



# EQUITY IN THE MATH CLASSROOM

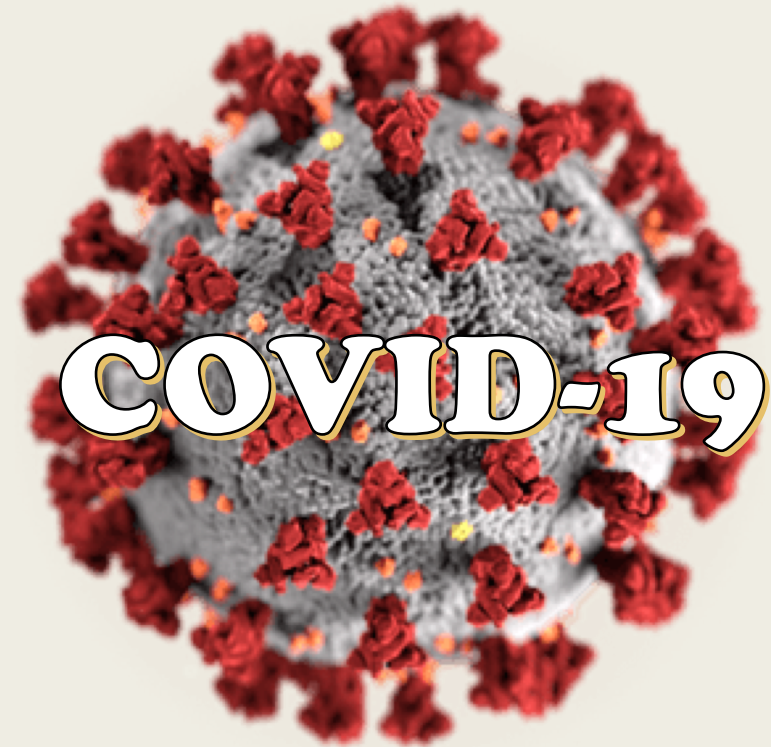
Strategies for Reaching Every  
Student

Dr. Jenna P. Carpenter  
Campbell University

# Outline

- Intro
- Two stories of equity in mathematics
- Equity in Mathematics – What can we do?
  - Admit for ability, not background & opportunity
  - Create engaging entry and alternate pathways
  - Check our implicit biases and build a culture of belonging
  - Believe in our students and do everything possible to help them succeed
- What else can we do?

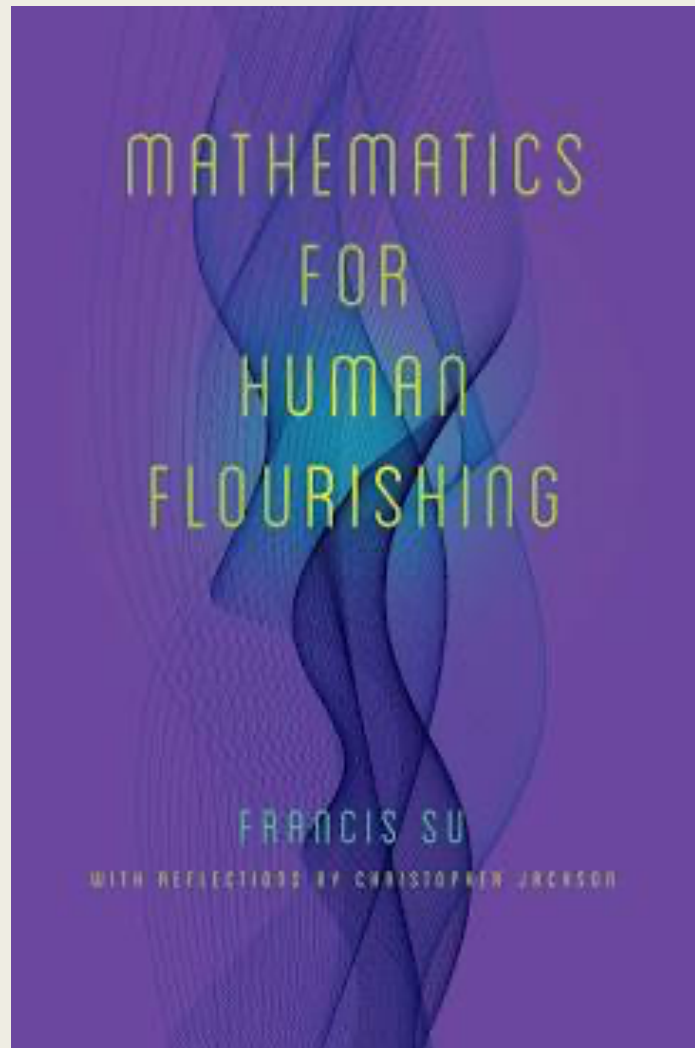
# Intro



[https://en.wikipedia.org/wiki/File:Black\\_Lives\\_Matter\\_logo.svg](https://en.wikipedia.org/wiki/File:Black_Lives_Matter_logo.svg), <https://www.cpf.navy.mil/COVID19/>

<https://www.chronicle.com/article/How-the-Education-System/249097>

# Mathematics for Human Flourishing



<https://www.amazon.com/Mathematics-Human-Flourishing-Francis-ebook/dp/B082P4PMYK>,  
<https://www.harvardmagazine.com/2020/01/francis-su-math>



# My Story



**Southern Regional Number Theory Conference**  
**In Honor of Robert Perlis on his Retirement**  
April 8-9, 2017  
Louisiana State University  
Baton Rouge, Louisiana



**Participants**  
Stefan Ardnt, Colorado University  
Pat Beltrami, University of Louisiana at Lafayette  
Peter Bruin  
Frank Calegari, University of California (San Diego)  
Jenna Carpenter, Louisiana State University  
Shang-Chang CHEN, MIT Academic, Inc.  
Dirk Kraljević, University of Novi Sad  
Victor Mullu, Tulane University  
Karl Murrell, University of Tennessee  
Hauke Quidde, University of Bremen (D)M  
Marco Schlichting, University of Bremen (D)M  
Markus Sorenson, University of Northern Iowa  
Narvik, Val, Queen's University (Canada)

Robert Perlis received his Ph.D. from MIT in 1971 and has worked for the LSC family since 1976. While at MIT, he was known as "the graduate student with a dog", "Duke", "and a kid". Meanwhile, both of whom accompanied him in various ways. At LSU, he directed the distribution of several textbooks, including eight volumes and three "African-American" volumes, as a program officer in the division of mathematical sciences at NSF from 1985 to 1990, and worked on several NSF grants since 2000.

Organizers: Laci Csizsar, Jerome Hoffner, Ting Liang, Karl Murrell, Yang Ting To



The Number Theory Foundation      National Science Foundation      LSU Math Dept. & College of Science

To register: <https://www.math.lsu.edu/~conder/2017TheSRNTC/index.html>



<https://www.latech.edu>, <https://www.math.lsu.edu/srntc/nt2017/RobertPoster.pdf>,  
<https://blogs.campbell.edu/2020s-jenna-carpenter/>

# Equity in Math – What Can We Do?



Dr. Bill Velez  
Emeritus Professor of  
Mathematics  
University of Arizona  
Fellow, AAAS

**#1 - Admit students for ability, not background**

<https://mlkscholars.mit.edu/wvelez/>

# Another example...

Dr. Michael Dorff  
President of the MAA  
Professor of Mathematics  
Brigham Young University

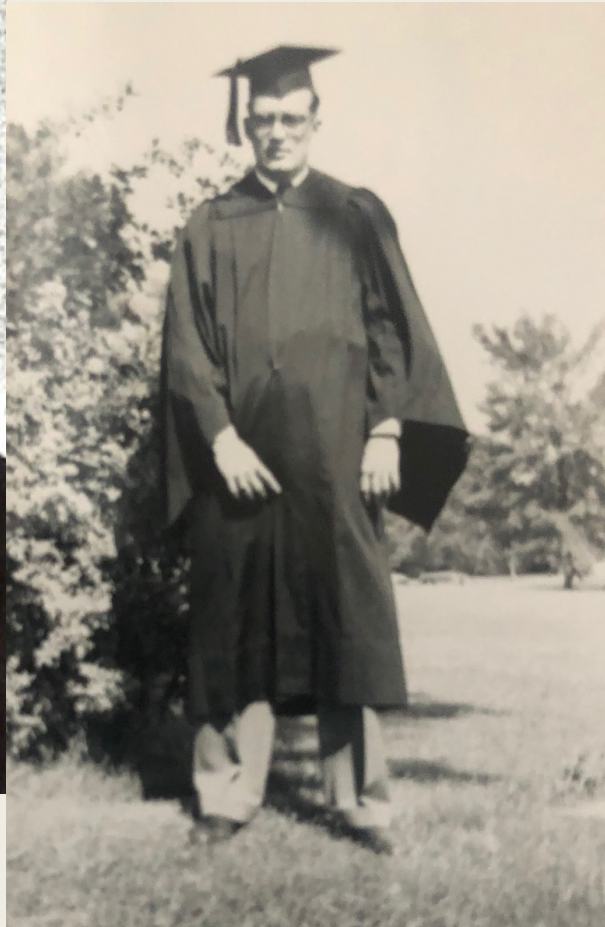


<https://bit.ly/2ZrTh6C>

<https://blogs.ams.org/livingproof/files/2019/10/blogheader-livingproof.png>



# Privilege matters...





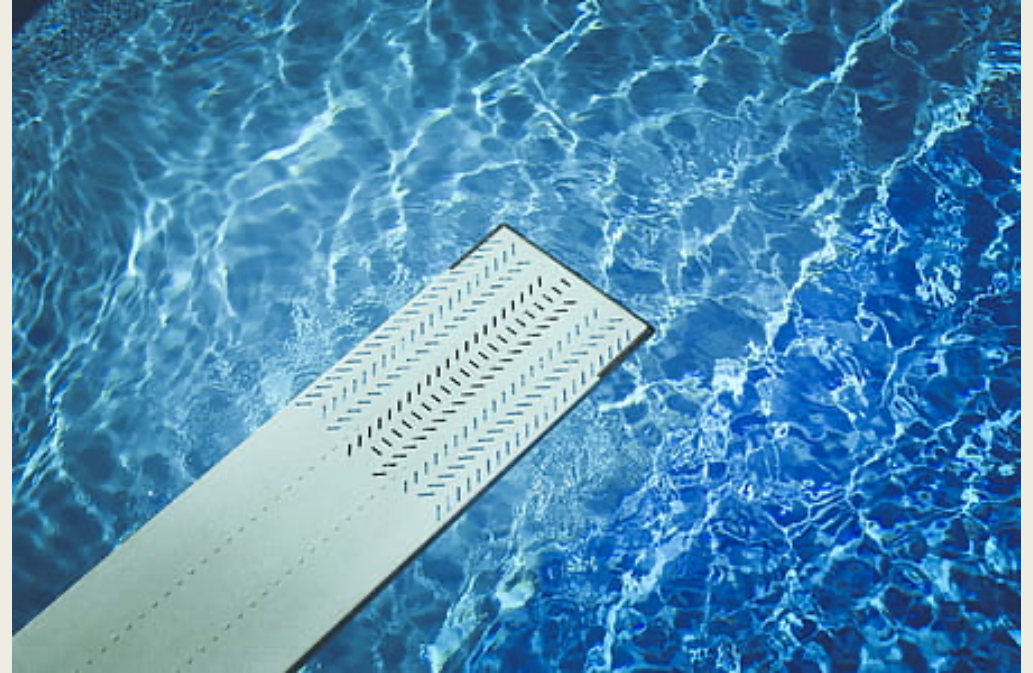
# Equity in Math – What Can We Do?



**#2 – Build rich and engaging entry points & alternate pathways for students**

[https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse\\_191791.pdf](https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_191791.pdf)

# Think more than just math class...



<https://mpng.subpng.com/20180326/vhe/kisspng-swimming-pool-inflatable-child-plastic-swimming-5ab95f8e3ffd77.7626900415220980622621.jpg>

<https://i1.pickpik.com/photos/1009/982/442/blue-diving-board-pool-recreation-thumb.jpg>



# Equity in Math – What Can We Do?



**#3 – Create a culture where all students belong**



# Our Implicit or Unconscious Biases undermine our efforts at every step...

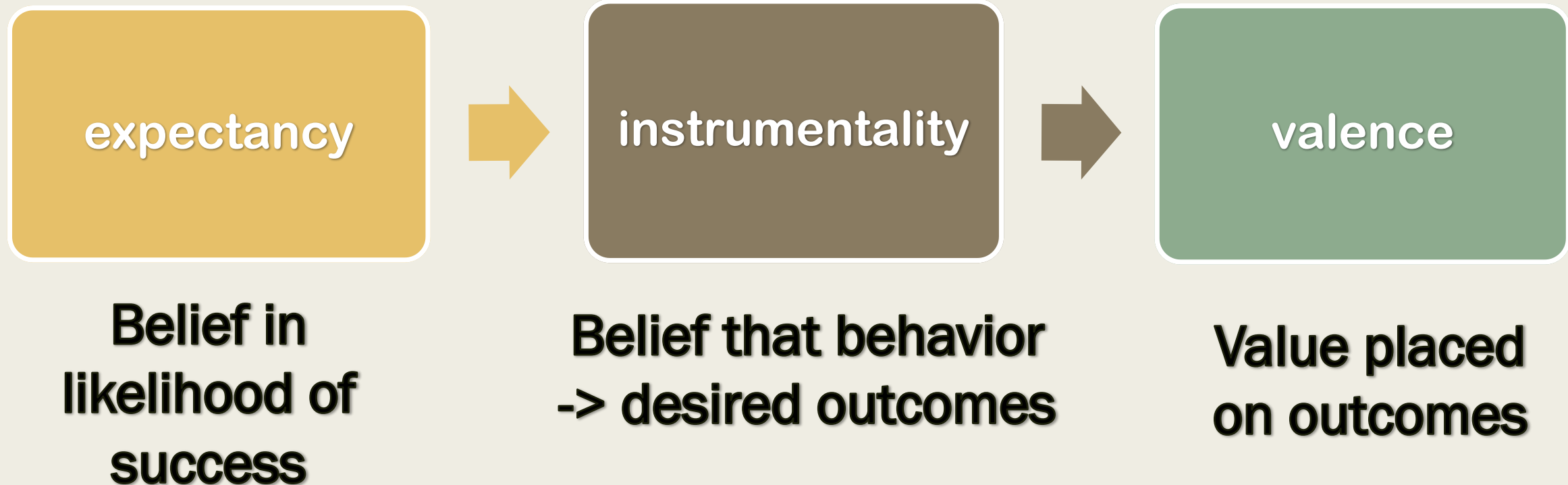


# Equity in Math – What Can We Do?



**#4 – Believe in your students & show them you do**

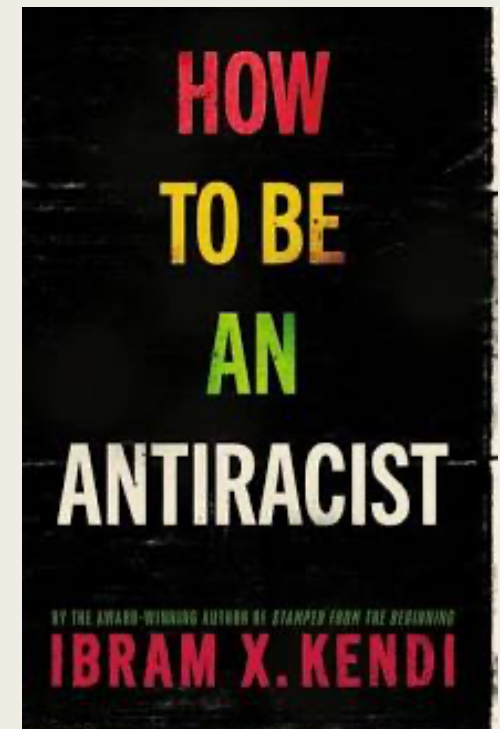
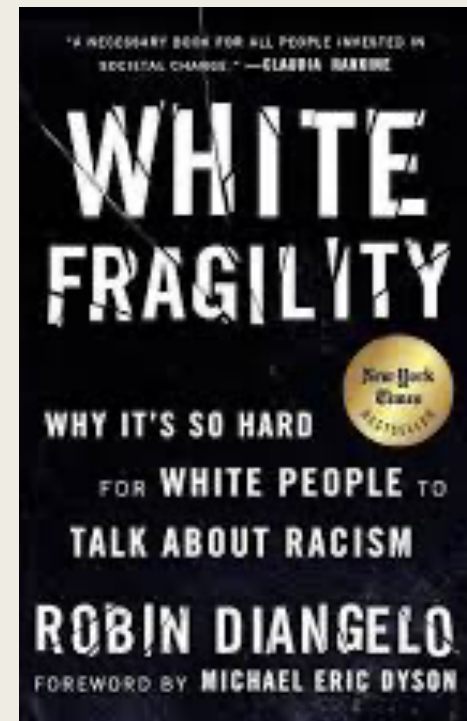
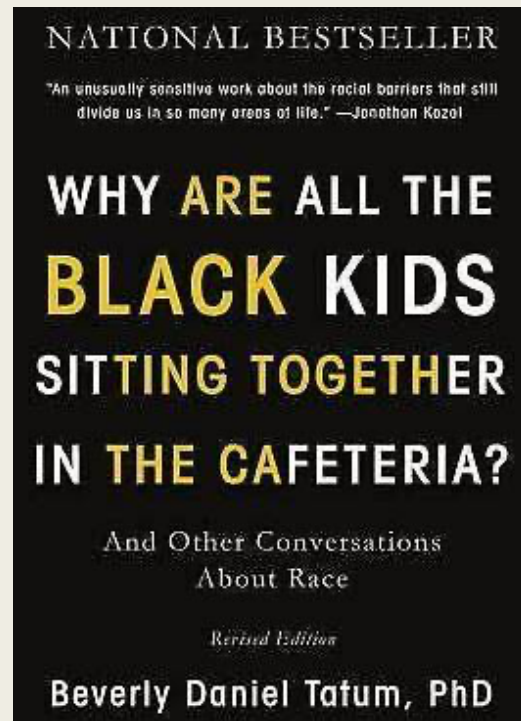
# Expectancy Theory



Hancock, D. (1995). WHAT TEACHERS MAY DO TO INFLUENCE STUDENT MOTIVATION: AN APPLICATION OF EXPECTANCY THEORY. *The Journal of General Education*, 44(3), 171-179. Retrieved June 27, 2020, from [www.jstor.org/stable/27797259](http://www.jstor.org/stable/27797259)

# What else can we do?

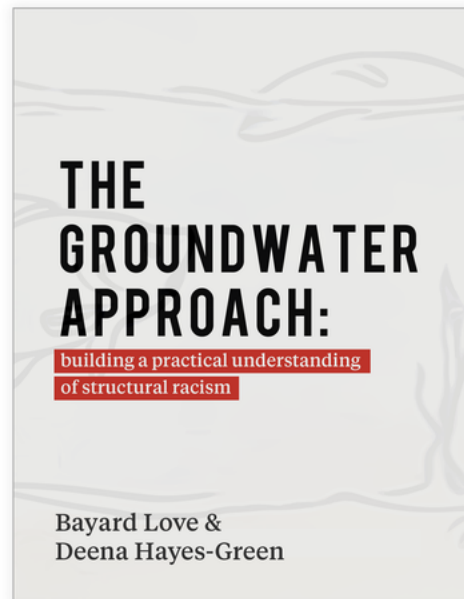
- Educate yourself about systemic racism and its impact on both K12 and higher education





# What else can we do?

- Educate yourself about systemic racism and its impact on both K12 and higher education



“ To show **that** there is inequity, but not **why** there is inequity leaves too much open to interpretation. The reality is that we live in a racially structured society. **That** is what causes inequity. ”

**READ THE FULL REPORT**

groundwaterapproach.net

**REI**  
racialequityinstitute, llc

<https://www.racialequityinstitute.com/groundwaterapproach>

# What else can we do?

- Look for good educational models, approaches and programs that help marginalized students succeed



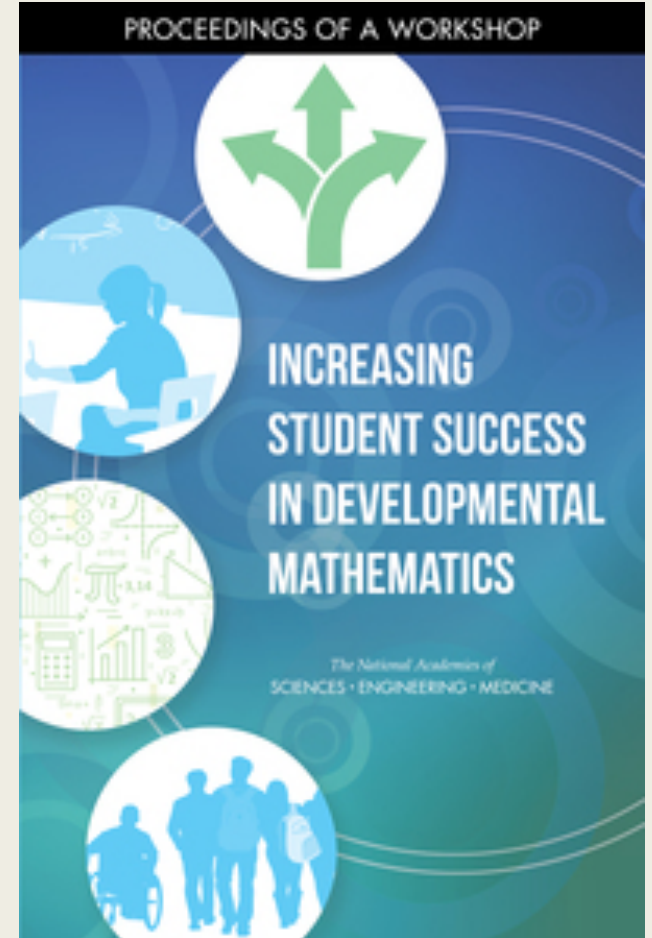
<http://www1.cuny.edu/sites/asap/>



# What else can we do?

- Co-requisite Model
- New Mathways Project
- CUNY Start Program
- Carnegie Math Pathways: Quantway and Statway

<https://www.nap.edu/catalog/25547/increasing-student-success-in-developmental-mathematics-proceedings-of-a-workshop>



Increasing Student Success  
in Developmental  
Mathematics



# What else can we do?

## “How The Education System Exacerbates Inequality”

Chronicle of Higher Education, June 30, 2020

- Promising Approaches
- Funding & Resources
- System Redesign



- <https://www.chronicle.com/article/How-the-Education-System/249097>

# Conclusion

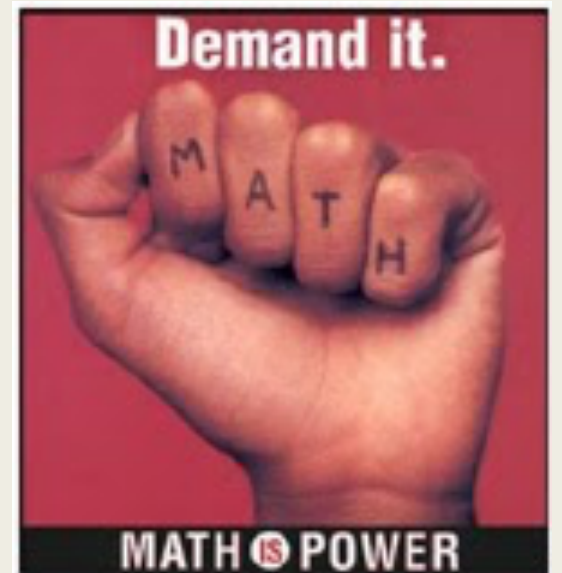
**#1 - Admit students for ability, not background**

**#2 – Build rich and engaging entry points & alternate pathways for students**

**#3 – Create a culture where all students belong**

**#4 – Believe in your students & show them you do**

**#5 – Educate yourself about systemic racism and look for good models to adapt & implement**



[https://lh5.googleusercontent.com/proxy/4353KoJBcealVlvwJ7JoHk3vpkBsQGAIKW21vNFZoSCE-fYXp3\\_LRqJy4wXx02o3C6iVx9HjbBoixe0ttDP6DQIOx4stjWcsRIAGkcu\\_=w1200-h630-p-k-no-nu](https://lh5.googleusercontent.com/proxy/4353KoJBcealVlvwJ7JoHk3vpkBsQGAIKW21vNFZoSCE-fYXp3_LRqJy4wXx02o3C6iVx9HjbBoixe0ttDP6DQIOx4stjWcsRIAGkcu_=w1200-h630-p-k-no-nu)

# Questions?

[carpenter@campbell.edu](mailto:carpenter@campbell.edu)



# Resource Links:

- Francis Su, "Mathematics for Human Flourishing," Yale University Press, 2020, <https://www.amazon.com/Mathematics-Human-Flourishing-Francis-ebook/dp/B082P4PMYK>, (video: <https://www.youtube.com/watch?v=xEtDvc1SWm8>)
- Elain Seymour and Anne-Barrie Hunter, "Talking About Leaving Revisited," Springer, 2019, <https://www.springer.com/gp/book/9783030253035> (video series: <https://seachange.aaas.org/port-of-call/institute/talr/1>)
- Michael Dorff, "My Living Proof Story," AMS Blogs, Living Proof: Stories of Resilience Along the Mathematical Journey, <https://blogs.ams.org/livingproof/2020/06/28/my-living-proof-story-by-michael-dorff/>
- "The Groundwater Approach," Racial Equity Institute, Greensboro, NC, <https://www.raciaequityinstitute.com/groundwaterapproach>
- CUNY ASAP Program, <http://www1.cuny.edu/sites/asap/>
- "Increasing Student Success in Developmental Mathematics: Proceedings of a Workshop," National Academies Press, 2019, <https://www.nap.edu/catalog/25547/increasing-student-success-in-developmental-mathematics-proceedings-of-a-workshop>
- "How The Education System Exacerbates Inequality", Chronicle of Higher Education, June 30, 2020, <https://www.chronicle.com/article/How-the-Education-System/249097>