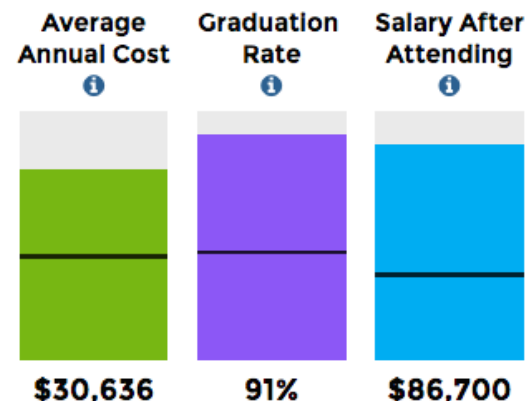
Waltham, MA  
4,190 undergraduates



National Average

## Babson College

Wellesley, MA  
2,107 undergraduates



National Average

# Tool

S

Find out more...

AUSTRALIA'S  
INCOME-  
PARTICULAR  
LOANS



## How Australia Gets Student Loans Right

Graduates don't have to start making payments for their college educations until they reach a salary equivalent to \$39,152—and they pay no interest.

# Tools

## Support Tech Trek

- Encourages a diverse group of young women entering eighth grade to take math and science courses each year throughout high school.
- Inspires young women to consider careers in science, technology, engineering or math. Methodology
- Motivates students to attend college.

# Tech Trek's Success

*Table 1. National course taking patterns compared to those of Tech Trek participants.*

<b>Subject</b>	<b>National course-taking percentage (male and female)*</b>	<b>Tech Trek participant course-taking percentage</b>	<b>Magnitude of Increase</b>
<b>Chemistry</b>	63%	93%	148%
<b>Biology</b>	36%	95%	264%
<b>Physics</b>	33%	64%	194%
<b>Trigonometry</b>	20%	83%	176%
<b>Precalculus</b>	27%		
<b>Calculus</b>	13%	57%	335%

\* National Science Foundation. Science and Engineering Indicators 2006. Retrieved June 20, 2007 from <http://www.nsf.gov/statistics/seind06/>. Figures are for year 2000 data.

# Tool

## s Start a Mentoring Program



4/26/2018

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# Margaret Mead...

“Never doubt that a small group of thoughtful, committed people can change the world.”



**Tools**

# Support Engineer Barbie!



# Three Goals to Support Education and Career for Girls

STEP ONE: <https://www.aauw.org/article/implicit-association-test/>

ARE YOU, YOUR FAMILY OR FRIENDS implicitly bias?

---

STEP TWO: <https://www.cacareerzone.org/budget/>

Starting salary needed \_\_\_\_\_

STEP THREE: <https://public.careercruising.com/en/>

Assessments finished? \_\_\_\_\_

To the Students of Today and  
Tomorrow:

“Hold fast to dreams,  
For if dreams die  
Life is a broken-winged bird,  
That cannot fly.”

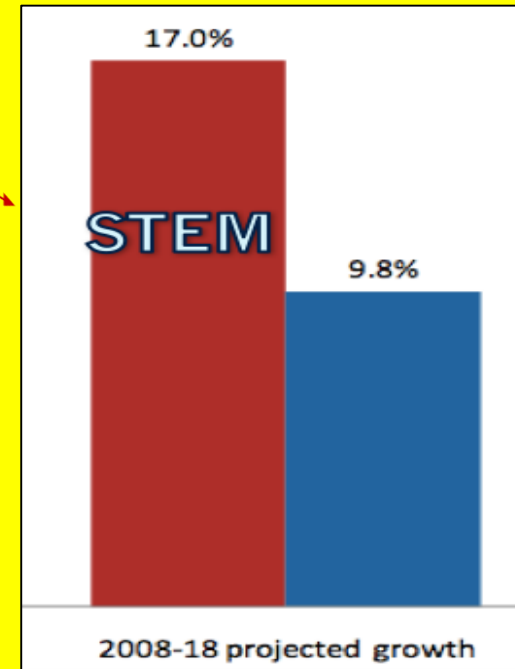
-- Langston Hughes

# REVIEW:

1. Girls lose \_\_\_\_\_ in Science and Math in \_\_\_\_\_ grade
  - STAND UP FOR SMART GIRLS

2. \_\_\_\_\_ and Health Fields are creating the greatest number of jobs for now and \_\_\_\_\_

3. Much \_\_\_\_\_ preparation needed for students





Congratulations,  
you did it!

