



T E X A S  
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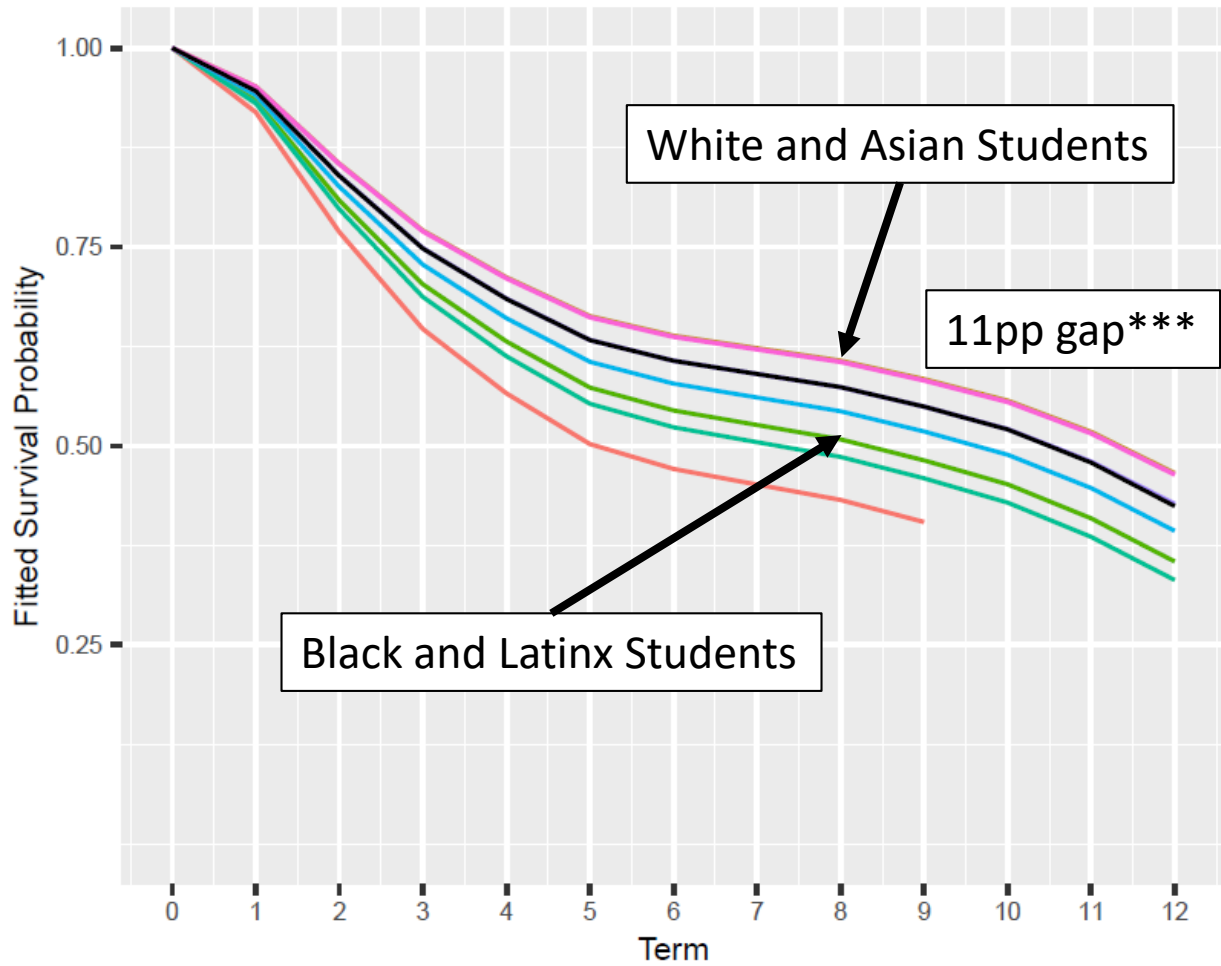
# Reducing Inequality by Targeting Faculty Practices: The Texas Mindset Initiative

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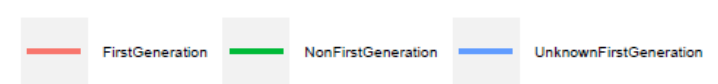
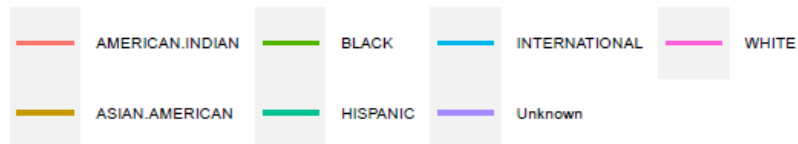
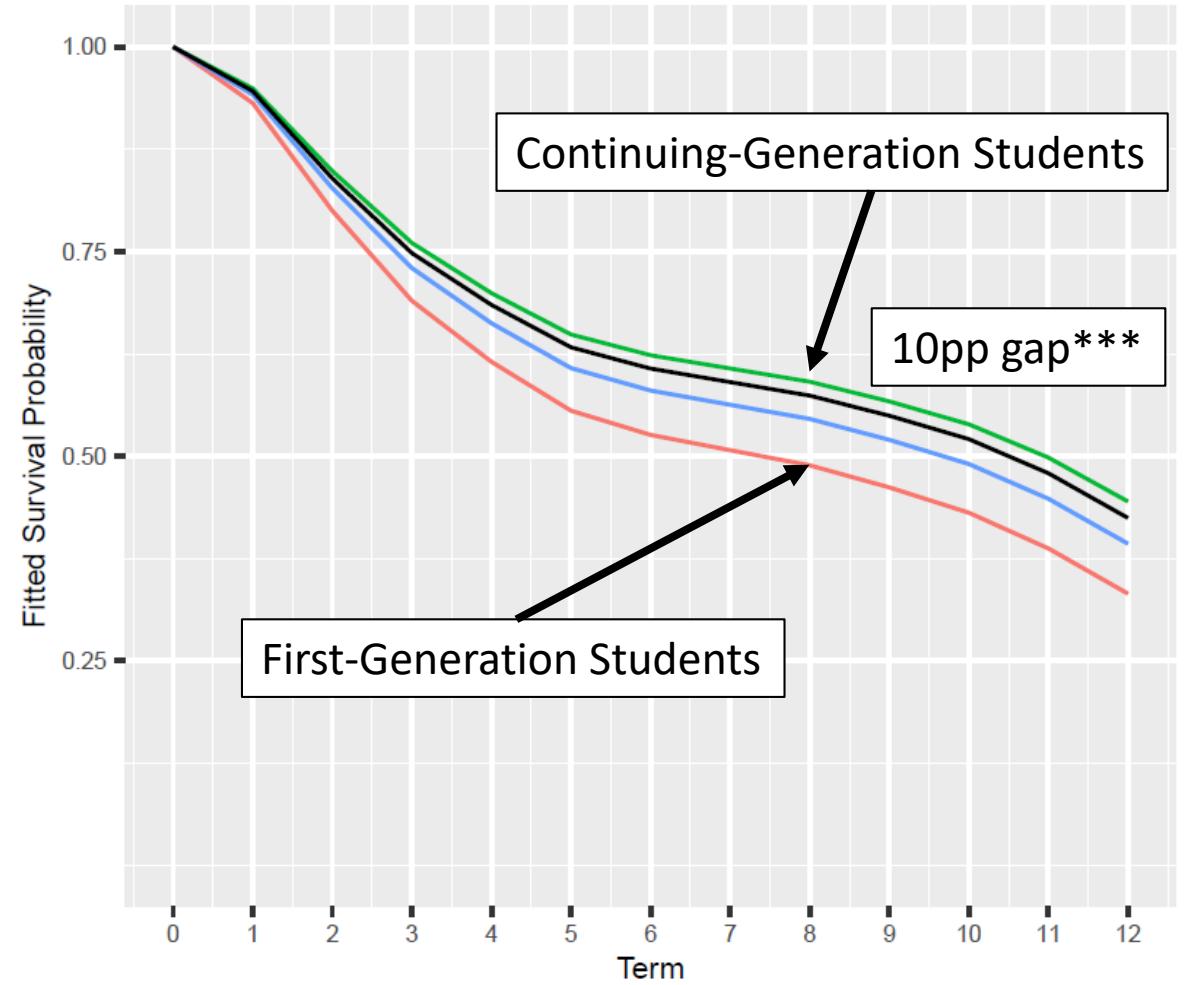
Collaborators: Kristin Patterson, Brandon Campitelli, Monica Hall-Porter, Carol Dweck, Mary Murphy, Rob Crosnoe, Chandra Muller, Chris Bryan, Greg Walton, Geoff Cohen. Thanks to: UT College of Natural Sciences; UT Austin TIDES. Funding: NSF EHR Core; NICHD; William and Melinda Gates Foundation; William T Grant Foundation; Optimus Foundation

# Retention in STEMM Majors 2010-2019: All Courses

Survival Curves By Race



Survival Curves By First Generation College

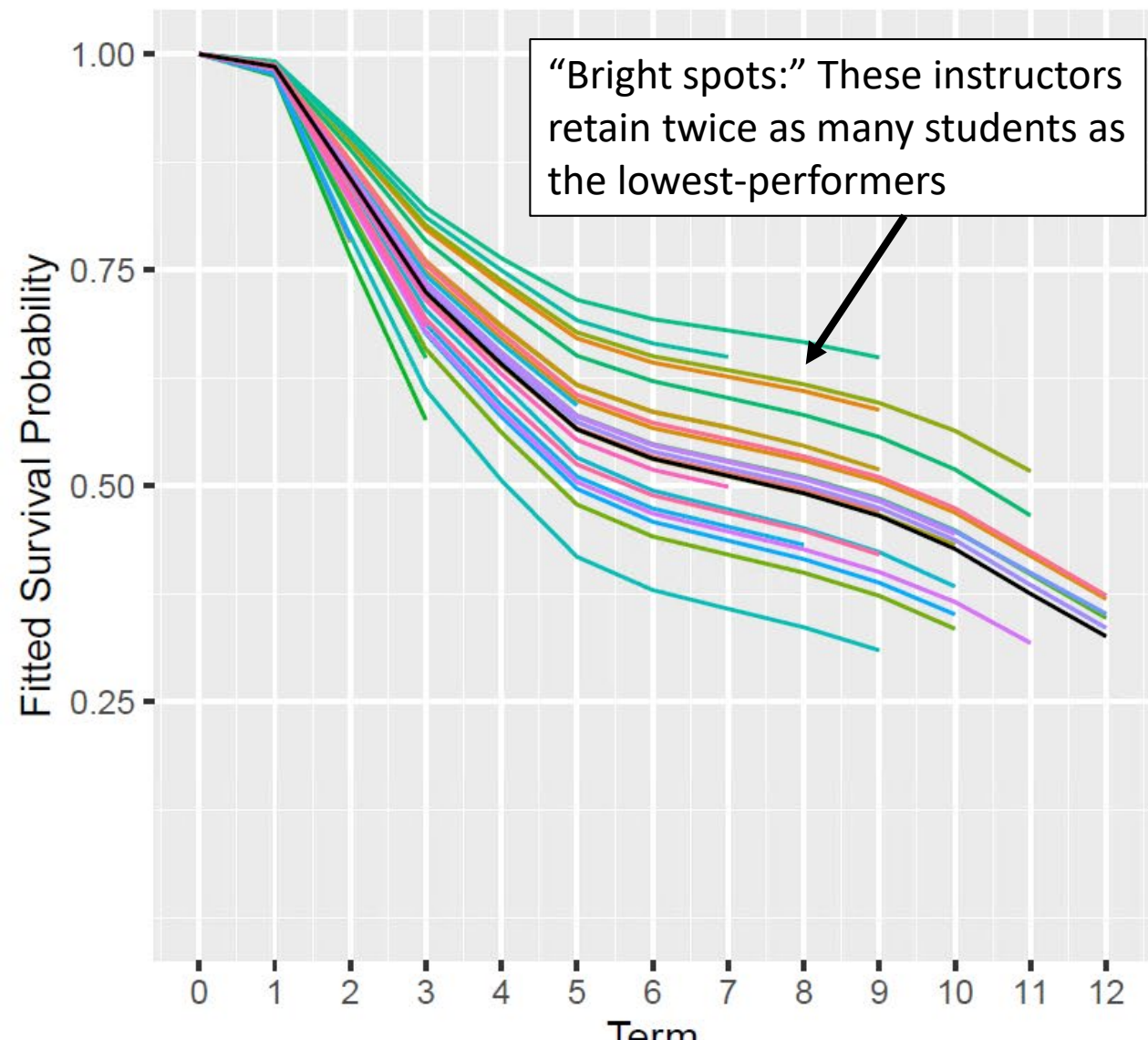


N = 24,229

# Retention in a Math Major 2010-2019: By Instructor

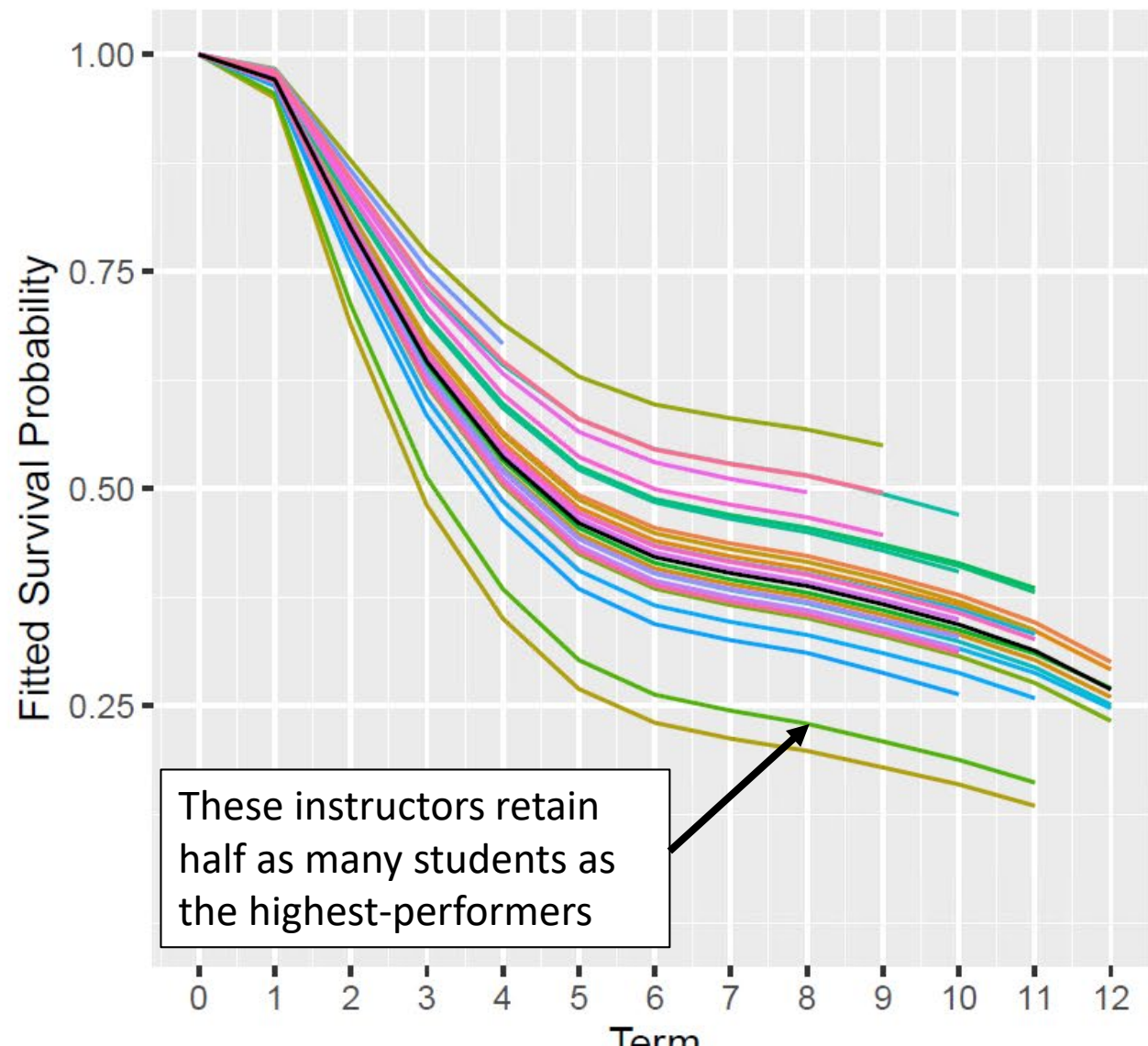
## Survival Curves By Instructor – M408C

Disadvantaged (First Generation and Black or Hispanic) ONLY



## Survival Curves By Instructor – M408N

Disadvantaged (First Generation and Black or Hispanic) ONLY



# Faculty Can Influence Inclusion

RESEARCH | REPORTS

WOMEN IN SCIENCE

## Expectations of brilliance underlie gender distributions across academic disciplines

Sarah-Jane Leslie,<sup>1\*†</sup> Andrei Cimpian,<sup>2\*†</sup> Meredith Meyer,<sup>3</sup> Edward Freeland<sup>4</sup>

The gender imbalance in STEM subjects dominates current debates about women's underrepresentation in academia. However, women are well represented at the Ph.D. level in some sciences and poorly represented in some humanities (e.g., in 2011, 54% of U.S. Ph.D.'s in molecular biology were women versus only 31% in philosophy). We hypothesize that, across the academic spectrum, women are underrepresented in fields whose practitioners believe that raw, innate talent is the main requirement for success, because women are stereotyped as not possessing such talent. This hypothesis extends to African Americans' underrepresentation as well, as this group is subject to similar stereotypes. Results from a nationwide survey of academics support our hypothesis (termed the field-specific ability beliefs hypothesis) over three competing hypotheses.

SCIENCE ADVANCES | RESEARCH ARTICLE


SCIENTIFIC COMMUNITY

## STEM faculty who believe ability is fixed have larger racial achievement gaps and inspire less student motivation in their classes

Elizabeth A. Canning\*, Katherine Muenks<sup>†</sup>, Dorainne J. Green, Mary C. Murphy\*

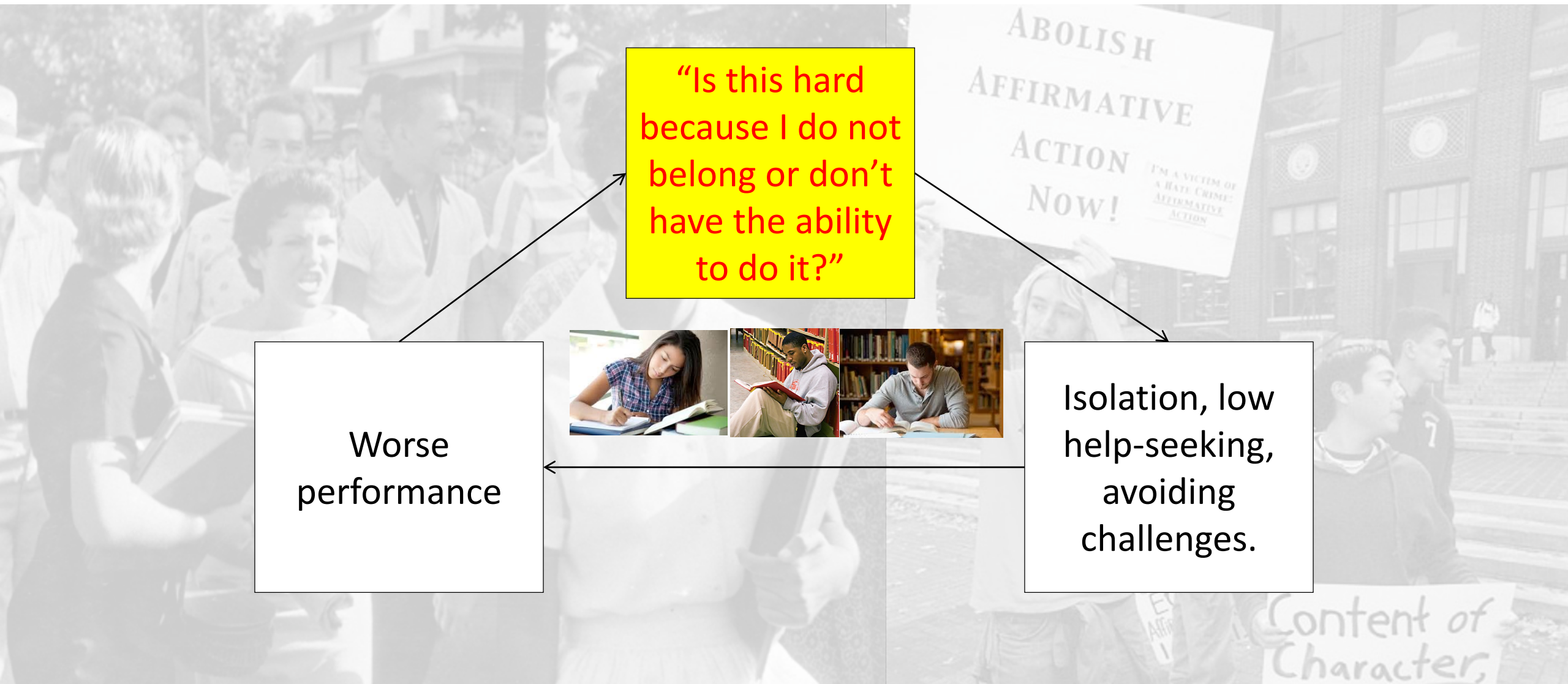
An important goal of the scientific community is broadening the achievement and participation of racial minorities in STEM fields. Yet, professors' beliefs about the fixedness of ability may be an unwitting and overlooked barrier for stigmatized students. Results from a longitudinal university-wide sample (150 STEM professors and more than 15,000 students) revealed that the racial achievement gaps in courses taught by more fixed mindset faculty were twice as large as the achievement gaps in courses taught by more growth mindset faculty. Course evaluations revealed that students were demotivated and had more negative experiences in classes taught by fixed (versus growth) mindset faculty. Faculty mindset beliefs predicted student achievement and motivation above and beyond any other faculty characteristic, including their gender, race/ethnicity, age, teaching experience, or tenure status. These findings suggest that faculty mindset beliefs have important implications for the classroom experiences and achievement of underrepresented minority students in STEM.

# Faculty Can Influence Inclusion



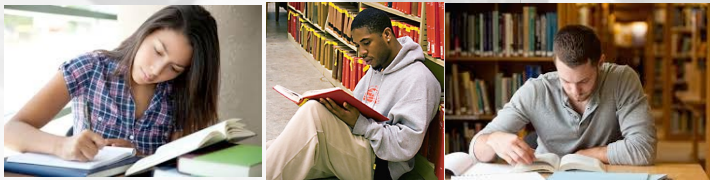
“Sorry that it’s hard for you. Maybe you’re just not a Physics person.”

# Questions Initiate “Recursive Processes”



“Is this hard because I do not belong or don’t have the ability to do it?”

Worse performance



Isolation, low help-seeking, avoiding challenges.

# Let's Hear From Students

- <https://www.youtube.com/watch?v=-88UB7hjatl&feature=youtu.be>

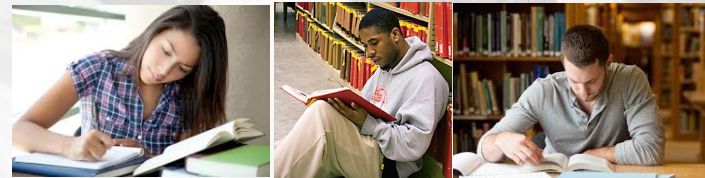
# Mindsets Alter Recursive Processes

Mindset Intervention(s):  
Stories about how belonging is developed

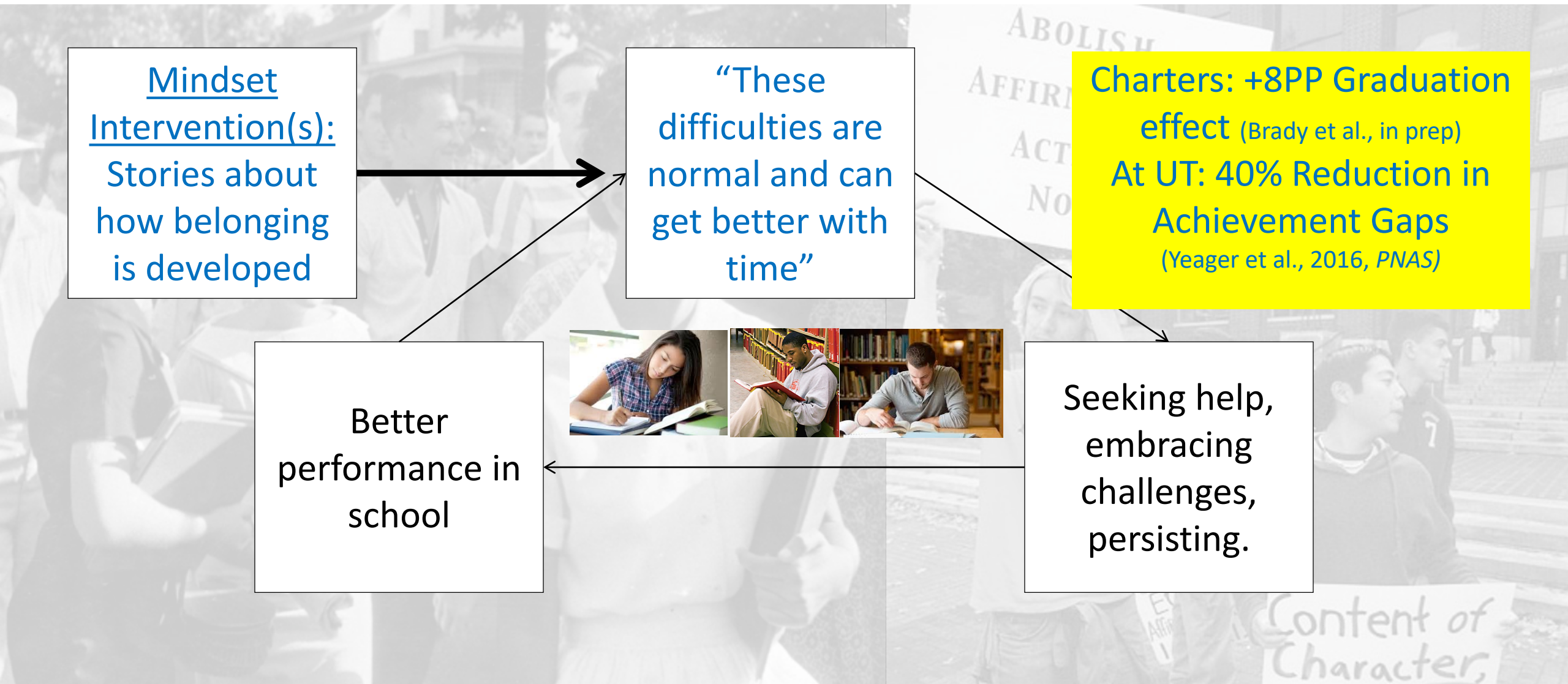
“These difficulties are normal and can get better with time”

**Charters: +8PP Graduation effect** (Brady et al., in prep)  
**At UT: 40% Reduction in Achievement Gaps**  
(Yeager et al., 2016, *PNAS*)

Better performance in school



Seeking help, embracing challenges, persisting.



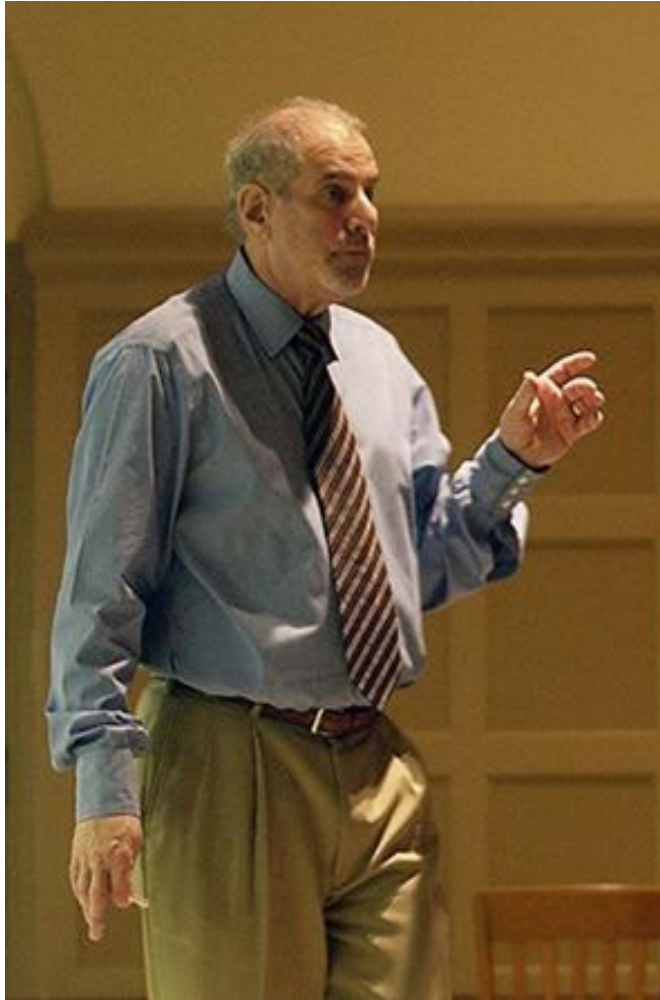


# How Can Faculty Reinforce Belonging Messages?

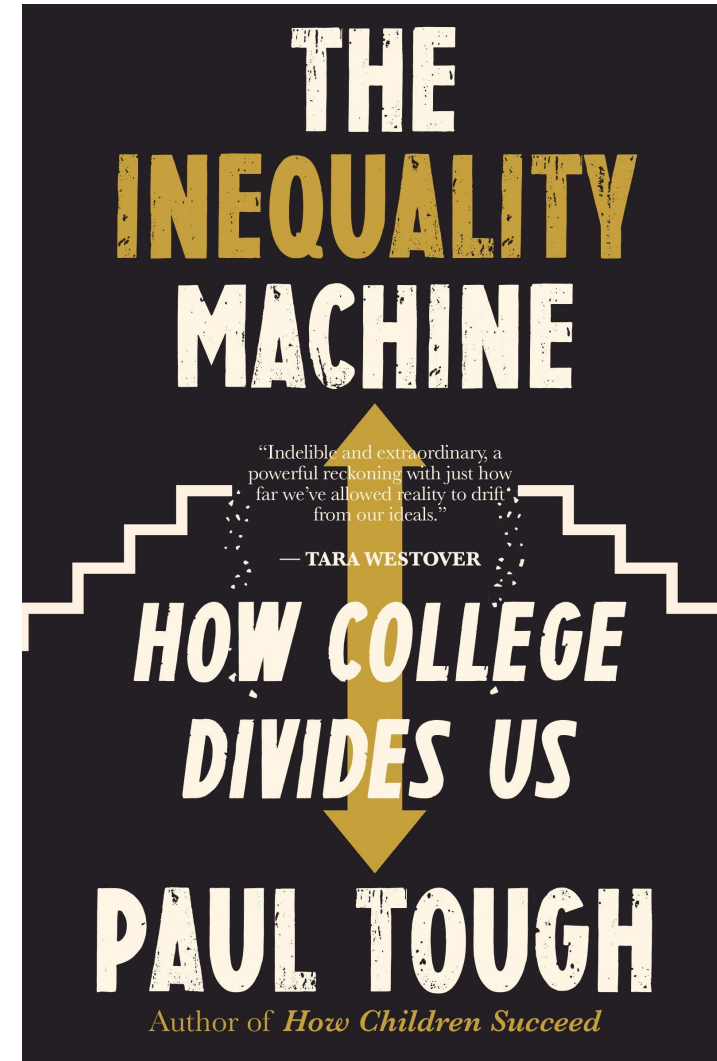


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# Learning About Inclusion From Exceptional Teachers

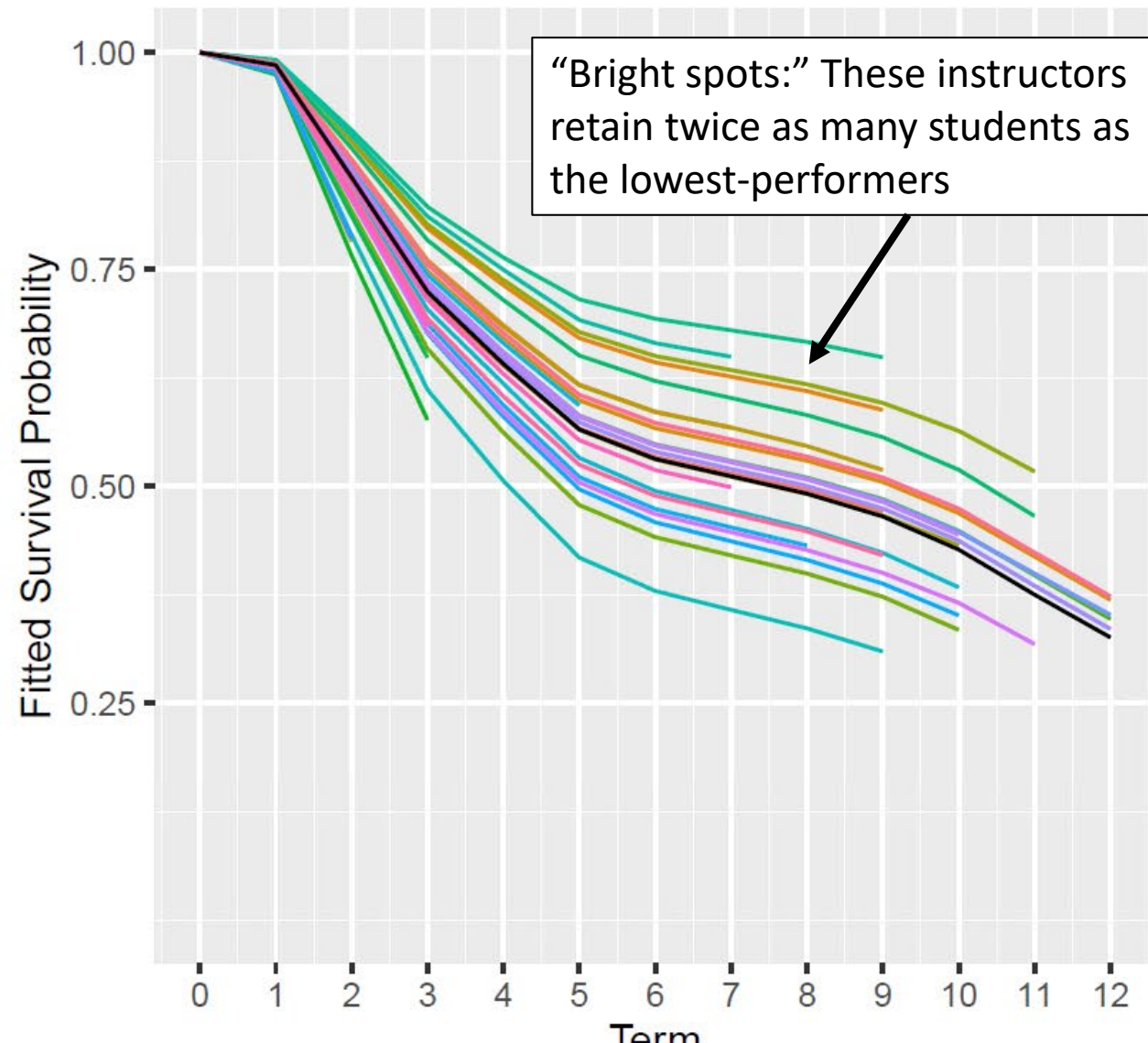


Uri Treisman, MacArthur winner  
UT's best calculus professor,  
Founder and Director, UT Dana Center  
for Learning Assistance (2010)



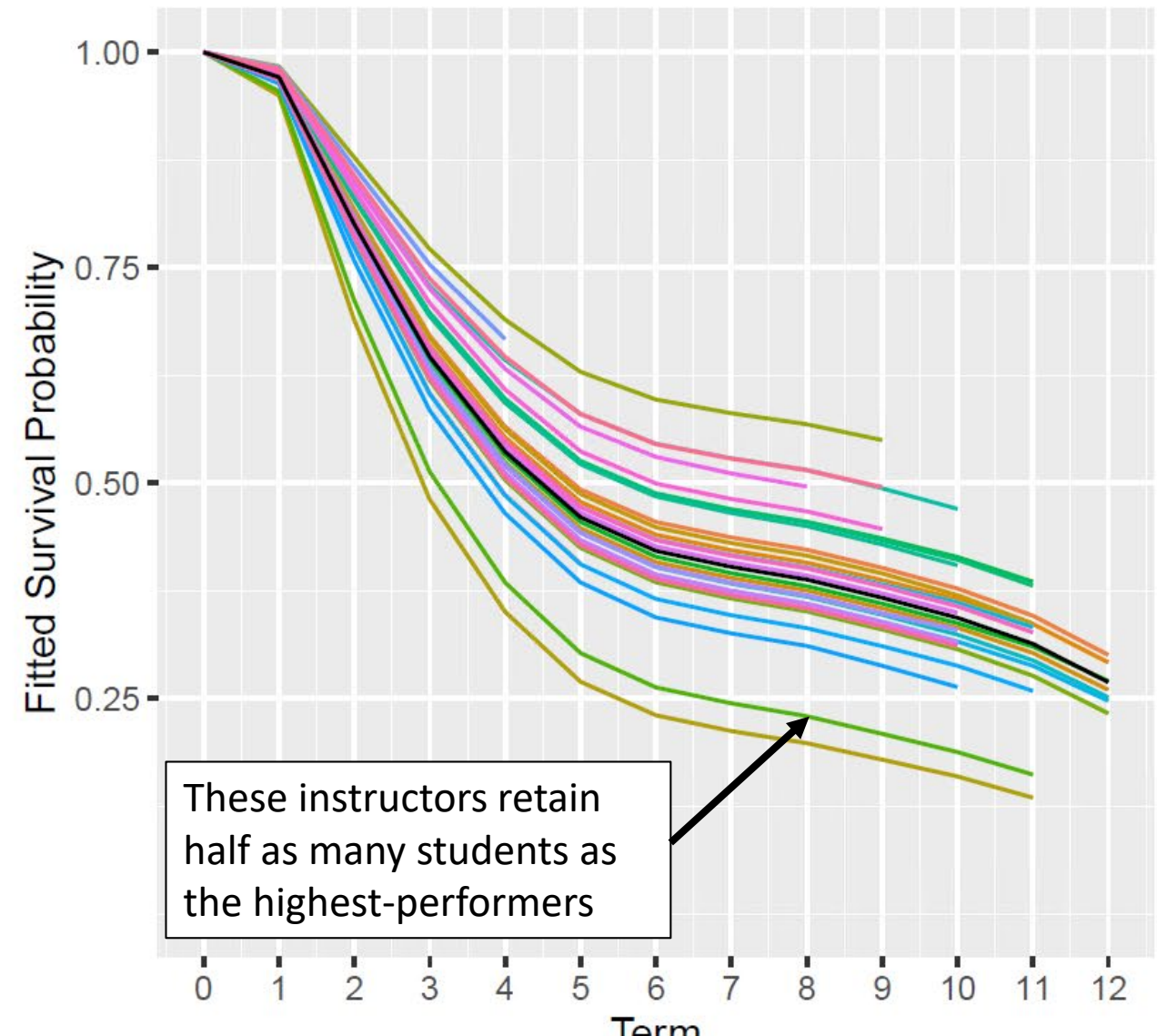
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## Survival Curves By Instructor – M408N

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# T E X A S M I N D S E T I N I T I A T I V E

## Institutional Research:

Historical and ongoing data collection (e.g. SIS, Zoom, Canvas)



## Faculty Fellowship:

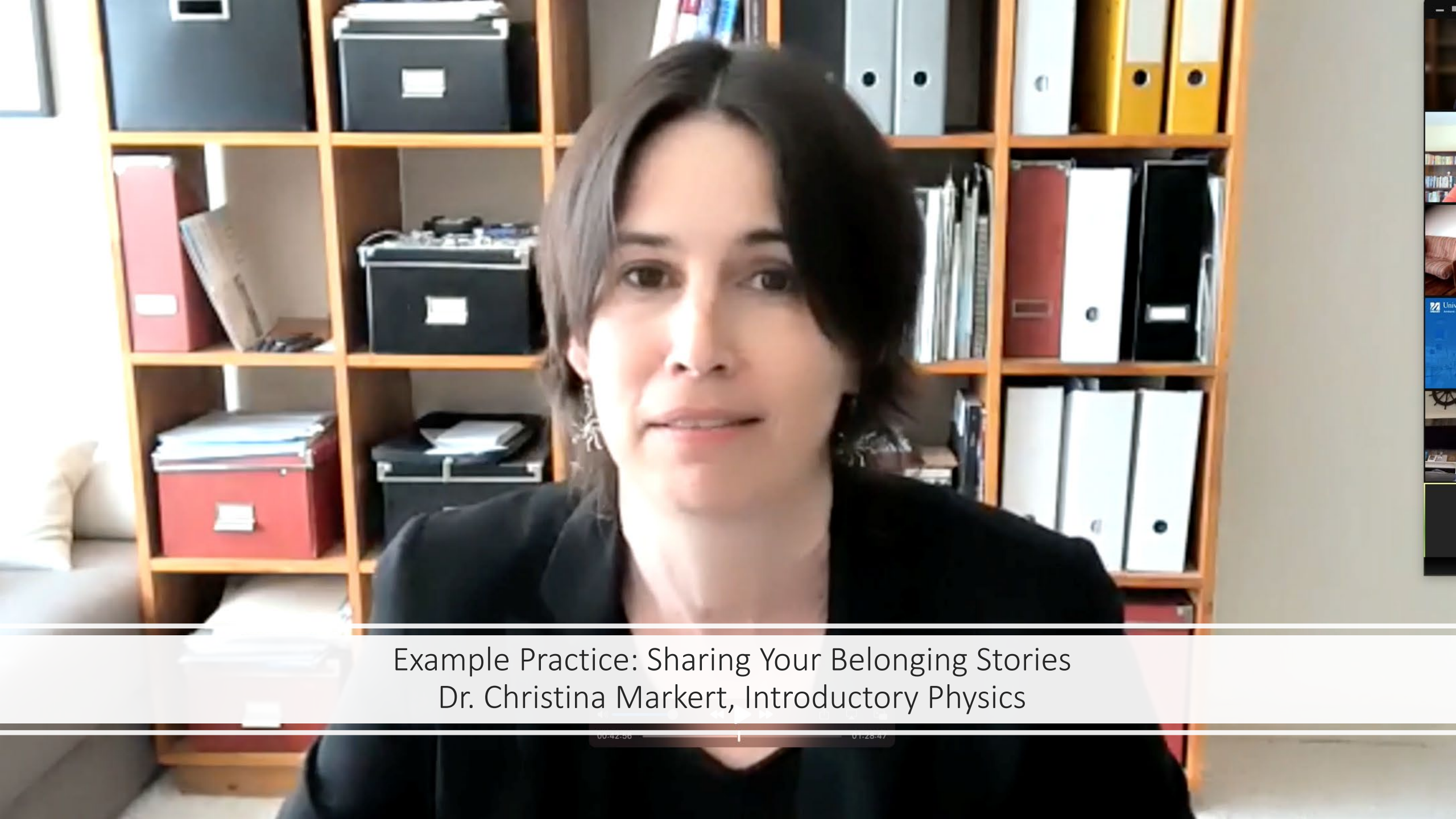
8-14 faculty per year, to surface promising practices.



## Novel RCTs:

Randomized micro-experiments to evaluate fellows' promising practices





Example Practice: Sharing Your Belonging Stories  
Dr. Christina Markert, Introductory Physics

00:42:56

01:26:47

# TxMI Fellow Spotlight: Christina's Results

- Highest Physics test scores and retention in the major (including structurally disadvantaged students)
- Highest CIS scores, and better student experience:

*"I absolutely loved Dr. Markert! I was resenting having to take Physics as it has always been a hard subject for me. Dr. Markert was so intentional about sharing her own experiences and encouraging everyone to feel confident in themselves. That did so much to boost my confidence and make me feel prepared to handle the material. I have truly never had a professor thus far who is as attuned to student needs as Dr. Markert. She made physics an amazing experience!"*

# Additional Resources

