A Question of Belonging:
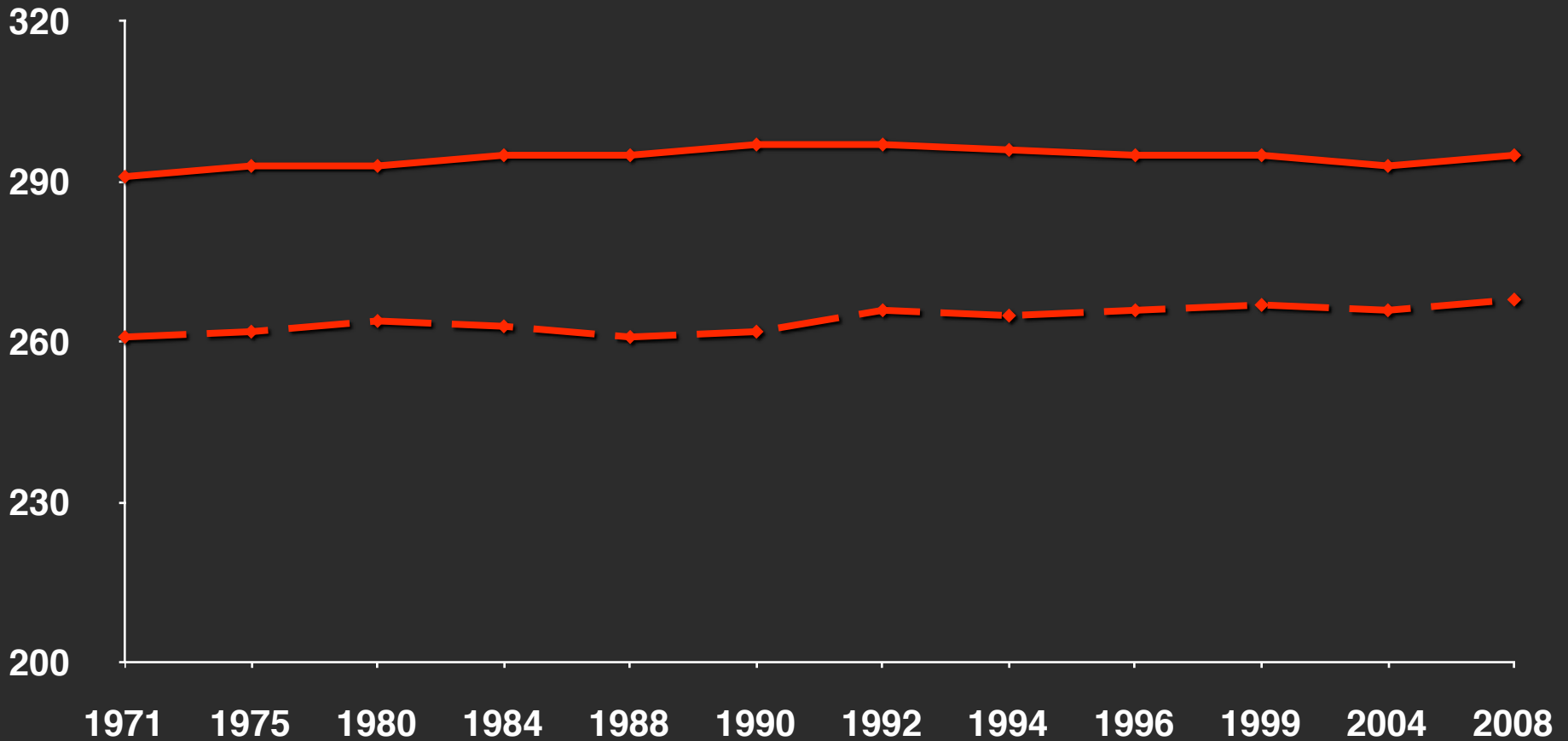
A Social-Psychological Approach to Understanding and Remedying Group Disparities in School Achievement

Greg Walton

Stanford University

Reading Scores
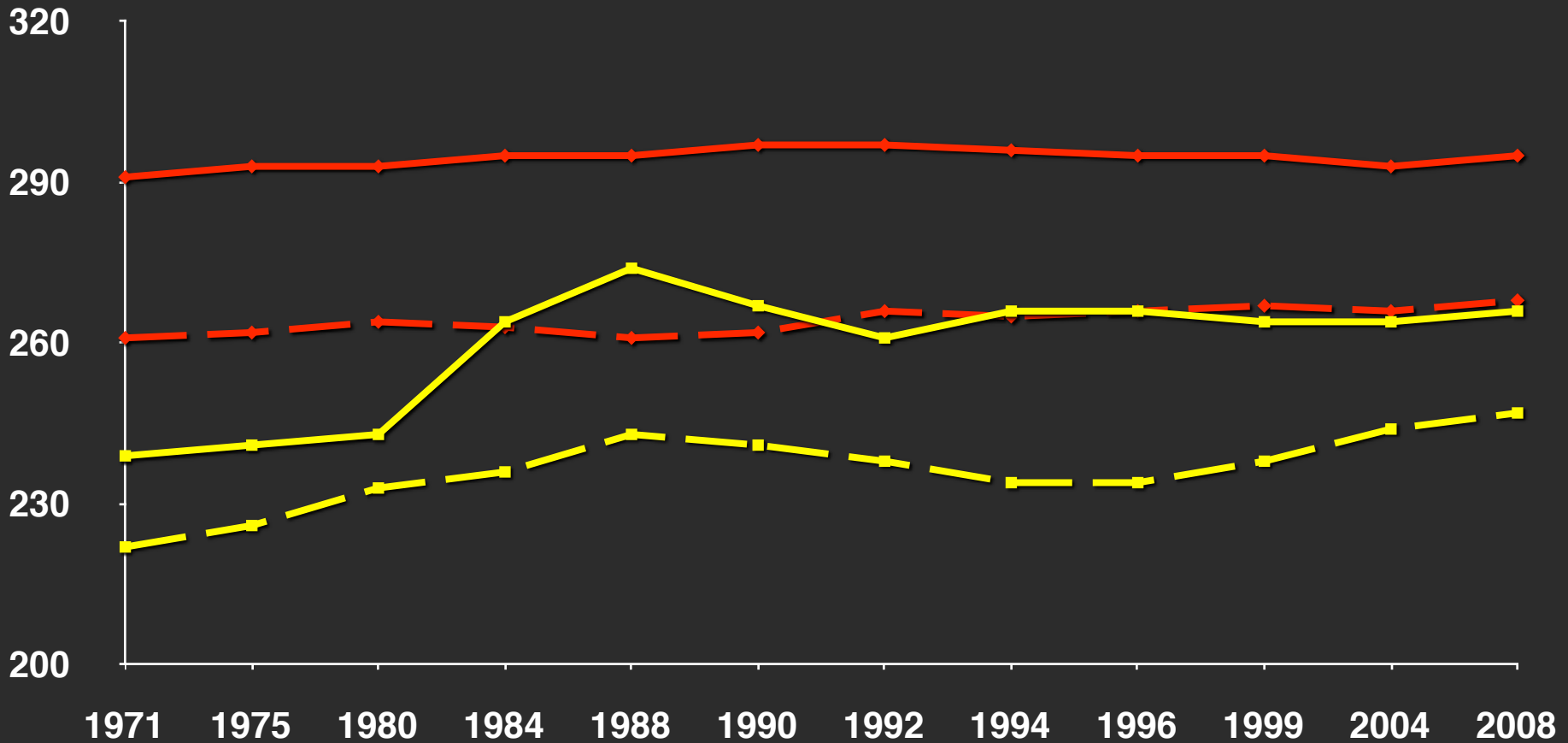## (National Assessment of Education Progress [NAEP])

Legend:
- ◆ White 17-Year-Olds
- ■ Black 17-Year-Olds
- ▲ Hispanic 17-Year Olds
- ◆ White 13-Year-Olds
- ■ Black 13-Year-Olds
- ▲ Hispanic 13-Year Olds

Reading Scores
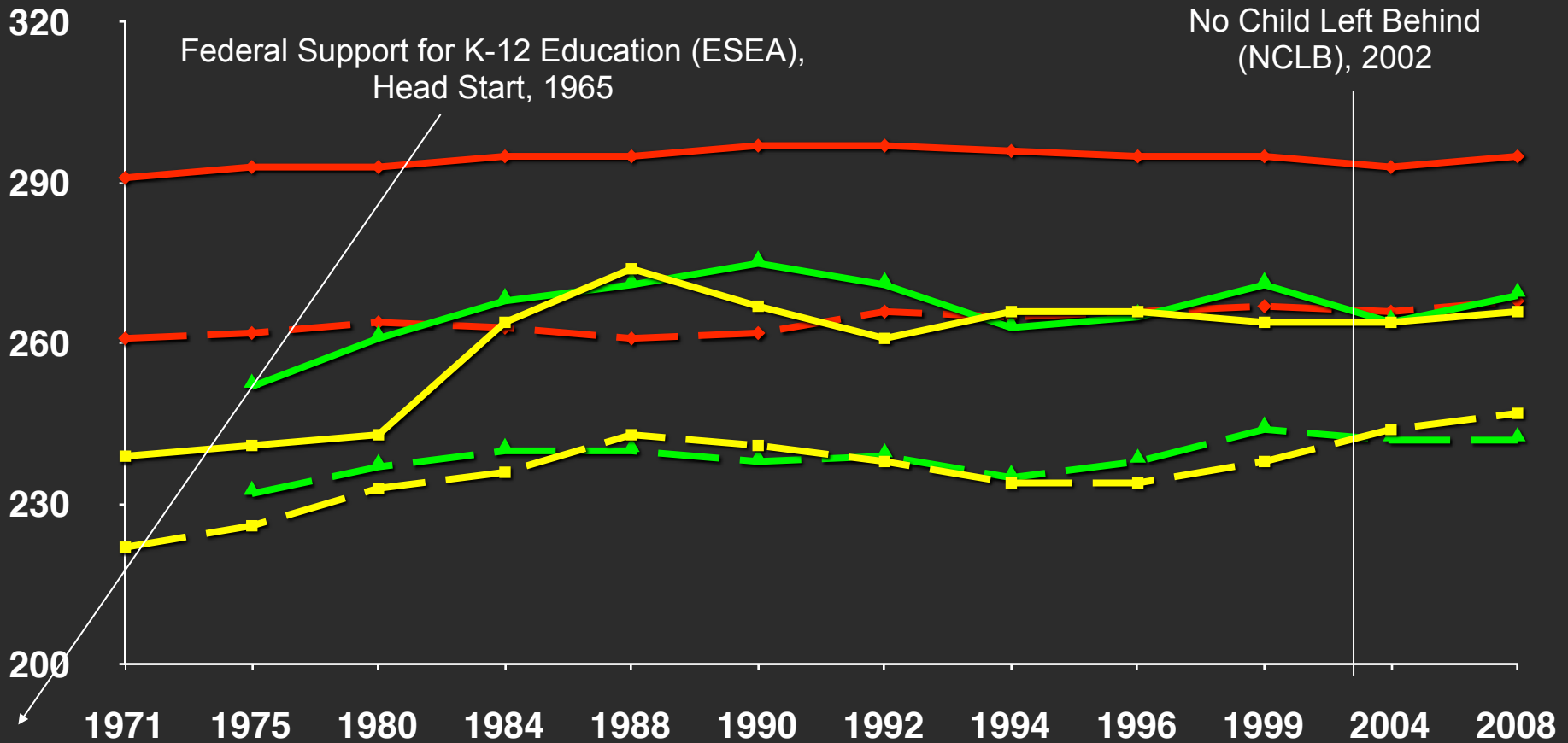## (National Assessment of Education Progress [NAEP])

Monday, February 27, 2012

Reading Scores
(National Assessment of Education Progress [NAEP])

Legend:
- ◆ White 17-Year-Olds
- ■ Black 17-Year-Olds
- ▲ Hispanic 17-Year Olds
- ◆ White 13-Year-Olds
- ■ Black 13-Year-Olds
- ▲ Hispanic 13-Year Olds

Federal Support for K-12 Education (ESEA), Head Start, 1965

No Child Left Behind (NCLB), 2002

Y-axis: 320, 290, 260, 230, 200

X-axis: 1971, 1975, 1980, 1984, 1988, 1990, 1992, 1994, 1996, 1999, 2004, 2008

What causes achievement gaps?

- Poverty matters

    - **But** → at every income level, race differences exist in achievement (e.g., SAT)

- Preparation/prior ability matter

    - **But** → at every level of prior preparation (e.g., SAT), race differences exist in subsequent achievement (e.g., college GPA)

The Role of Psychology

- Thinking about the psychology of students can give us new tools to reduce achievement gaps

  - *What is it like to be a student in class?*

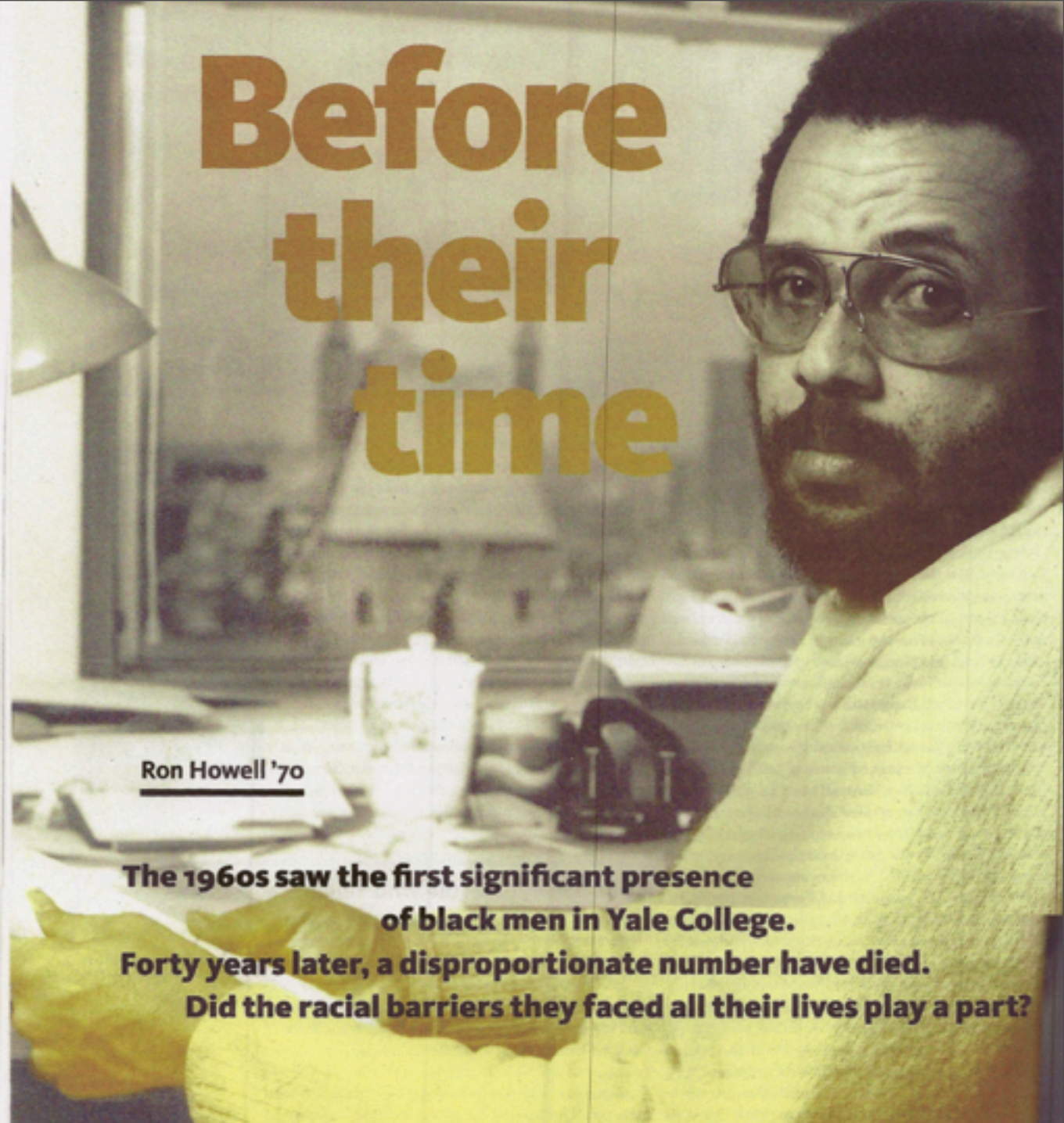This approach explores the effects of social stereotypes

Civil rights attorney Clyde Murphy

- Born 1948
- Died August, 17 2010, age 62, of a pulmonary embolism

African Americans in the Yale College Class of 1970	
Percent in the Class	Percent of Deaths To Date
3%	11%

Before their time

Ron Howell '70

The 1960s saw the first significant presence of black men in Yale College.
Forty years later, a disproportionate number have died.
Did the racial barriers they faced all their lives play a part?

You're from
San Francisco?!

BAR

HARLEY-DAVIDSON ST.

You're a *professor?!*

The central feature of the stigmatized individual's situation in life . . . is a question of . . . 'acceptance.'

-Erving Goffman

Stigma: Notes on the Management of Spoiled Identity

My experiences at Princeton have made me far more aware of my "Blackness" than ever before . . . no matter how liberal and open-minded some of my White professors and classmates try to be toward me, I sometimes feel like a visitor on campus; as if I really don't belong . . . It often seems as if, to them, I will always be Black first and a student second.

- Michelle Robinson (1985)

[At Princeton, I felt like] a visitor landing in an alien land . . . I have spent my years since Princeton, while at law school, and in my various professional jobs, not feeling completely a part of the worlds I inhabit.

- Sonia Sotomayor

Belonging Uncertainty
(Walton & Cohen, 2007)

- People may commonly question their belonging in new social and academic settings
  - Especially when they are targeted by stigma and negative stereotypes
- This uncertainty *ambiguates* the meaning of adverse social events

A Day in the Life of a College Student

- Everyone is going out without me, and they didn't consider me when making their plans.

- My teacher cancelled her meeting with me

- My usual friends weren't at dinner

- Not getting an e-mail back from a peer

- I felt bad that I haven't gone on any dates [in college]

- Not being recognized at awards dinner (when I deserved it)

- Dumped by girlfriend

- My boyfriend didn't call

- I'm working on a paper that is due tomorrow and I have writer's block

- Found a dead mouse under a pile of my clothes

Propositions

1. Group differences may emerge *in response* to social experience

2. The social experience need *not* be evaluative or pose a risk of bias

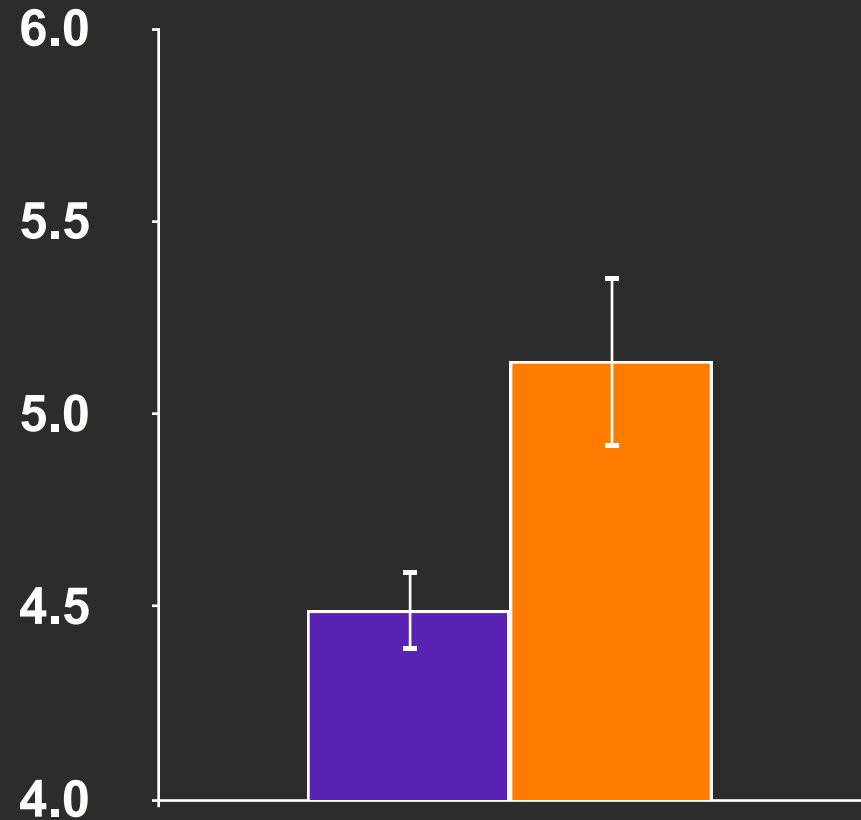# Survey of College Students: Two Measures of Belonging

- Level of Belonging
  - *I belong at [school name]*

- Uncertainty about Belonging
  - *Sometimes I feel I belong at [school name] and sometimes I feel that I don't belong at [school name]*
  - *When something bad happens, I feel that maybe I don't belong at [school name]*

Self-Reported Belonging

Level of Belonging
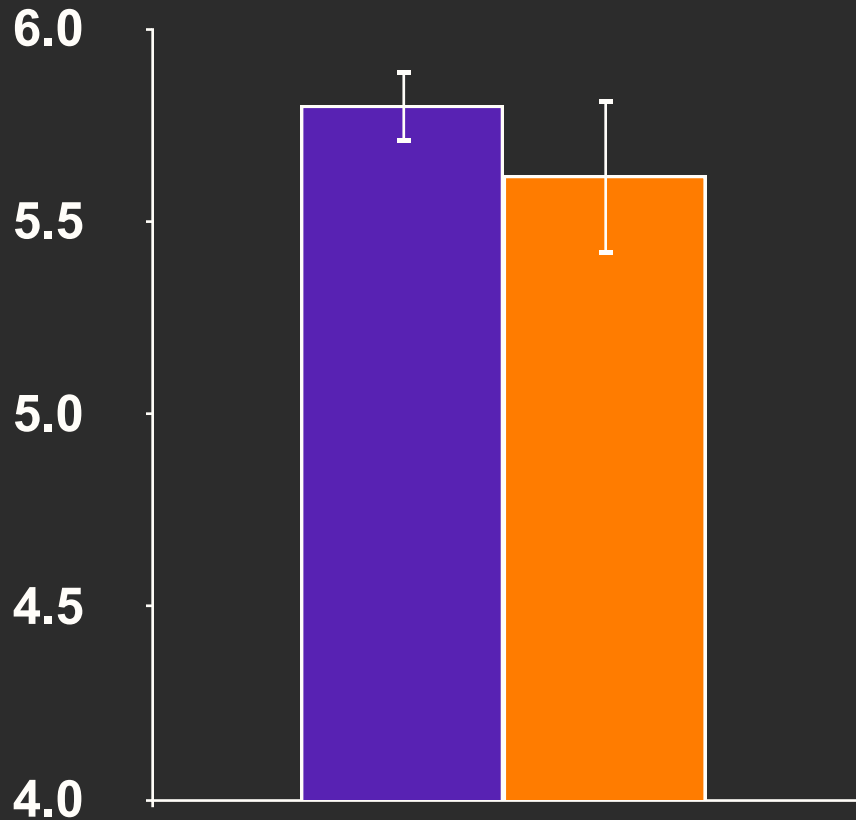
Belonging Uncertainty

White Students Black and Hispanic Students

Walton & Cohen (2007, JPSP)

Monday, February 27, 2012

A Social Belonging Intervention
(with Geoff Cohen)

Social-Belonging Intervention

- Two questions:
  - Are stereotyped students more likely to globalize negative experiences in school as evidence that they do not belong?
  - Can this process be short-circuited?
- Hypotheses
  - Treatment would sustain stereotyped students' sense of belonging in the face of adversity
  - Effects may self-sustain over time and raise stereotyped students' achievement

Attributional Retraining

- Treatment: First-year students learn that doubts about belonging in college are:
  - <u>common at first</u> and <u>short-lived</u>
- Presented with:
  - Survey summary statistics
  - Representative quotations attributed to ethnically diverse juniors and seniors

Freshman year, even though I met large numbers of people, I didn't have a small group of close friends . . . I had to remind myself that making close friends takes time. Since then . . . I have met people, some of whom are now just as close as my friends in high school were.

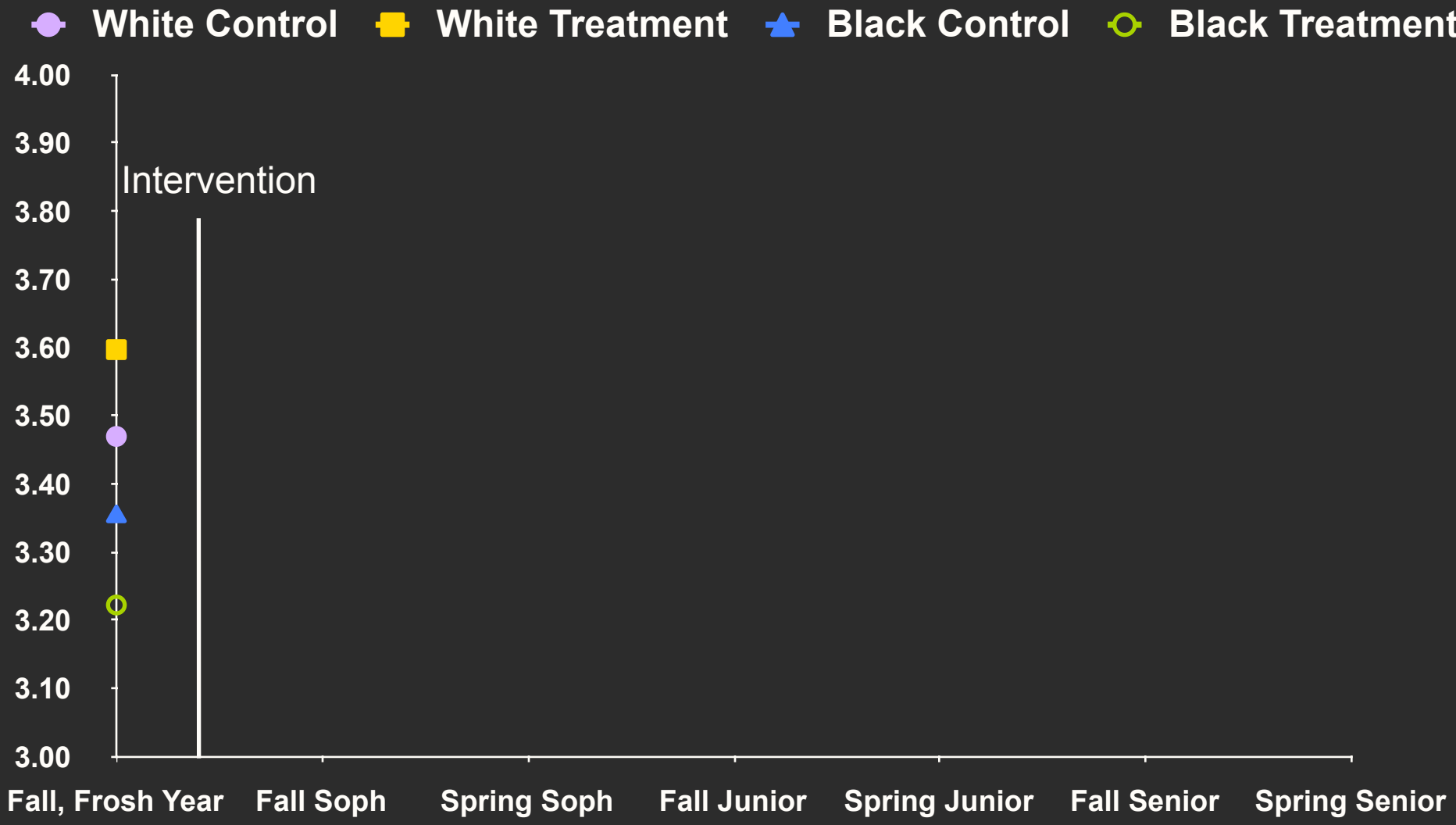- Junior, Asian-American male

Control Condition

- Multiple versions
  - E.g., social-political views become more sophisticated over time

- Both conditions
  - Message reinforced using "saying-is-believing" techniques (see Aronson et al., 2002)

Long-Term Effects on Academic Performance

3-Year Follow-Up
Among Two Cohorts of Students

College Grade Point Average by Year
(Cohorts 1 and 2 Raw Means)

● White Control   ■ White Treatment   ▲ Black Control   ○ Black Treatment

Intervention

4.00
3.90
3.80
3.70
3.60
3.50
3.40
3.30
3.20
3.10
3.00

Fall, Frosh Year   Fall Soph   Spring Soph   Fall Junior   Spring Junior   Fall Senior   Spring Senior

Walton & Cohen (2011, *Science*)

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College Grade Point Average by Year
(Cohorts 1 and 2 Raw Means)

● White Control   ■ White Treatment   ▲ Black Control   ○ Black Treatment

Intervention

Y-axis: 4.00, 3.90, 3.80, 3.70, 3.60, 3.50, 3.40, 3.30, 3.20, 3.10, 3.00

X-axis: Fall, Frosh Year | Fall Soph | Spring Soph | Fall Junior | Spring Junior | Fall Senior | Spring Senior

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College Grade Point Average by Year
(Cohorts 1 and 2 Raw Means)

Legend: ● White Control ■ White Treatment ▲ Black Control ○ Black Treatment

Intervention

Linear Trend, p = .001

Linear Trend, ns

X-axis: Fall, Frosh Year | Fall Soph | Spring Soph | Fall Junior | Spring Junior | Fall Senior | Spring Senior

Y-axis: 3.00 – 4.00

Walton & Cohen (2011, *Science*)

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College Grade Point Average by Year
(Cohorts 1 and 2 Raw Means)

Walton & Cohen (2011, *Science*)
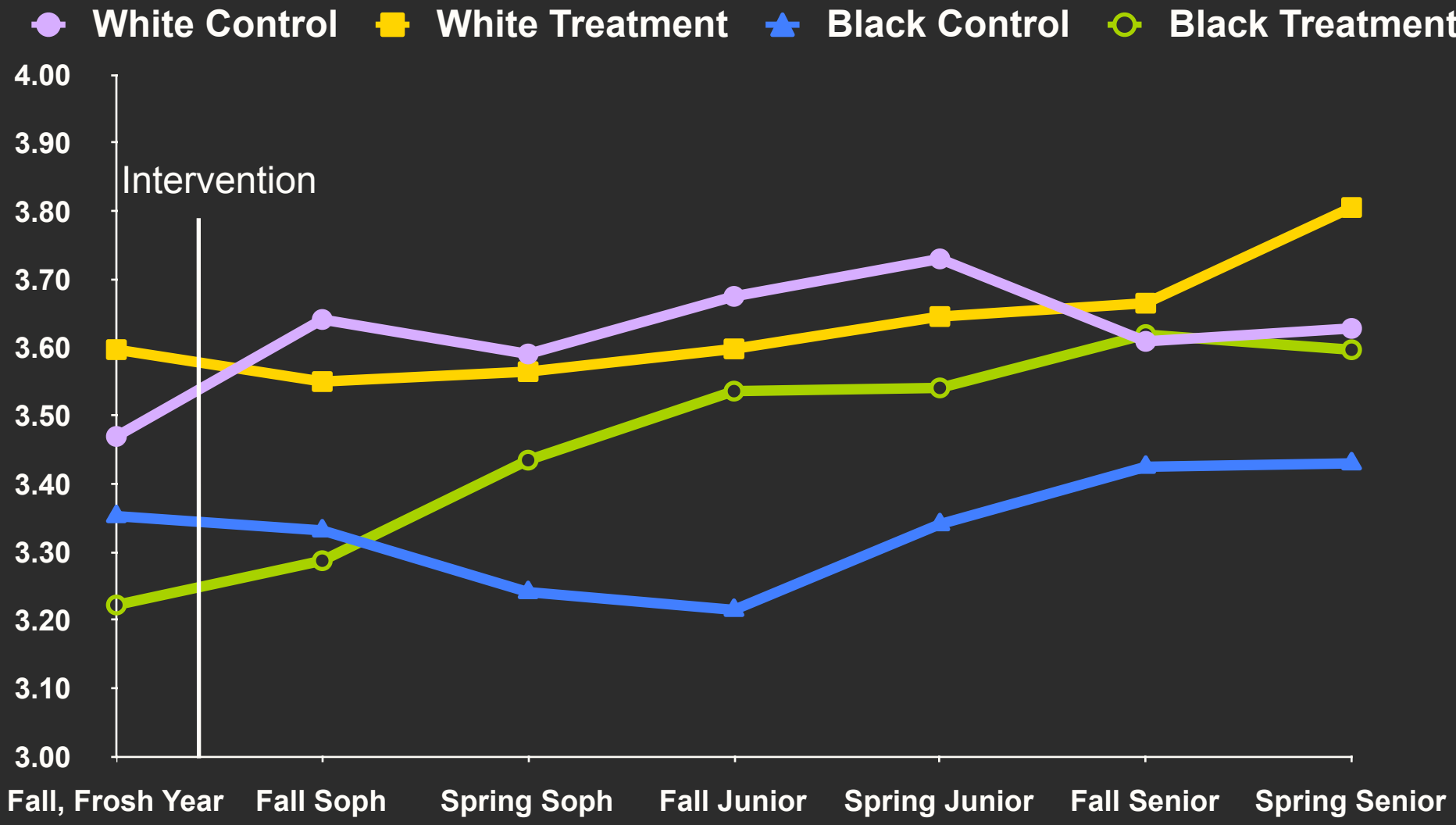
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Residual Soph-Senior Year GPA
(Cohorts 1 and 2 adjusting for pre-treatment GPA and gender)

■ Campus Wide   ■ Randomized Control   ■ Social-Belonging Treatment

$d = .86$, $p = .009$

Change in GPA, in GPA Units

White Students

Black Students

Walton & Cohen (2011, *Science*)

Monday, February 27, 2012

Residual Soph-Senior Year GPA
(Cohorts 1 and 2 adjusting for pre-treatment GPA and gender)

Campus Wide   Randomized Control   Social-Belonging Treatment

d = .98, p = .0001

d = .86, p = .009

Change in GPA, in GPA Units

White Students   Black Students

Walton & Cohen (2011, *Science*)

Monday, February 27, 2012
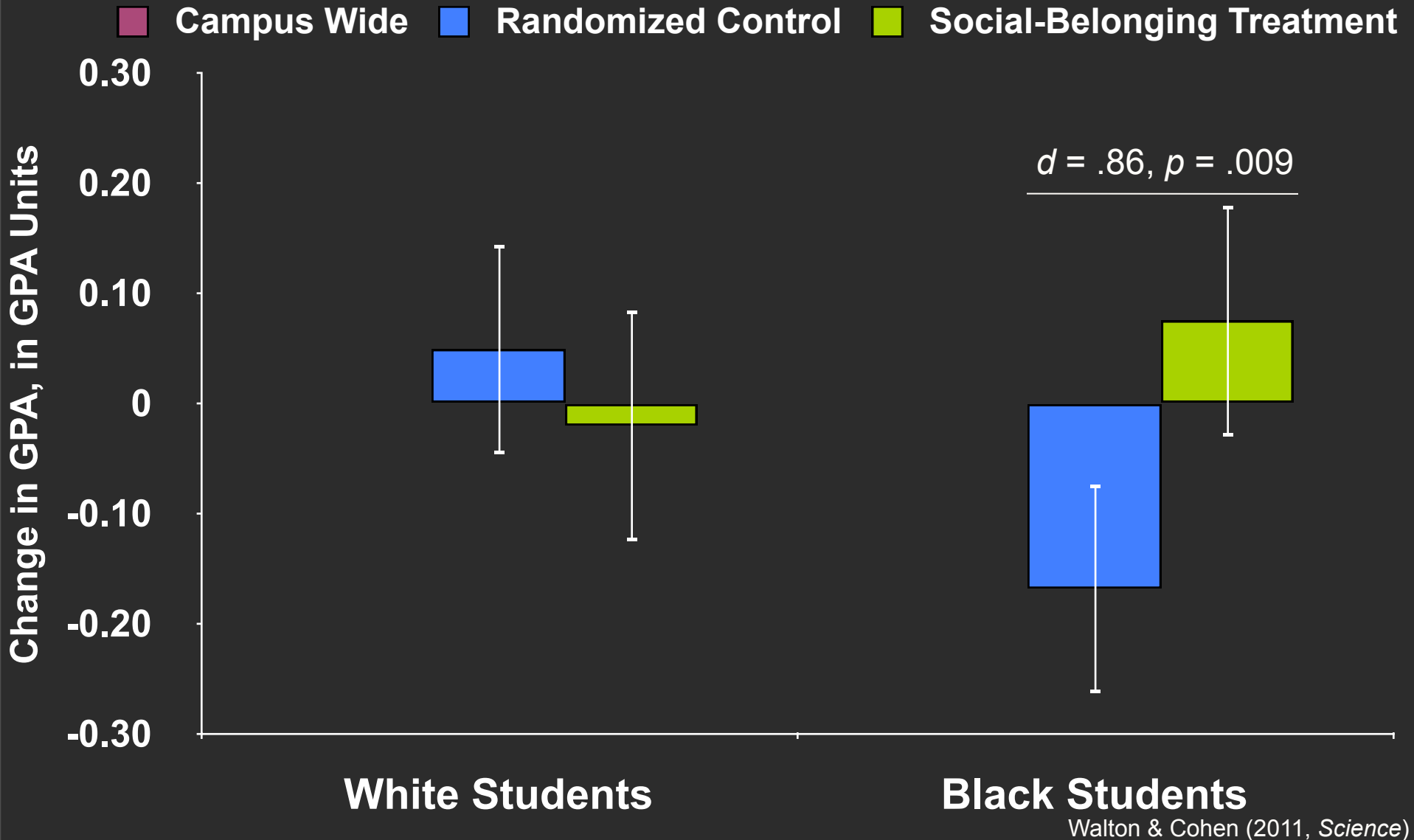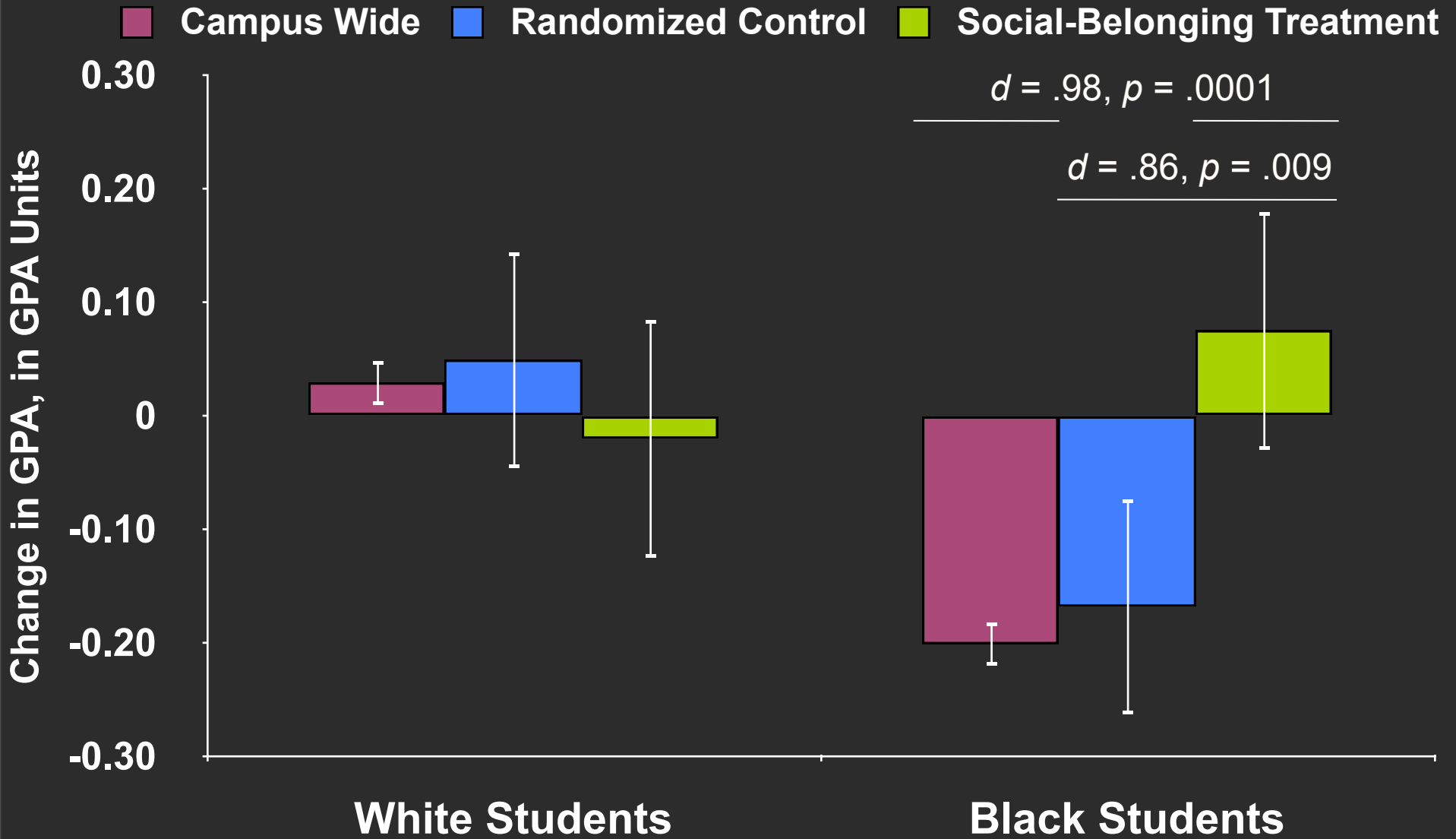
Reduction in the Black/White Achievement Gap
(Raw GPA)

Sophomore Through Senior Year GPA	Senior Year GPA
52% reduction	79% reduction

Walton & Cohen (2011, *Science*)

At the Head of the Class: <u>Improvement</u> in GPA

% Black Students in TOP 25% of Class in Improvement in GPA

% Black Students in BOTTOM 25% of Class in Improvement in GPA

Left chart values:
- Campus-Wide: 15.98%
- Randomized Control: 15.79%
- Social-Belonging Treatment: 50.00%

$\chi 2 \, (2) = 12.69$, $p = .002$

Right chart values:
- Campus-Wide: 47.94%
- Randomized Control: 63.16%
- Social-Belonging Treatment: 16.67%

$\chi 2 \, (2) = 8.71$, $p = .013$

Walton & Cohen (2011, *Science*)

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At the Head of the Class:
<u>Raw Posttreatment</u> GPA
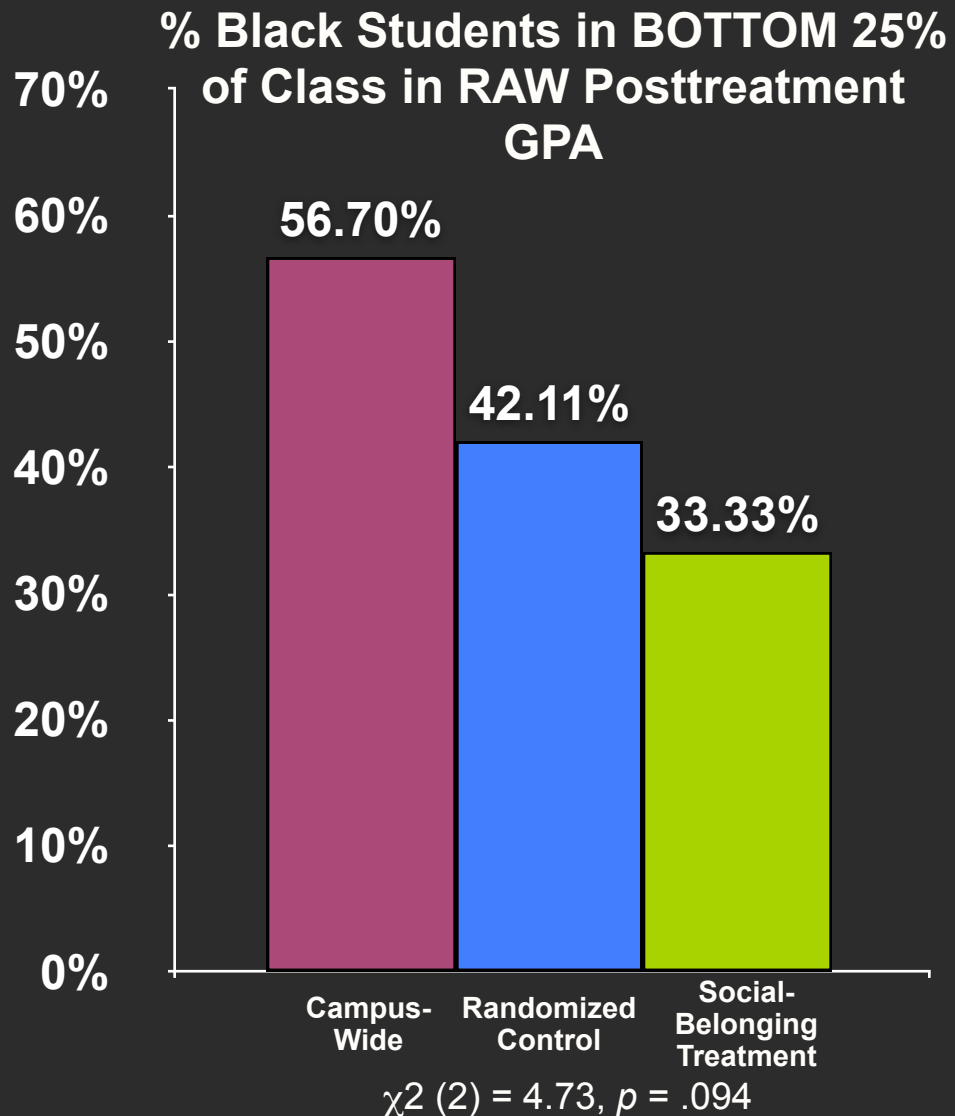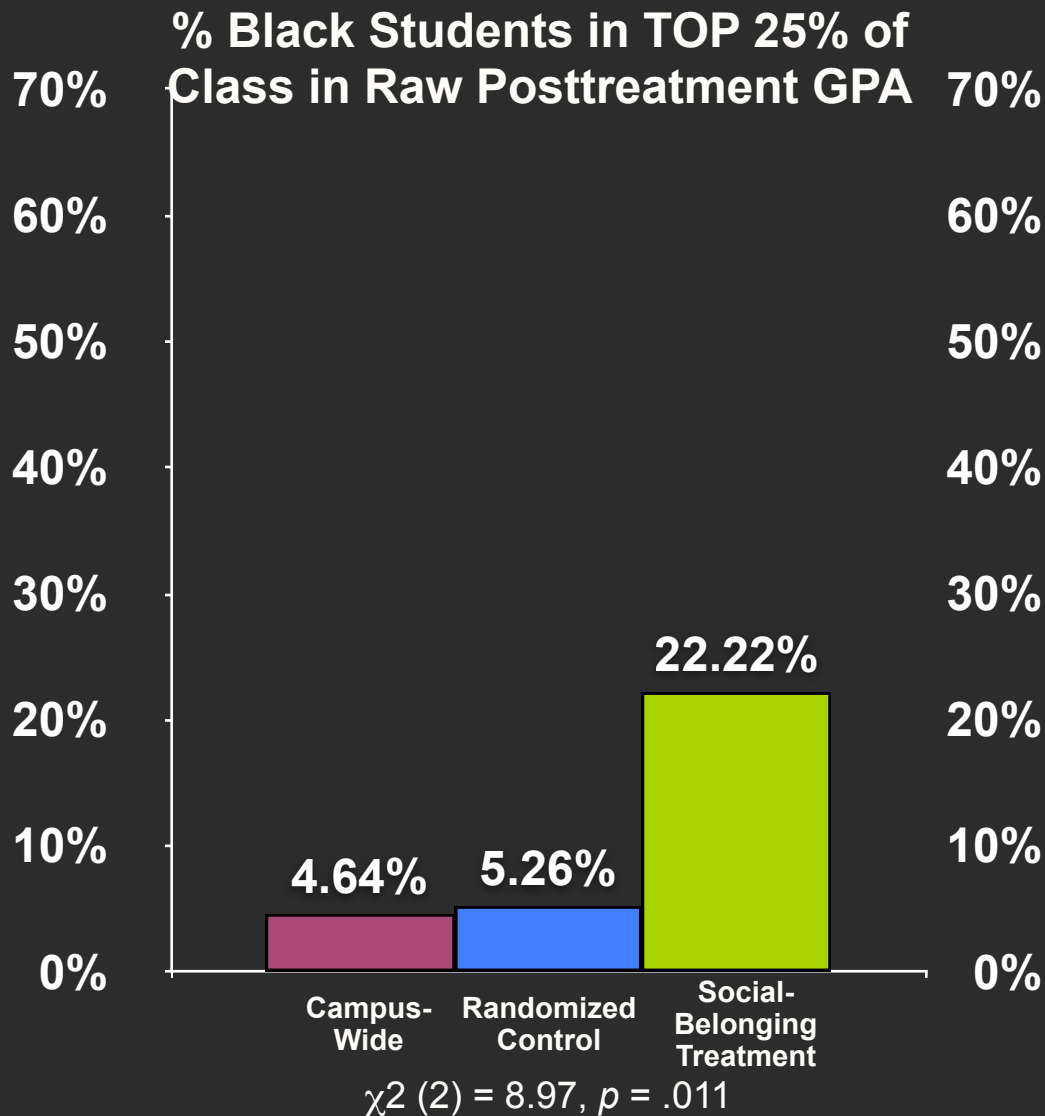
% Black Students in TOP 25% of Class in Raw Posttreatment GPA

- Campus-Wide: 4.64%
- Randomized Control: 5.26%
- Social-Belonging Treatment: 22.22%

$\chi^2 (2) = 8.97$, $p = .011$

% Black Students in BOTTOM 25% of Class in RAW Posttreatment GPA

- Campus-Wide: 56.70%
- Randomized Control: 42.11%
- Social-Belonging Treatment: 33.33%

$\chi^2 (2) = 4.73$, $p = .094$

Walton & Cohen (2011, *Science*)

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What Processes Sustained the Treatment Effects Over Time?

- Did students remember the intervention and continue to benefit from this memory?

No differences by race or condition

79%

100%		
80%		
60%		
40%		
20%		
0%		

Said they remembered the study	Able to recall what they they learned in the study	Reported that the study had had "any effect" on them
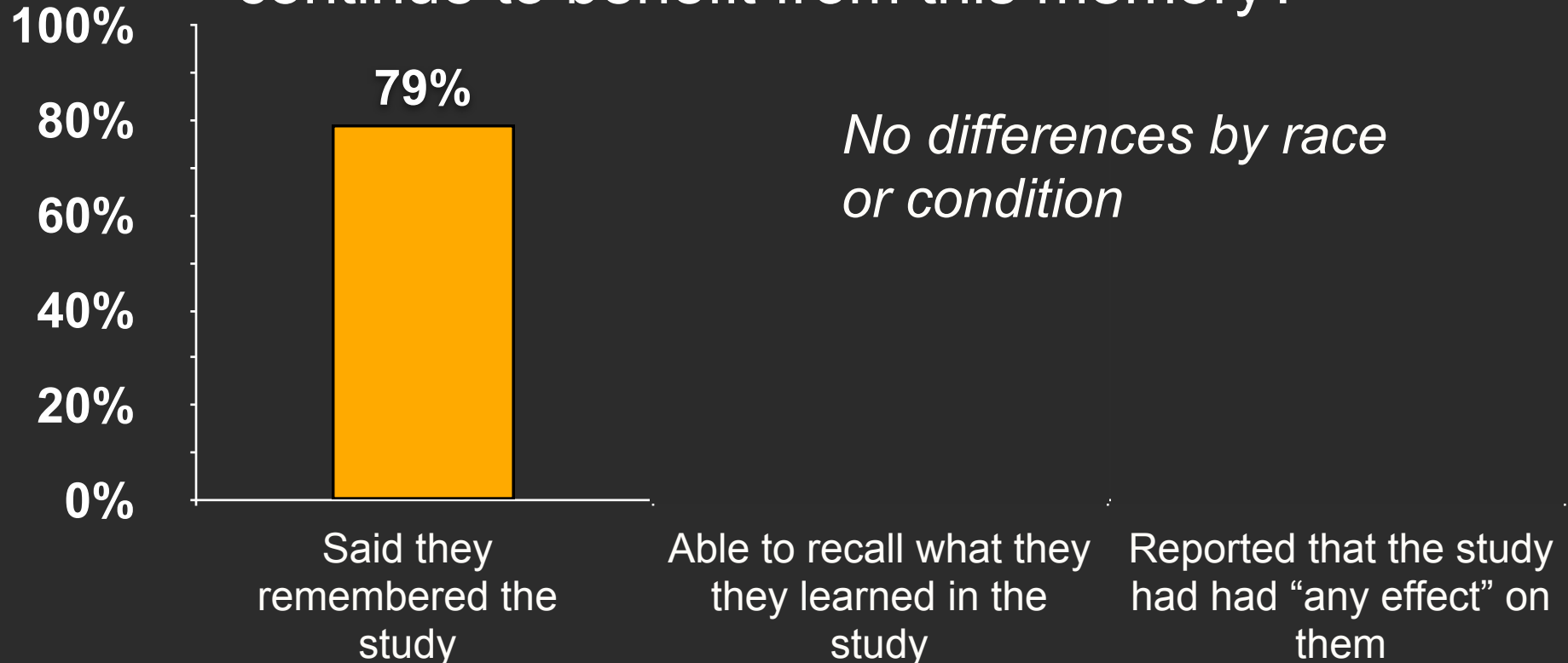
# What Processes Sustained the Treatment Effects Over Time?

- Did students remember the intervention and continue to benefit from this memory?

- By securing students' sense of belonging in college?

Daily Diary Measures
(completed in the first week after the intervention)

- *How did students' respond when they experienced high levels of adversity in school?*

- Daily diaries
  - Assessed how much adversity students experienced each day
  - Assessed students' level of belonging that night and the next day

- Calculated the *within-subjects correlation* between adversity and belonging

Correlation indexes the extent to which students' sense of belonging went up and down when they experienced less and more adversity each day.
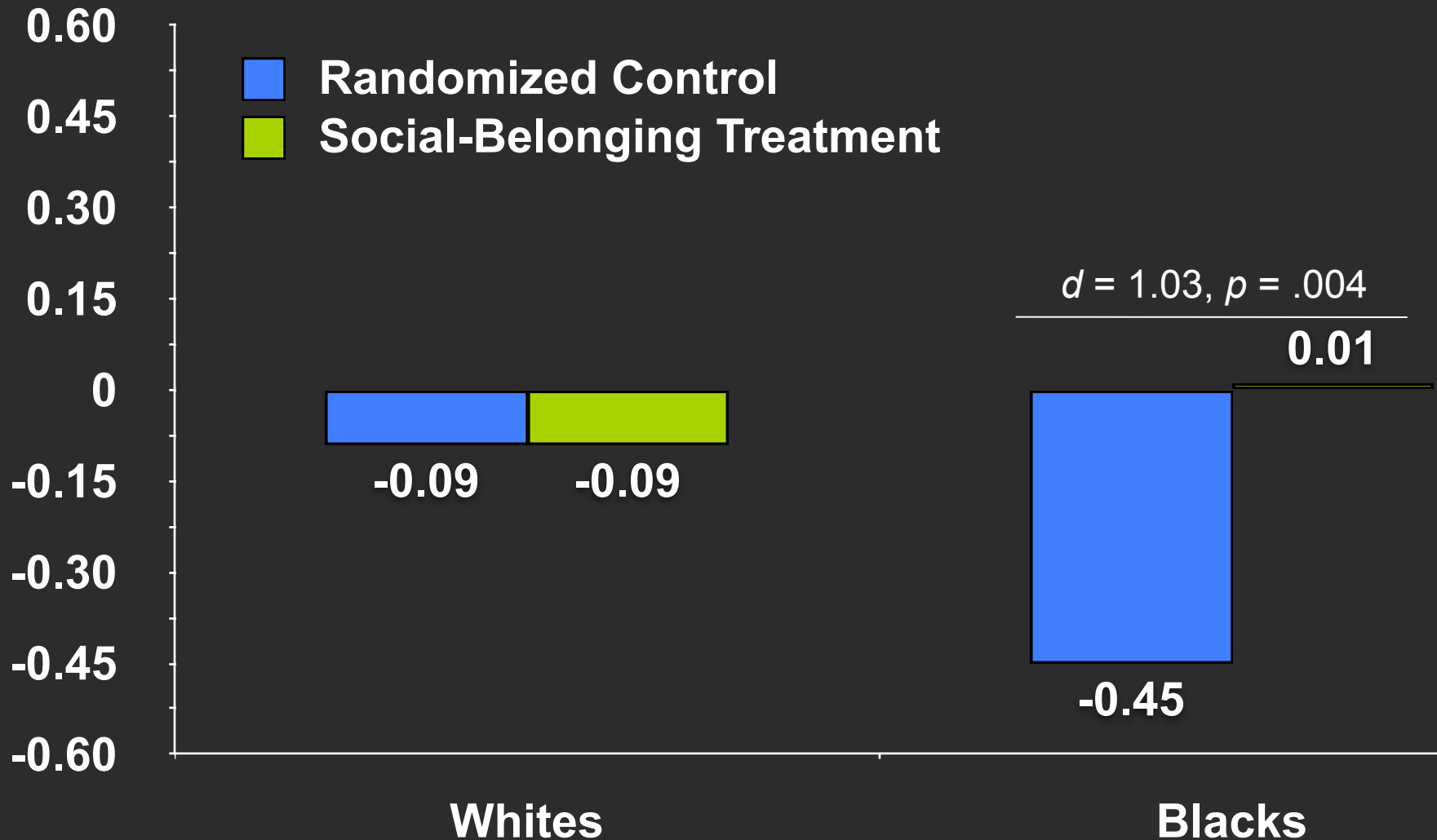
Walton & Cohen (2011, *Science*)

A Deleterious Interpretation of Social Adversity

Everyone is going out without me, and they didn't consider me when making their plans. At times like this I feel like I don't belong here and that I'm alienated.

-Black female, control condition

A Deleterious Interpretation of Social Adversity

Everyone is going out without me, and they didn't consider me when making their plans. *At times like this I feel like I don't belong here and that I'm alienated.*
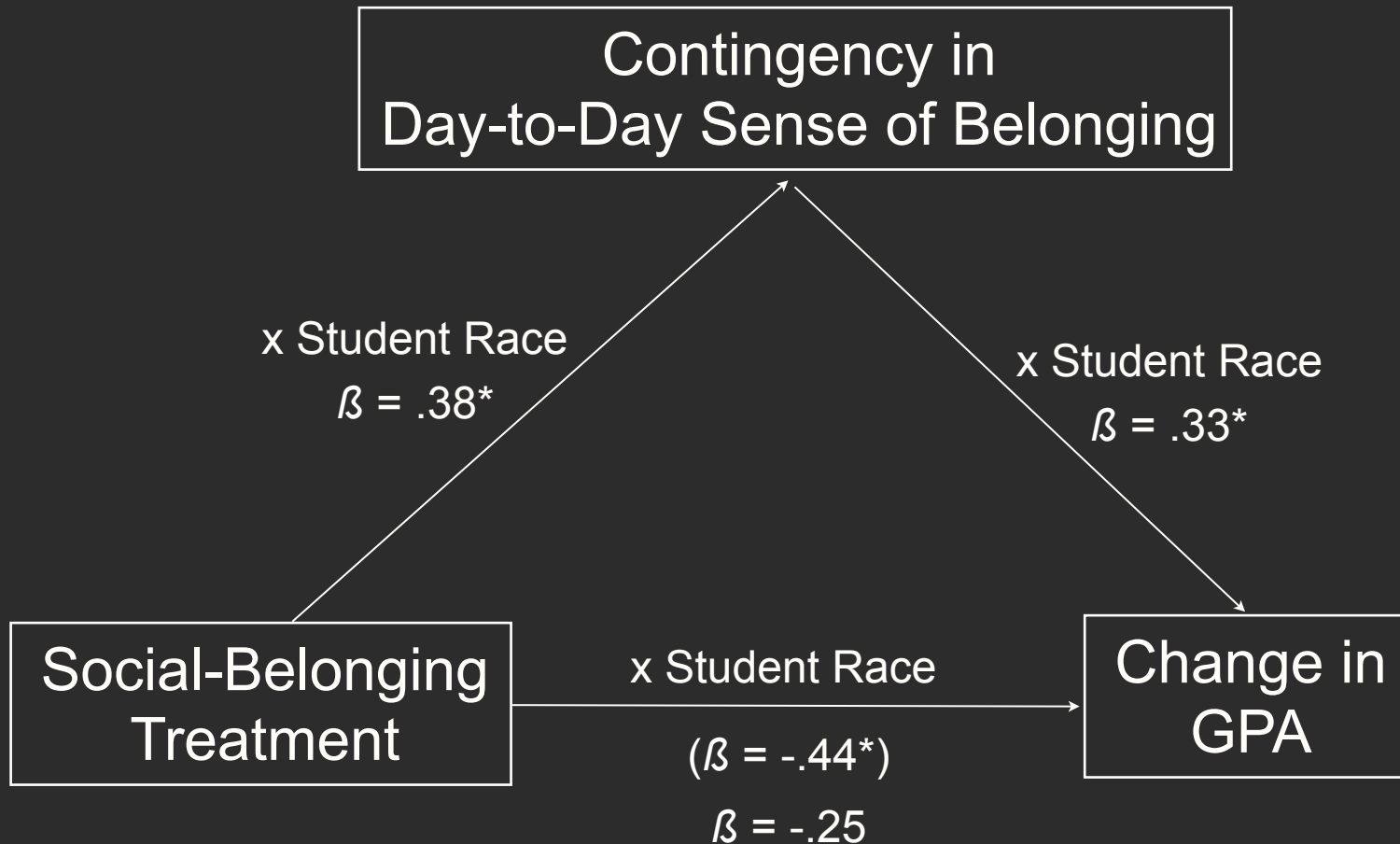
-Black female, control condition

Correlation Between Contingency and Change in Grades

Whites	*r* = .20, *p* = .28
Blacks	**r = -.51, p = .001**

Walton & Cohen (2011, *Science*)

Mediation Model

Contingency in
Day-to-Day Sense of Belonging

x Student Race
ß = .38*

x Student Race
ß = .33*

Social-Belonging
Treatment

x Student Race

(ß = -.44*)

ß = -.25

Change in
GPA

What about health and well-being?

- Assessed
  - Happiness
  - Self-reported general health
  - Number of recent doctor visits

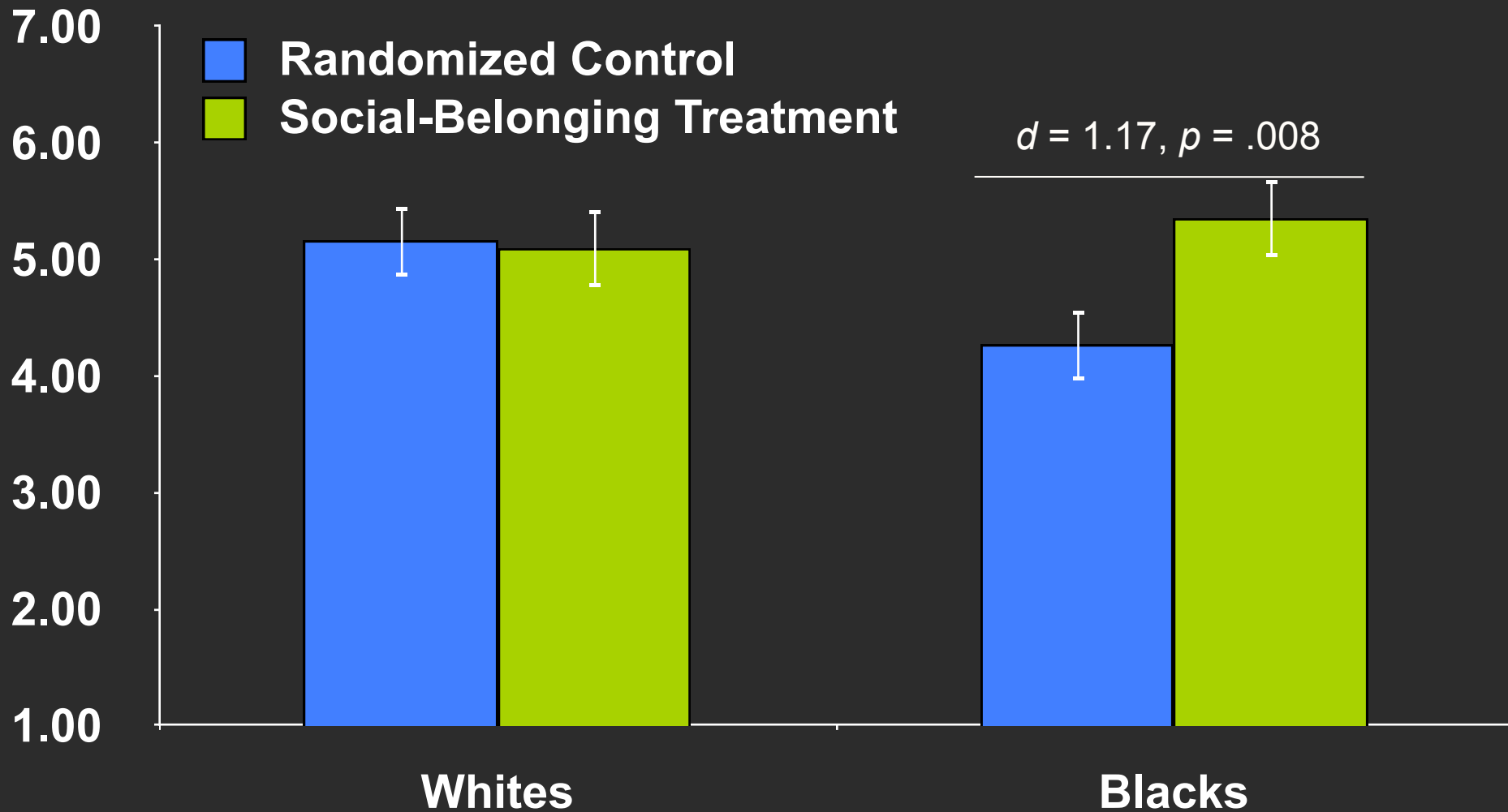**Before their time**

Ron Howell '70

The 1960s saw the first significant presence of black men in Yale College. Forty years later, a disproportionate number have died. Did the racial barriers they faced all their lives play a part?
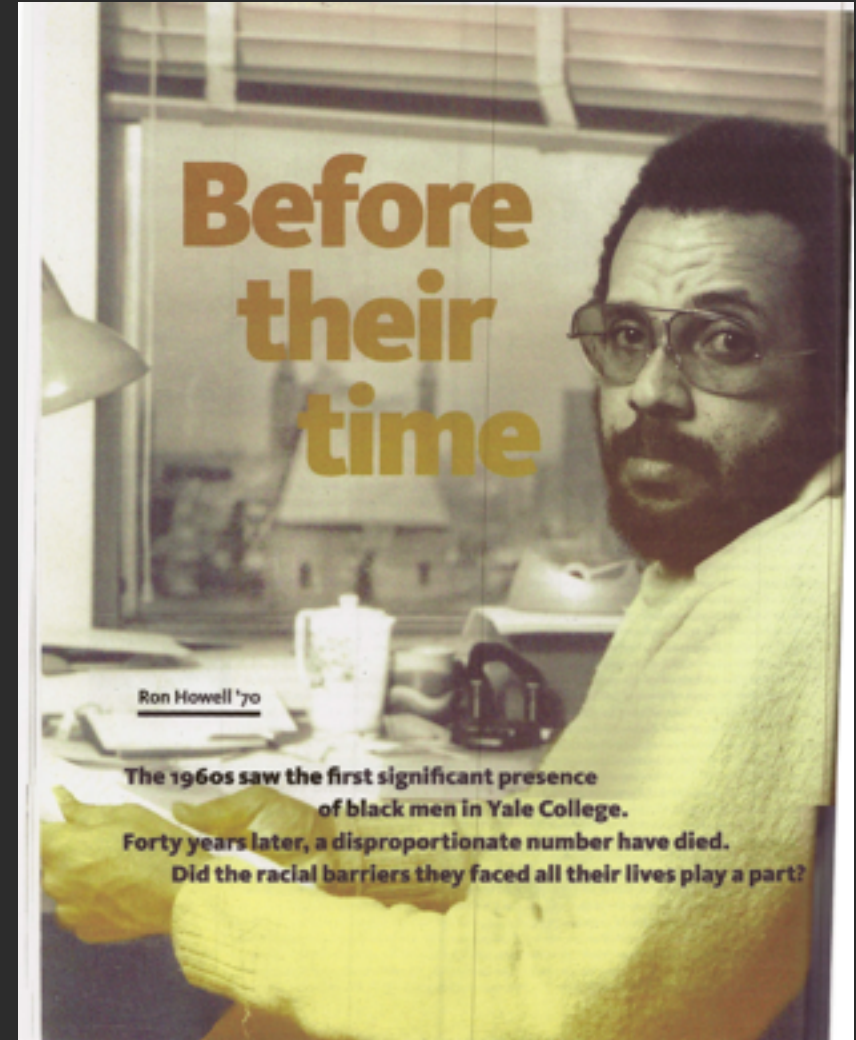
Subjective Happiness
3 Years Post-Treatment
(4-items, e.g., "In general, I consider myself" *1=not a very happy person, 7=a very happy person*; Lyubomirsky & Lepper, 1999; controlling for pre-treatment attitudes, SAT-Score)

Legend:
- ■ Randomized Control (blue)
- ■ Social-Belonging Treatment (green)
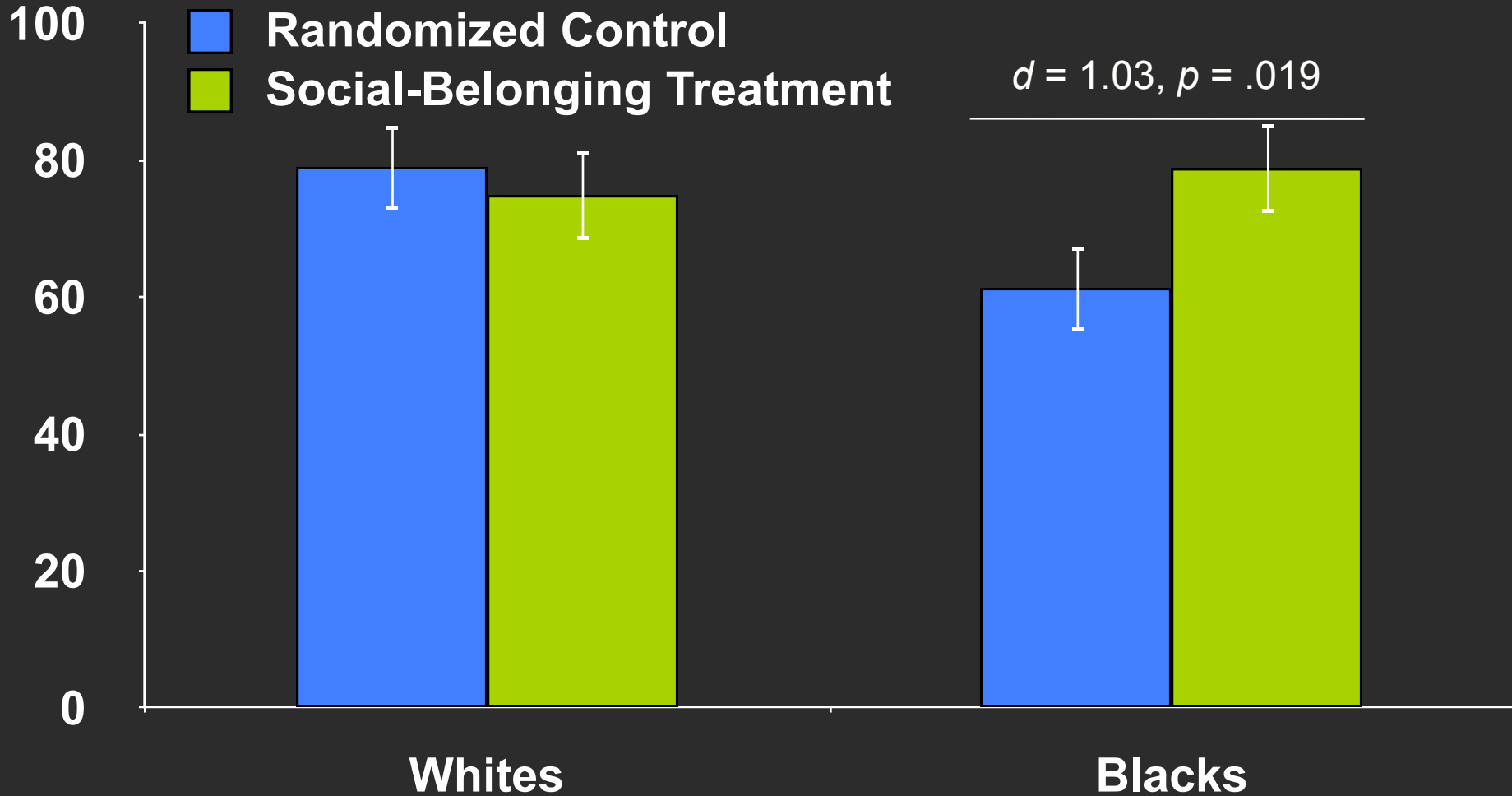
$d = 1.17$, $p = .008$

Whites

Blacks

Walton & Cohen (2011, *Science*)

Self-Reported General Health
3 Years Post-Treatment
(5-items, e.g., "In general, would you say your health is?" *1=excellent, 5=poor* (reverse-coded); Stewart & Ware, 1992; controlling for pre-treatment attitudes, SAT-Score)
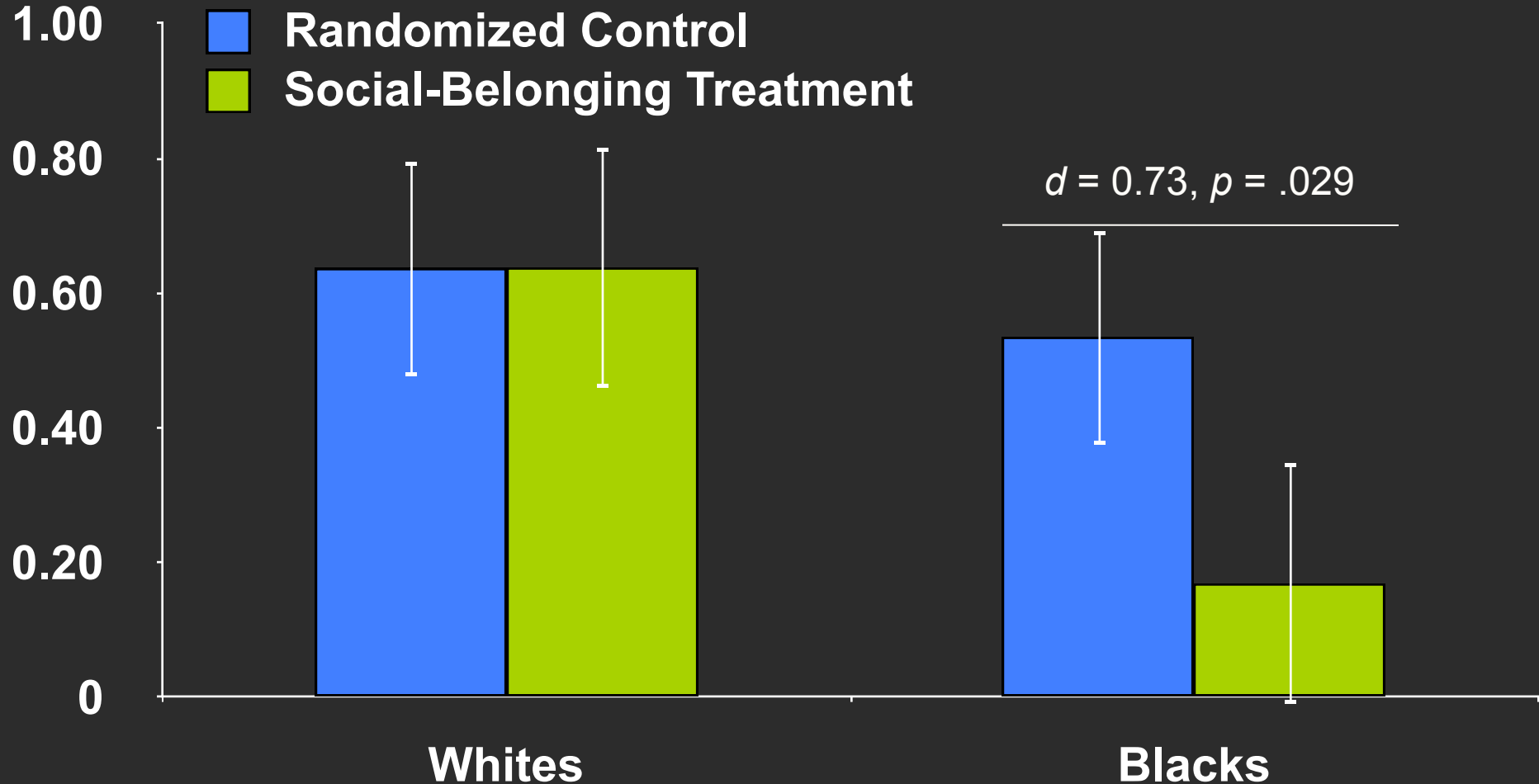
Randomized Control
Social-Belonging Treatment

$d = 1.03$, $p = .019$

Whites

Blacks

Walton & Cohen (2011, *Science*)

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of Reported Doctor Visits (Past Month)
3 Years Post-Treatment
(1-item: "During the past month, how many times did you go to the doctor?"; controlling for pre-treatment attitudes, SAT-Score)

$d = 0.73$, $p = .029$

Randomized Control
Social-Belonging Treatment

Whites

Blacks

Walton & Cohen (2011, *Science*)

Monday, February 27, 2012

Psychological Interventions: Not Silver Bullets

(Yeager & Walton, 2011)

- Not needed everywhere
  - *Remedy threats that exist within a given context*

- Work <u>through</u> the context
  - *Long-term effects depend on a chain of social, psychological, and academic processes*

Trial 2: Three Questions

- Context:
  - *Is the belonging intervention most effective in contexts that elicit higher levels of threat?*

- Social and psychological process:
  - *Does the belonging intervention transform students' social and psychological lives broadly?*

- Generalization to a new group:
  - *Can the belonging intervention improve outcomes for another negatively stereotyped group?*

Women in Engineering

(with Christine Logel, Jennifer Peach, Steve Spencer, and Mark Zanna)

- Men and women in an elite engineering program
  - Enrolled in *gender diverse* or *male-dominated* engineering majors

Gender-Diverse Majors (>20% Women)	Male-Dominated Majors (<20% Women)
Chemical Engineering	Computer Engineering
Civil Engineering	Electrical Engineering
Environmental Engineering	Mechanical Engineering
Geological Engineering	Mechatronics Engineering
Management Engineering	Nanotechnology Engineering
Systems Design Engineering	Software Engineering

Women in Engineering
(with Christine Logel, Jennifer Peach, Steve Spencer, and Mark Zanna)

- Men and women in an elite engineering program
  - Enrolled in *gender diverse* or *male-dominated* engineering majors
- Two conditions
  - Control
  - Social-belonging treatment

STEP Program

When I first got to Waterloo, I worried that I was different from the other students.

Sometime after my first year, I came to realize that almost everyone feels uncertain at first about whether they fit in.

It's something everyone goes through.

Raymond
4ᵗʰ year
Electrical

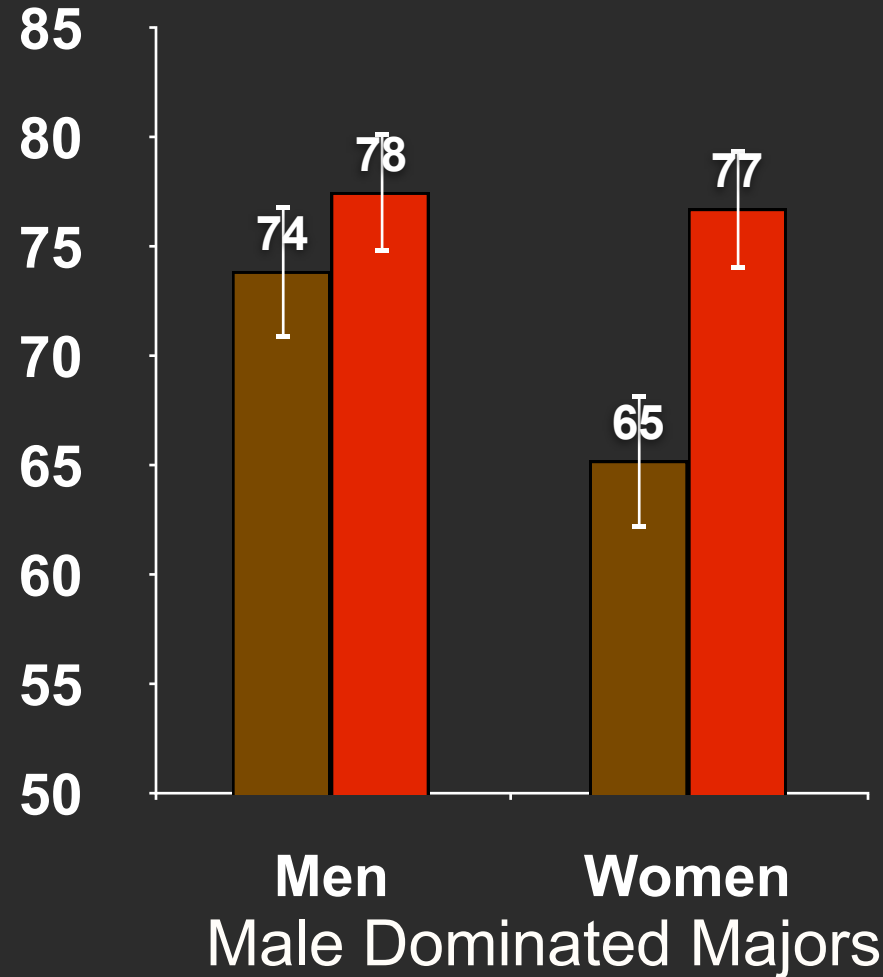Social Belonging
Intervention

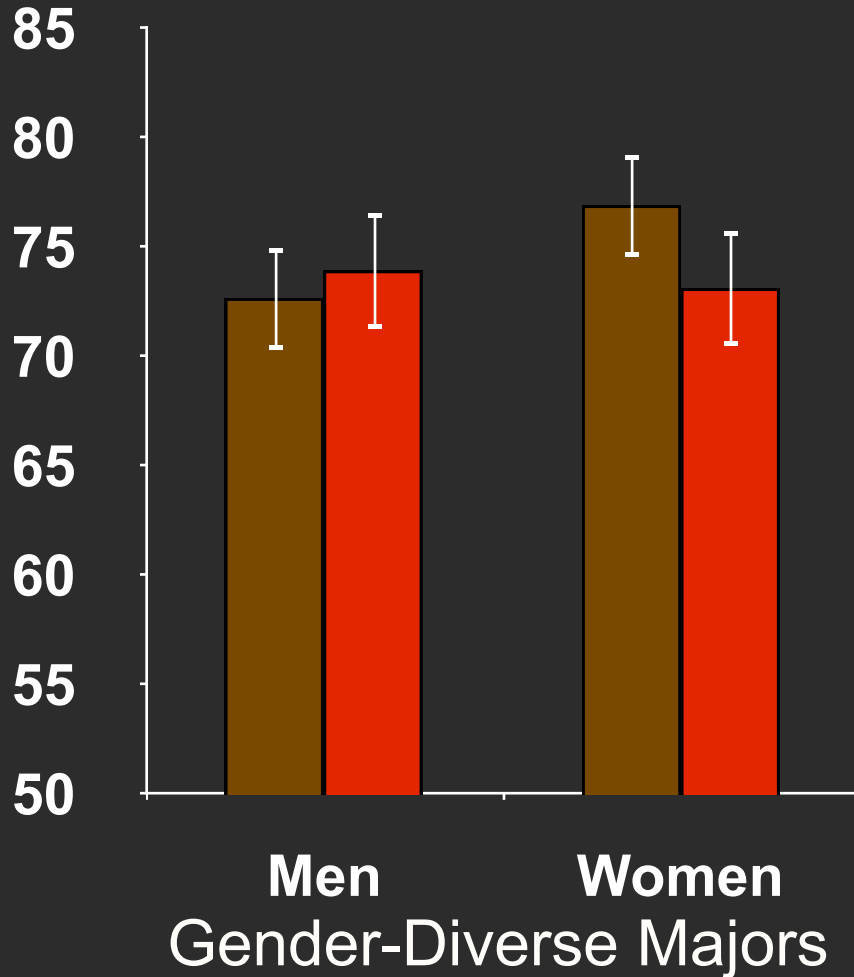# Saying-Is-Believing Exercise

- Wrote about how the treatment message is true of their experience

- Believed essays would be read by incoming engineers next year to aid their transition

First Year GPA
(Controlling for mean within major GPA)

Randomized Control   Social-Belonging Treatment

Men **Women**
Gender-Diverse Majors

Men **Women**
Male Dominated Majors

Walton, Logel, Peach, Spencer, & Zanna (in prep)

Monday, February 27, 2012

Women's Friend Networks:
(% in each category among 5 closest friends, controlling for preintervention)

■ % Female Eng.   ■ % Male Eng.   ■ % Female Non-Eng.   ■ % Male Non-Eng.

Control: 9%, 10%, 41%, 40%
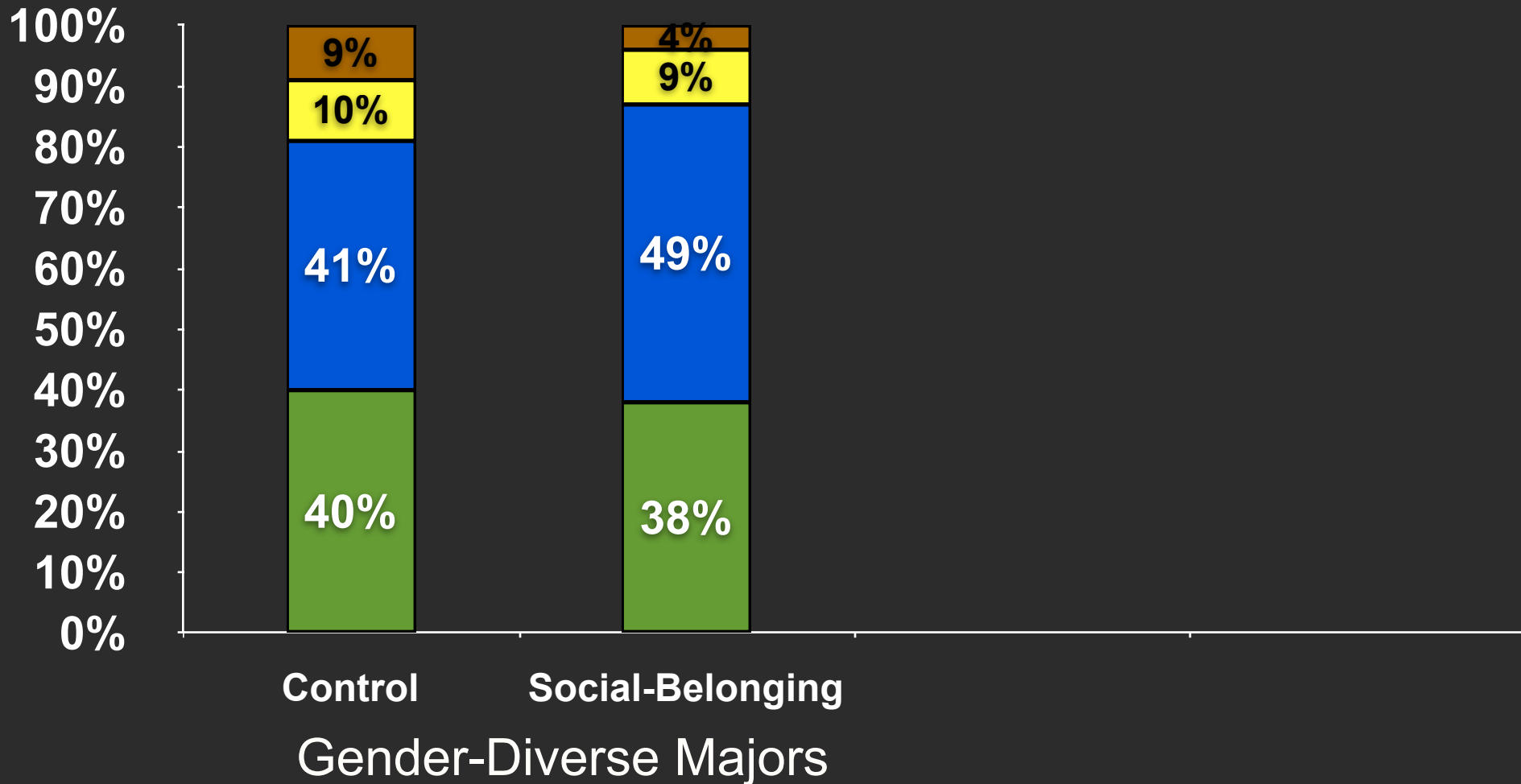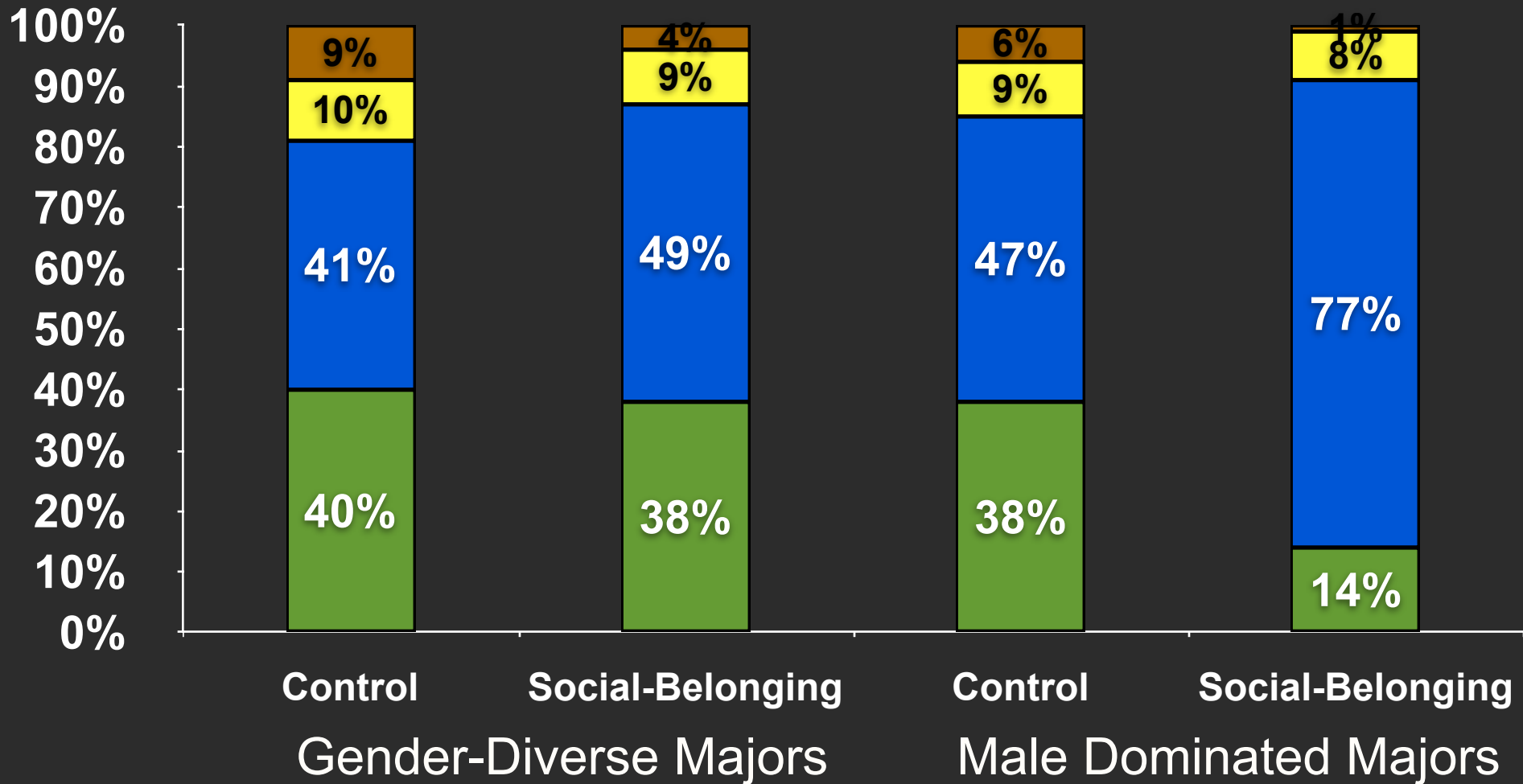Social-Belonging: 4%, 9%, 49%, 38%

Gender-Diverse Majors

Walton, Logel, Peach, Spencer, & Zanna (in prep)

Women's Friend Networks:
(% in each category among 5 closest friends, controlling for preintervention)

■ % Female Eng.   ■ % Male Eng.   ■ % Female Non-Eng.   ■ % Male Non-Eng.

Gender-Diverse Majors

Control: 40% / 41% / 10% / 9%
Social-Belonging: 38% / 49% / 9% / 4%

Male Dominated Majors

Control: 38% / 47% / 9% / 6%
Social-Belonging: 14% / 77% / 8% / 1%

Walton, Logel, Peach, Spencer, & Zanna (in prep)
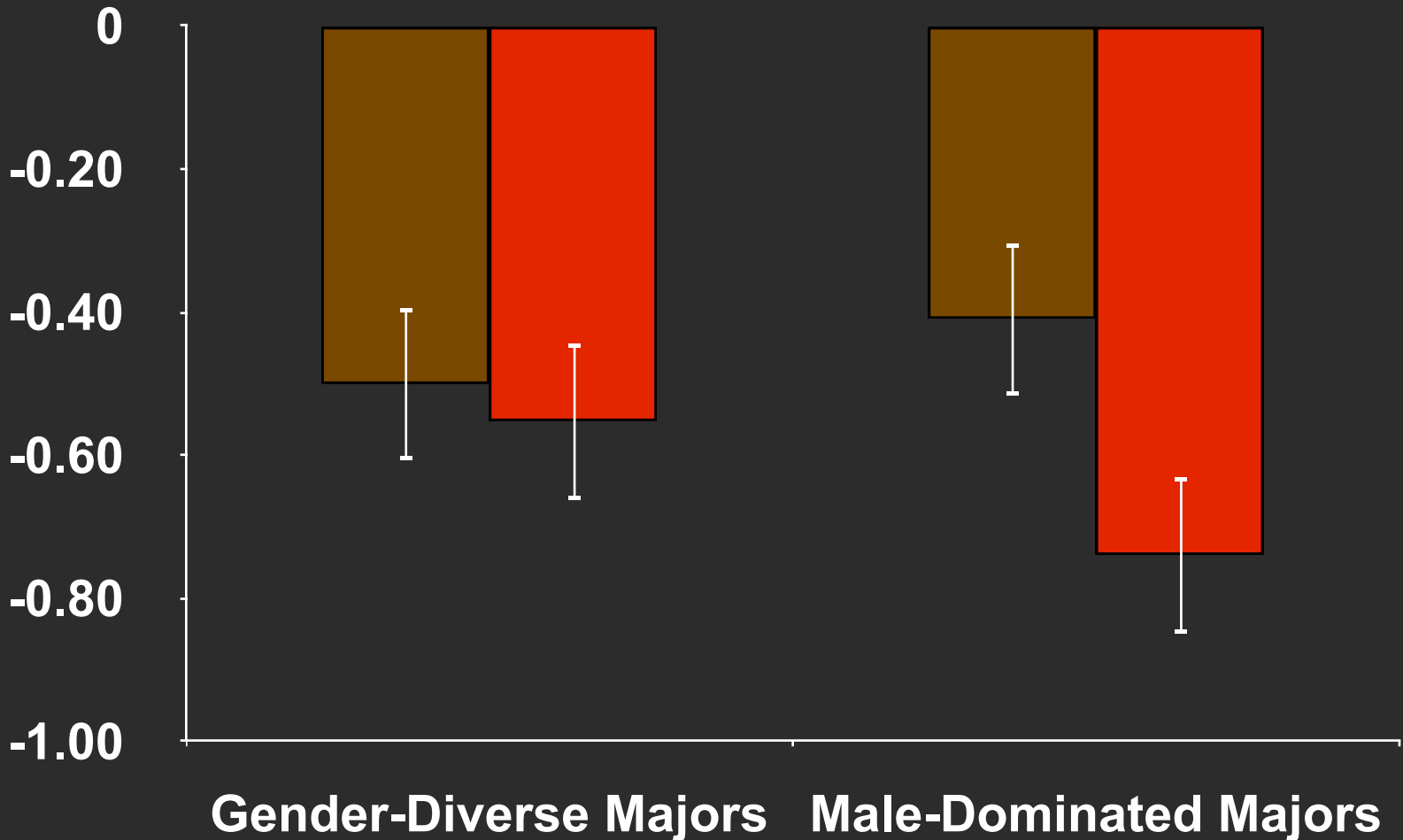
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Women's Implicit Norms

Female Engineers = Most People *Don't* Like?
(Several months post-intervention; controlling for preintervention)

Randomized Control   Social-Belonging

More *negative* implicit norms about female engineers

More *positive* implicit norms about female engineers

0
-0.20
-0.40
-0.60
-0.80
-1.00

Gender-Diverse Majors   **Male-Dominated Majors**

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Context Matters

- Psychological interventions remedy psychological threats that arise within specific contexts

- Can transform students' social, psychological,and academic lives

Trial 3: Adolescents

- Black and White students entering middle school

- Randomly assigned to condition at the beginning of 6th grade
  - Control condition
  - Social-belonging treatment (2 doses, a month apart)

7th Grade   7th Grade   7th Grade   7th Grade

MORE FROM THE 7TH GRADE ▬▬▬▬ SURVEY

1. Read about the results from the 7th Grade ▬▬▬ Survey below and on the next page.

2. Answer the questions on the third page.

RESULTS OF THE 7TH GRADE SURVEY

As you may know, last year the 7th grade students at ▇▇▇▇▇▇ answered questions about *how they felt about* ▇▇▇▇▇▇ *when they were in the 6th grade like you*. Here's what they said.

Almost all 7th graders said they had *worried at first that they did not "fit in" or "belong" at* ▇▇▇▇▇▇ ***in 6th grade*.**

But almost all 7th graders say that _now they know that they "fit in" and "belong" at_ ▇▇▇▇▇▇.

7th Grade   7th Grade   7th Grade   7th Grade

Three Quotes from Typical 7th Graders

Please take your time and read these carefully

Now please write your answers to these questions. **When you answer these questions, think about yourself, and how you feel about** ▮▮▮▮▮▮▮. Focus on your thoughts and feelings, and don't worry about spelling, grammar, or how well written it is.

1. Name *1 or 2* reasons <u>why 6th graders like you might worry at first about whether they "fit in" or "belong" at</u> ▮▮▮▮▮▮:

   For example: *Because middle school is so different from elementary school.*

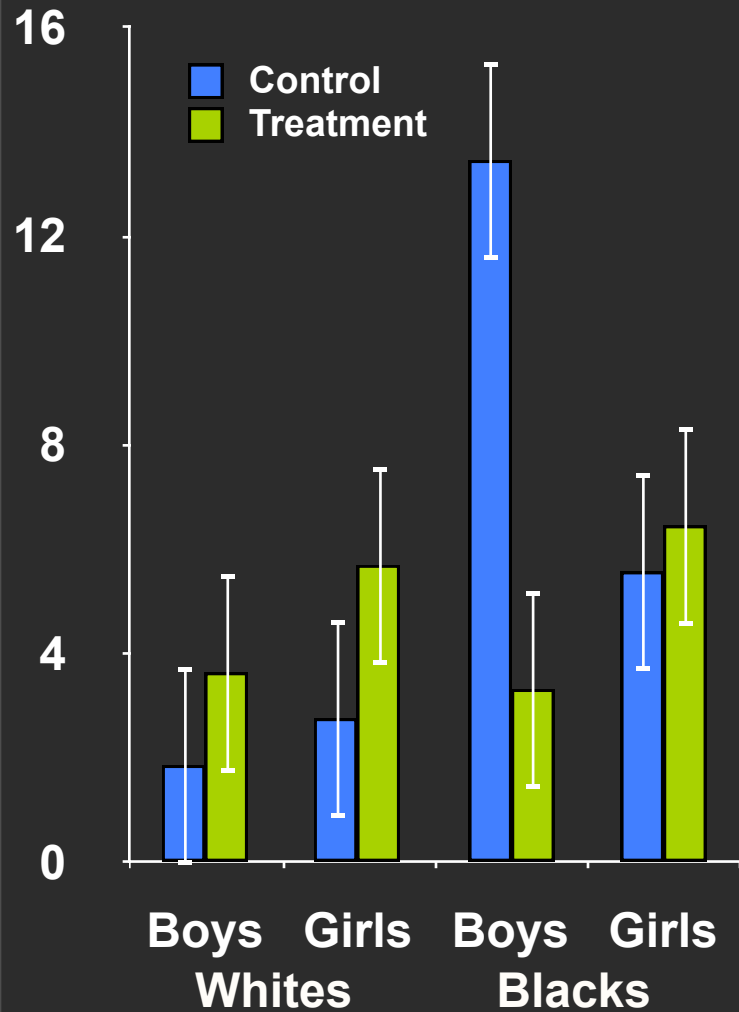   1. _____

   _____

   2. _____

   _____

2. Name *1 or 2* reasons <u>why 6th graders like you might feel more sure that they "fit in" or "belong" at</u> ▮▮▮▮▮ after a little bit of time.
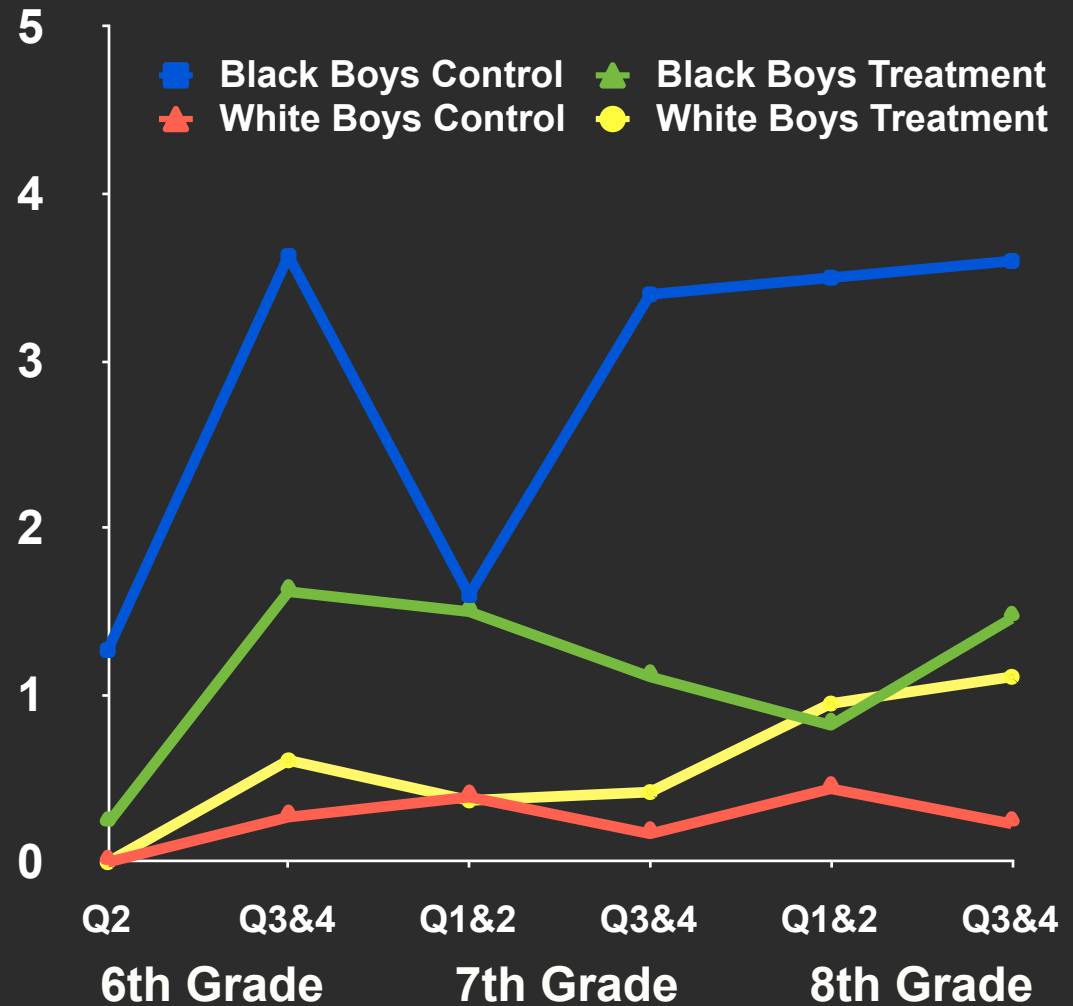
   For example: *Because they make new friends.*

   1. _____

   _____

   2. _____

   _____

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Disciplinary Incidents: 6th-8th Grade

Implications for Education

- Problems in education are, in part, psychological problems

- Psychological interventions work hand-in-hand with traditional education reforms

Psychological Interventions
(see Yeager & Walton, 2011 *RER*)

- Be stealthy (Robinson, 2010)
  - *Sometimes less is more*

- Use powerful persuasive techniques
  - *Saying-is-believing*

- Address people's subjective experience

Is the belonging intervention a "small" intervention?

- Yes -- to an observer or implementer
  - It is **brief** (1-hour), **one-shot**, and **cheap**
- No -- not to a recipient
  - *"I learned that I wasn't alone in how I felt at the beginning of the year."*
  - *"It is comforting to see the commonality of experiences across all lines. That should be comforting for incoming students."*
  - *"I found the similarities between my impression and those of the seniors/juniors uncanny."*

Psychological Interventions

(see Yeager & Walton, 2011 *RER)*

- Be stealthy (Robinson, 2010)
  - *Sometimes less is more*

- Use powerful persuasive techniques
  - *Saying-is-believing*

- Address people's subjective experience

- Target processes that can be recursive
  - *Construal of and response to adversity*
  - *Development of social networks*

- Target "psychological hubs"
  - E.g., social belonging

Psychological Interventions

(see Yeager & Walton, 2011 *RER)*

- Need to develop ways to scale-up psychological interventions
  - Internet-based approaches?
    - The Project for Education Research that Scales (www.perts.net)
  - Teacher training approaches?
  - A need for "psychological engineers"?

Implications for Policy: Affirmative Action

(Walton, Spencer, & Erman, in press)

- Negatively stereotyped students confront unique psychological barriers in school that impede achievement

- A consequence:
  - Grades and test scores assessed in typical academic environments underestimate the ability and potential of stereotyped students (Walton & Spencer, 2009)

- A **merit-based** rationale for affirmative action
  - Accounting for bias in measures of merit would promote diversity and meritocracy at once
  - *Affirmative Meritocracy*

Thank you!

- ## Collaborators
  - Geoff Cohen
  - Carol Dweck
  - Christine Logel
  - Jason Okonofua
  - Dave Paunesku
  - Jennifer Peach
  - Steve Spencer
  - David Yeager
  - Mark Zanna

- ## Funders
  - American Psychological Association
  - Gates Foundation
  - The Hewlett Foundation
  - National Academy of Education
  - Raikes Foundation
  - Society for the Psychological Study of Social Issues
  - Spencer Foundation