

# A Celebration of Psychology's Big— and Sometimes Surprising—Insights

## AP Annual Conference

**DAVID MYERS**

[davidmyers.org](http://davidmyers.org)

[TalkPsych.com](http://TalkPsych.com)

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# Psychology's bad press:

- ▶ **Faked data:** Brian Wansink, Derek Stapel, and apparently David Rosenhan, Hans Eysenck, and Daniel Ariely
- ▶ **The “replication crisis”:** Famed findings disputed
  - ▶ *One-off stage-managed results?* (Stanford Prison; Robbers Cave)
  - ▶ *Null effects:* brain training, implicit bias training, learning styles
  - ▶ *Unreliable outcomes:* teacher expectations, power posing, facial feedback, wintertime depression (SAD)
  - ▶ *Modest effects:* stereotype threat, growth mindset, marshmallow test (delay of gratification)

# Skeptical/cynical conclusions:

- ▶ “I took a [high school] psychology class whose entire content was all of these famous experiments that have turned out to be total horse\*\*bleep\*\*. I studied this! They made me take an exam! For what?”
- ▶ “I'm putting all my chips on neuroscience, I refuse to listen to psychologists ever again, they had their chance.”
- ▶ “Imagine if you'd spent 10 years getting a PhD in this stuff, going into \$200k in debt.”
- ▶ “You can learn more from life never mind a psychology lesson just take a look around fella.”

## NEWS IN BRIEF

## Report: Majority Of Psychological Experiments Conducted In 1970s Just Crimes

12/07/20 10:20AM



WASHINGTON—Unable to discern any legitimate form of inquiry in the past procedures, a new report released Monday by the American Psychological Association found that nearly eight out of every 10 psychological experiments conducted in the 1970s were just crimes. "After analyzing hundreds of academic papers from the decade, we found that

79% of these experiments served no scientific purpose, but in most cases were conducted simply to inflict pain and distress on their test subjects,"

# But consider . . .

- ▶ **How science works**

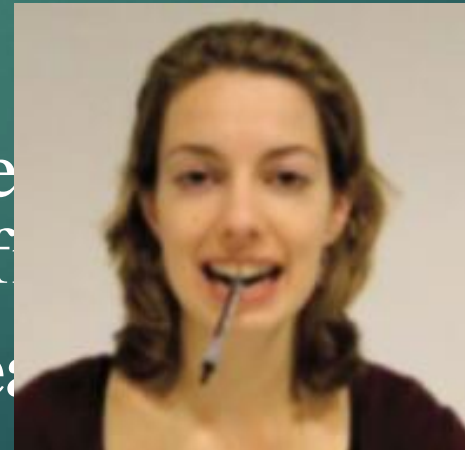
- ▶ A self-checking, self-correcting process that clears weeds
- ▶ With mountain climbing—and science—the upward march comes with occasional down slopes
- ▶ We adjust our teaching/reporting accordingly

- ▶ **Some phenomena are genuine, but situation-specific**

- ▶ Example: Facial feedback effect

- ▶ **Many successful replications.** Central psych sci replications found significant effects in the same direction.

- ▶ **What endures and remains to test**



Science: 64% of 307 replications found significant effects in the same direction.

Everything else

# Overview

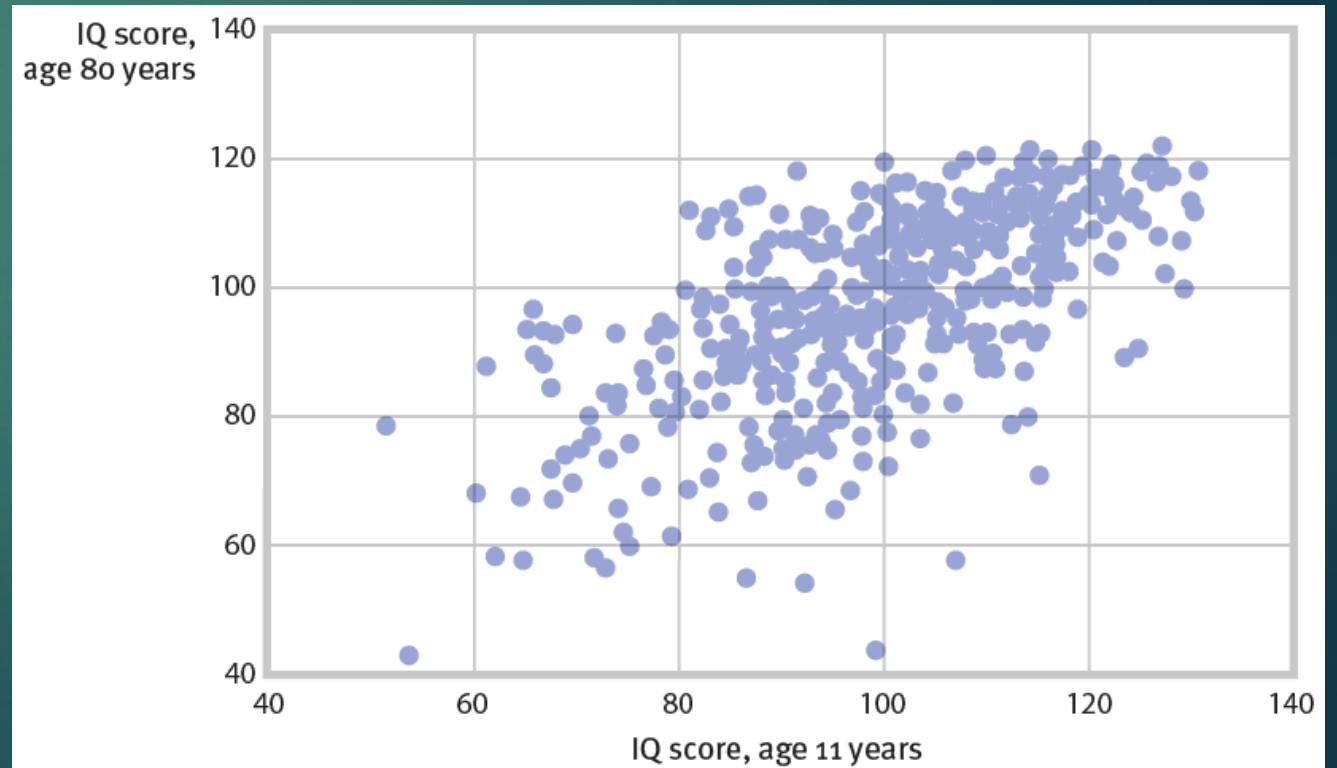
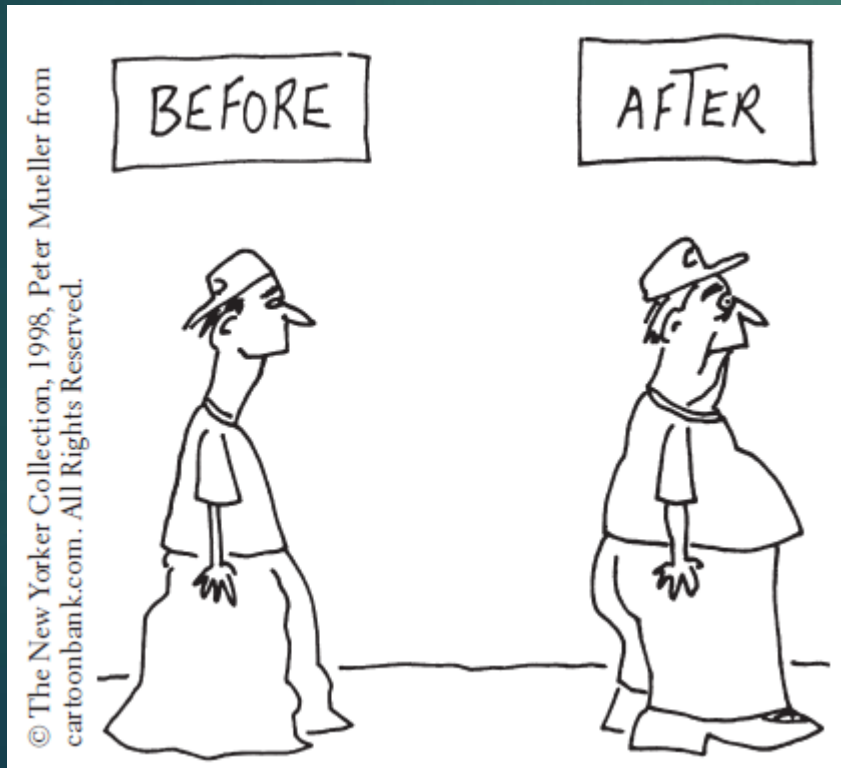
- ▶ **Unsurprising (but important & replicable) findings**
- ▶ **Surprising findings that**
  - ▶ astonish us with new insights
  - ▶ challenge our beliefs

It's important to know ...



...even if we're unsurprised that . . .

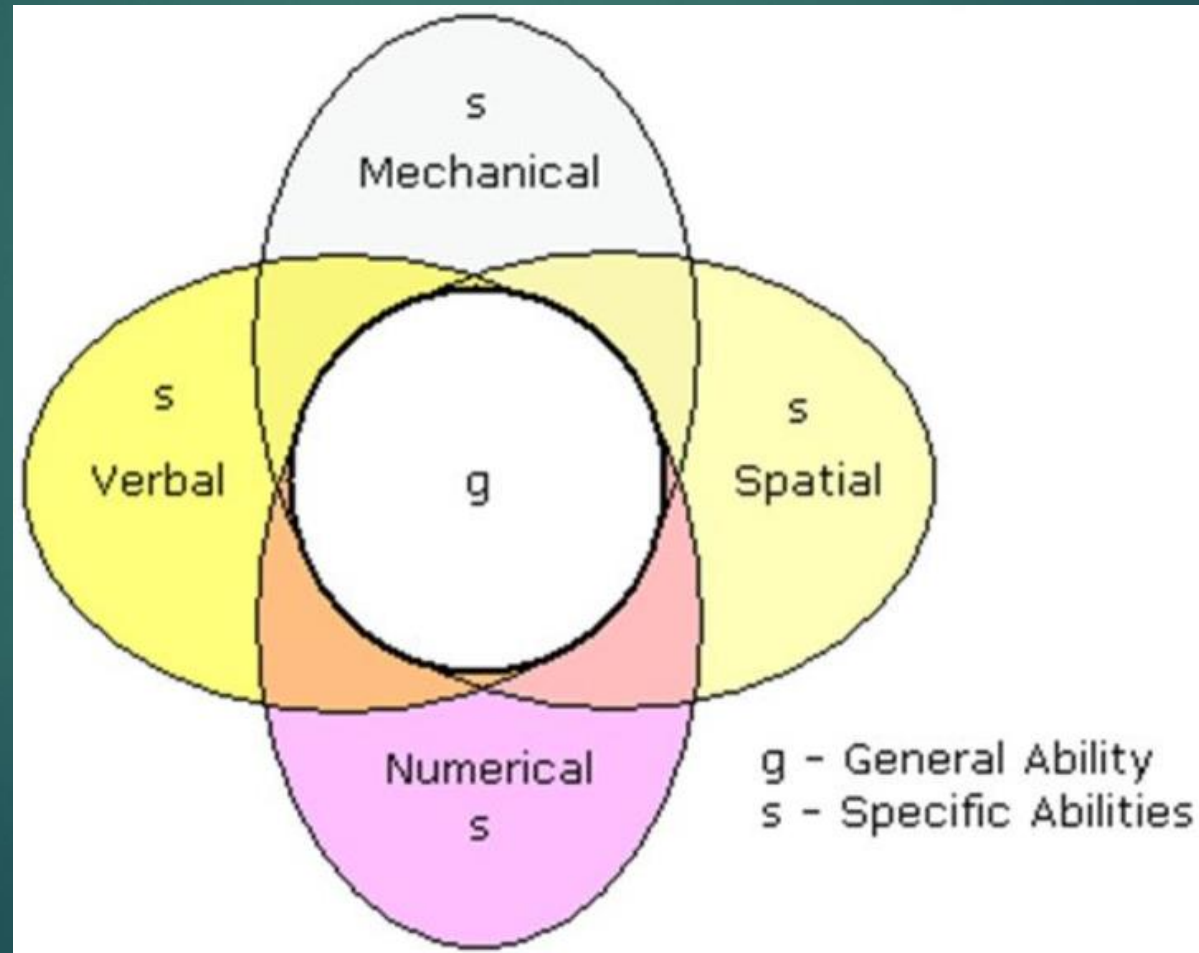
- ▶ There is *continuity* to our traits, temperament, & intelligence
  - ▶ With age, emotional stability & conscientiousness ↑
  - ▶ Yet individual differences (e.g., extraversion, IQ) persist





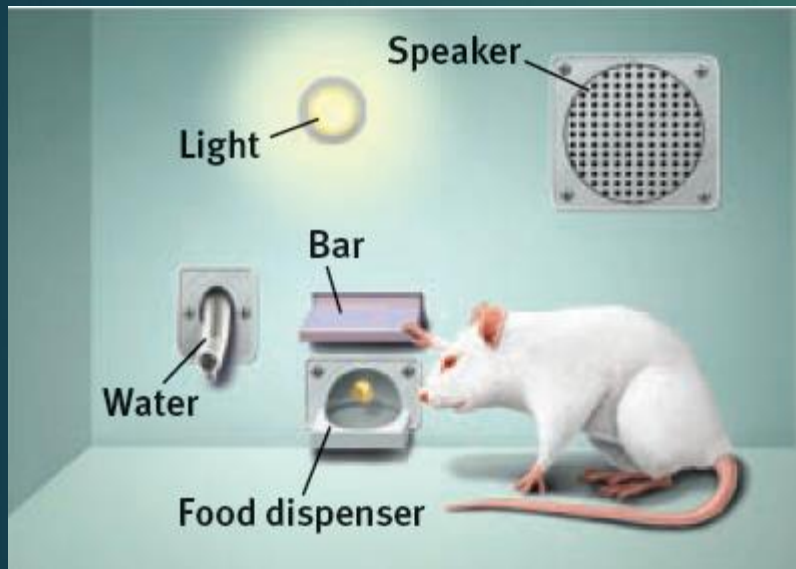
# We're unsurprised that . . .

- ▶ Specific cognitive abilities are distinct, yet correlated (*g*)



# We're unsurprised that . . .

► Rewards shape behavior



# We're unsurprised that . . .

- ▶ Cultures differ in
  - ▶ how we dress, eat, speak
  - ▶ values





# We're unsurprised about . . .

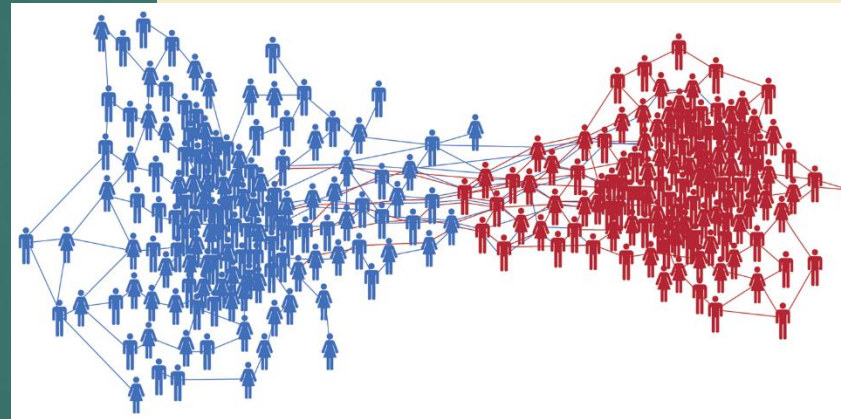
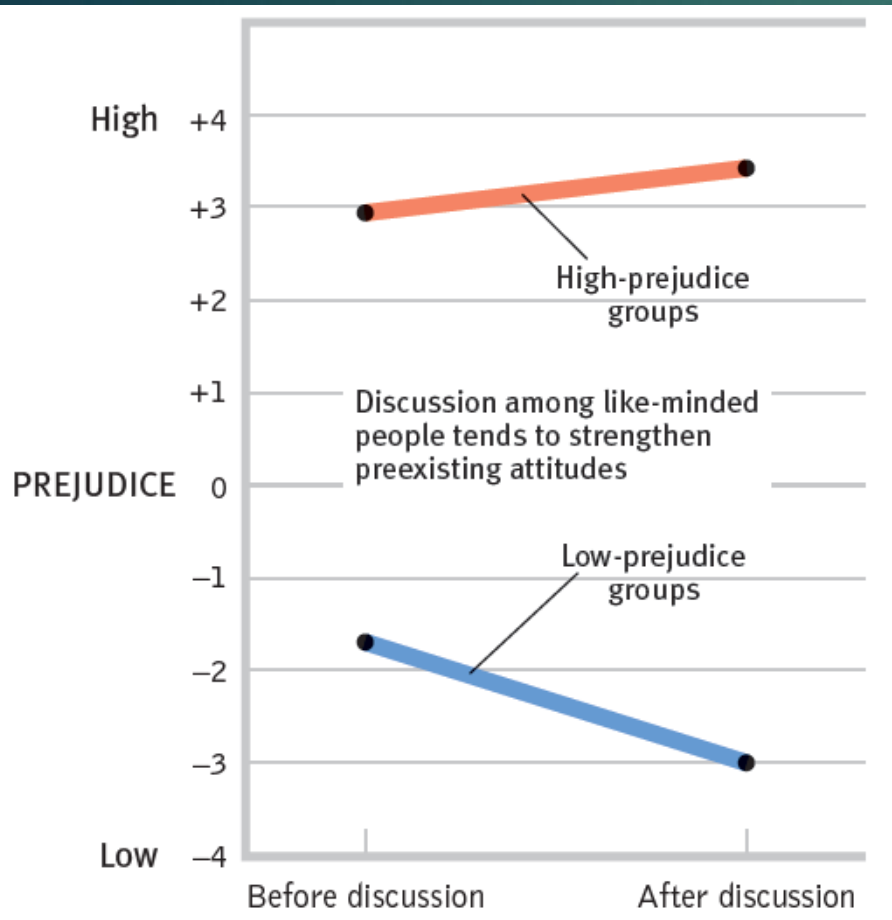
- ▶ Conformity and social contagion



# We're unsurprised about . . .

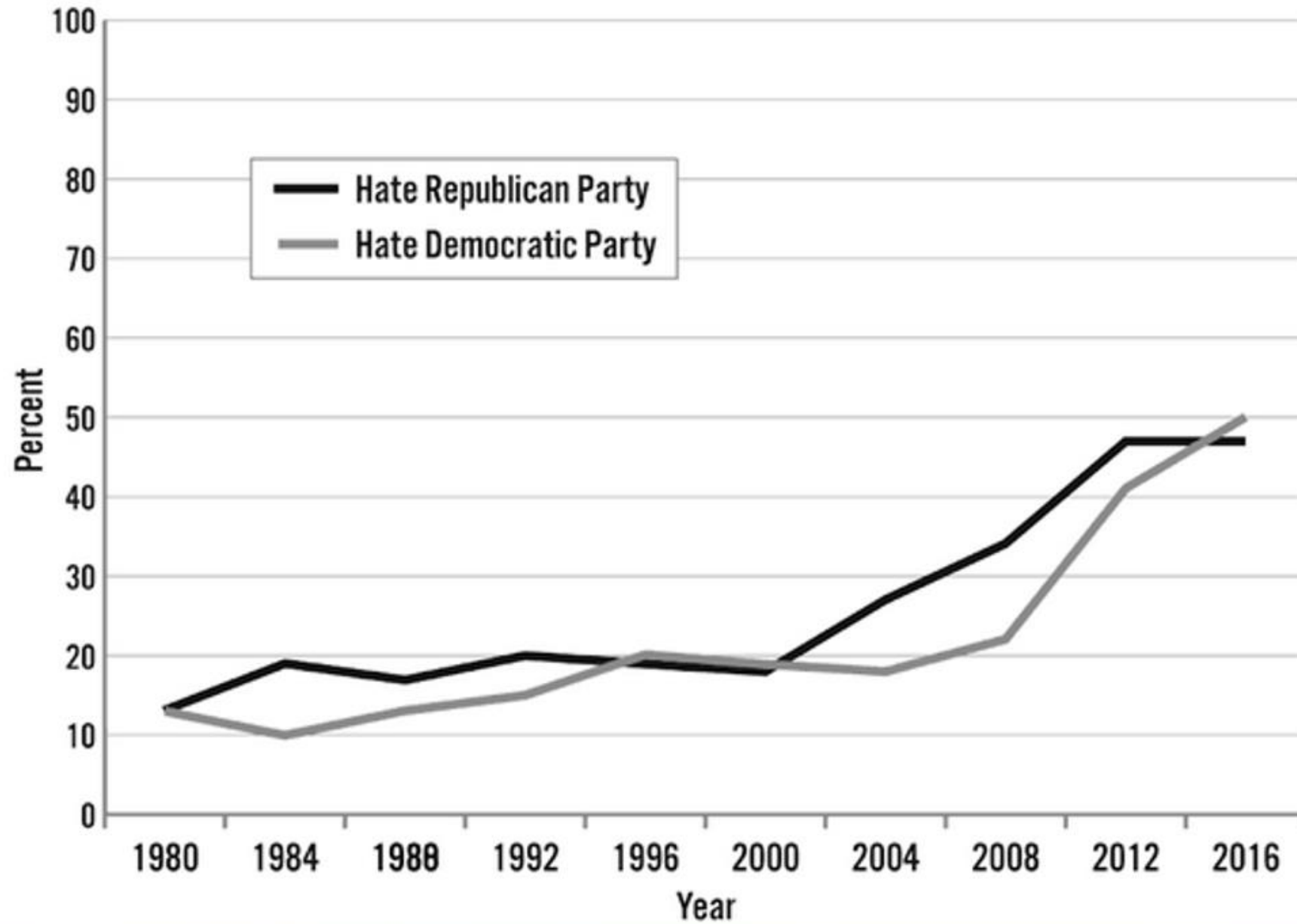
## ▶ Group polarization

### The Internet as Social Amplifier



An infographic titled 'The Internet as Social Amplifier' illustrating the impact of social media on different types of movements. It is divided into two main sections: 'ANTISOCIAL' and 'PROSOCIAL'.  
**ANTISOCIAL:** Includes 'White supremacy' (with a person holding a torch), 'Climate change skeptics' (with a factory emitting smoke), and 'Anti-government militias' (with a rifle).  
**PROSOCIAL:** Includes '#NEVER AGAIN' (with a hand holding a hammer), '#BLACK LIVES MATTER' (with a raised fist), and '#TIME'S UP' (with a clock face).

## Partisan hatred for the other party

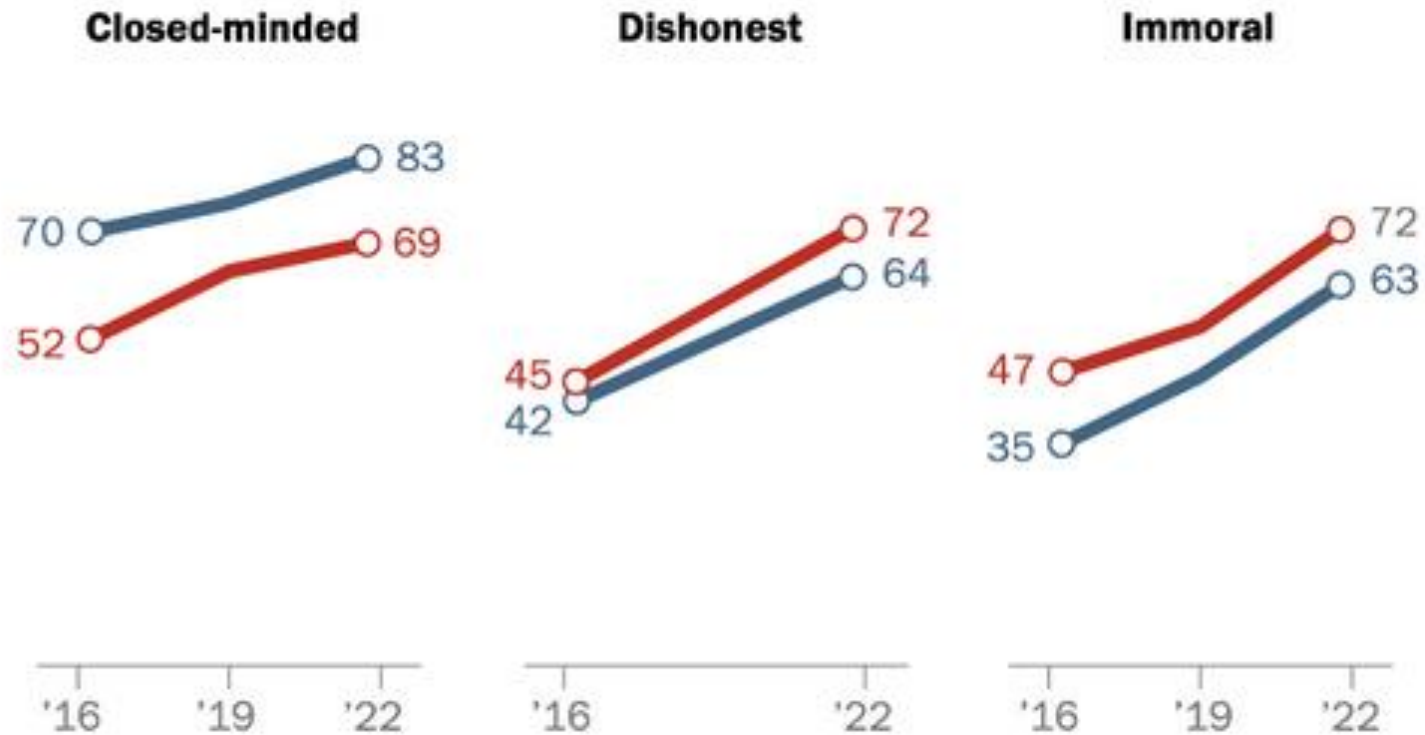




# Growing shares of both Republicans and Democrats say members of the other party are more immoral, dishonest, closed-minded than other Americans

*% who say members of the **other** party are a lot/somewhat more \_\_\_\_\_ compared to other Americans*

- Republicans say Democrats are more ...
- Democrats say Republicans are more ...





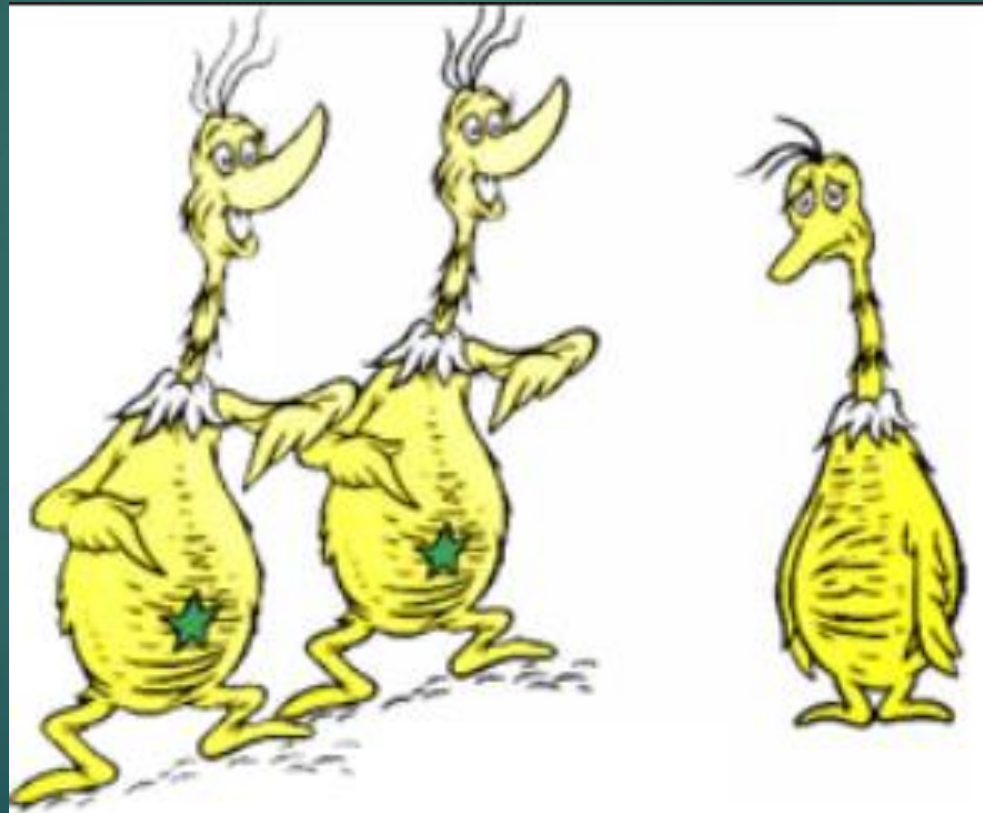
# We're unsurprised that, nevertheless . . .

▶ Worldwide, we're all kin beneath the skin



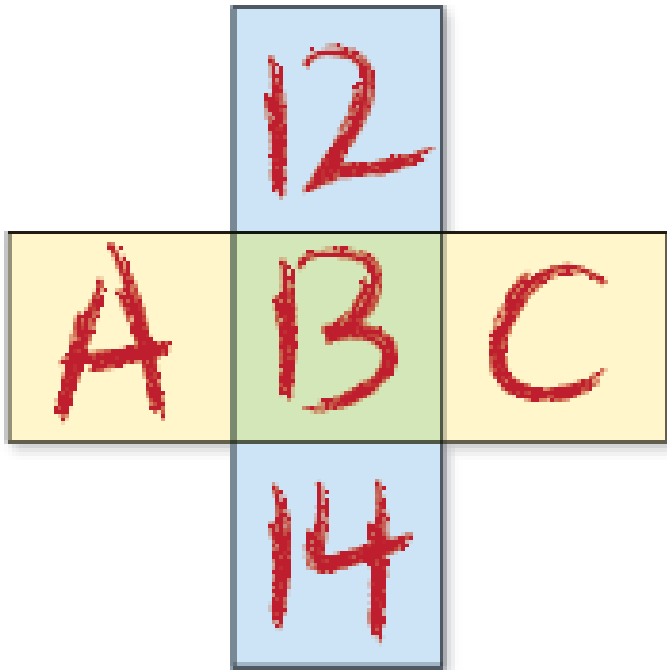
# We're unsurprised about . . .

- ▶ Ingroup bias: us > them



# We're unsurprised about . . .



- ▶ Perceptual set—though perhaps amazed by its power





# We're unsurprised that . . .

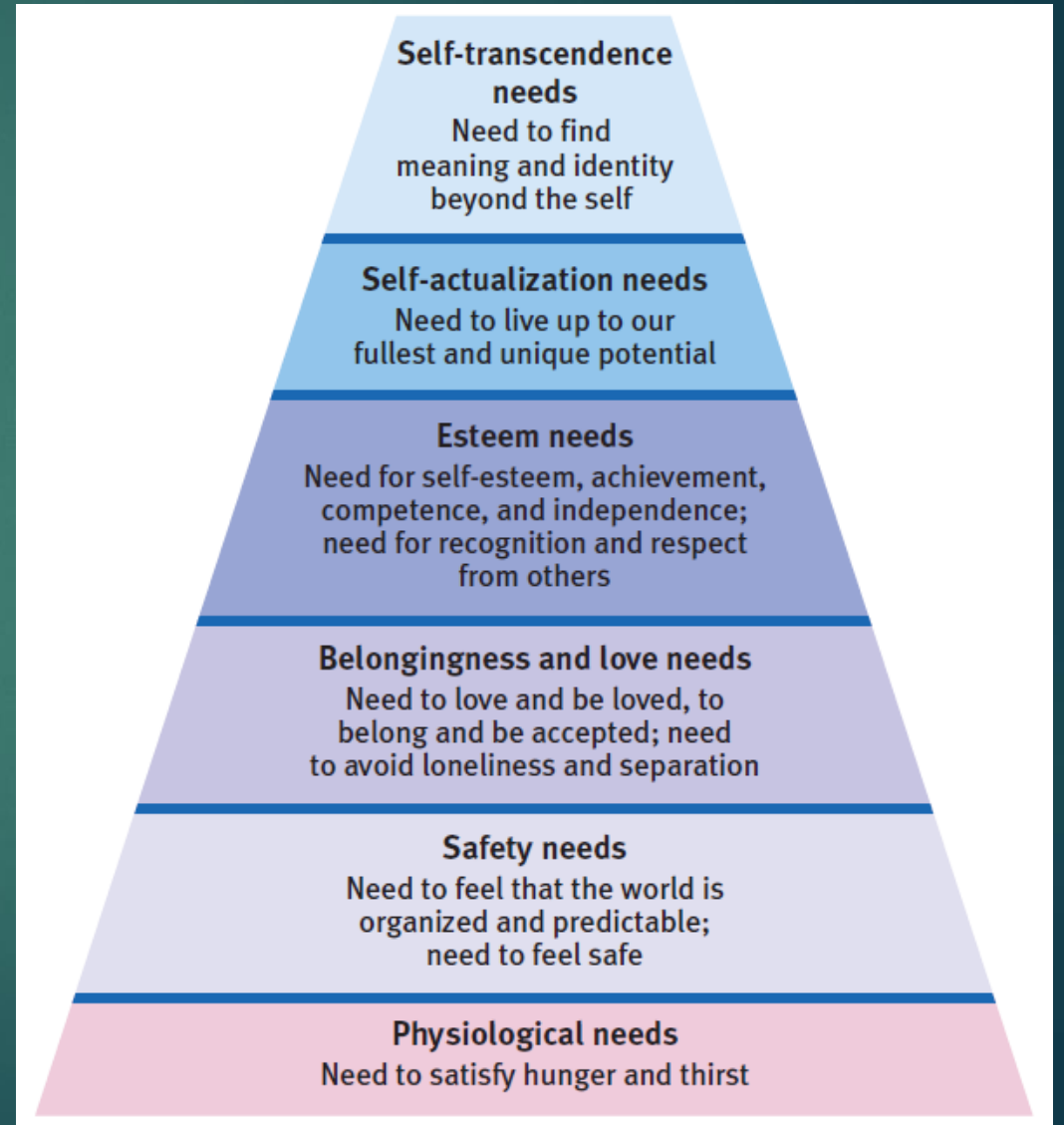
- ▶ Pessimistic explanatory style → depression risk

Optimists	Pessimists
	
<b>Temporary</b> <i>Negative experience won't last forever</i> "I don't understand this yet . . ."	<b>Permanent</b> <i>Negative experience will last indefinitely</i> "I'll never understand this . . ."
<b>Specific</b> <i>Adversity pertains to narrow aspect</i> "I'm struggling with this problem."	<b>Universal</b> <i>Adversity pertains to wide aspects</i> "I suck at math."
<b>Externalizes</b> <i>Recognizes factors beyond self</i> "That question was tricky."	<b>Internalizes</b> <i>Blames self heavily</i> "I'm not smart enough to figure this out."



# We're unsurprised that . . .

- ▶ We prioritize basic needs



# We're unsurprised that . . .

- ▶ Childhood extreme deprivation/abuse leave marks (nurture matters)
- ▶ language critical period




# We're unsurprised that . . .

- ▶ Our behavior and traits are influenced by *many genes having small effects*
  - ▶ Intelligence
  - ▶ Personality
  - ▶ Sexual orientation
  - ▶ Autism Spectrum Disorder
  - ▶ Etc.
- ▶ There is no “smart gene,” “gay gene,” “autism gene”
- ▶ Exceptions: “You have DFNA6/14 hearing loss caused by a mutation in *WFS1*.”



- 
- ▶ **Unsurprising (but important & replicable) findings**
  - ▶ **Surprising findings that**
    - ▶ astonish us with new insights



Surprising findings that teach us  
what we never imagined . . .

Astonishing insights—great lessons of psychological science—that are now accepted wisdom:

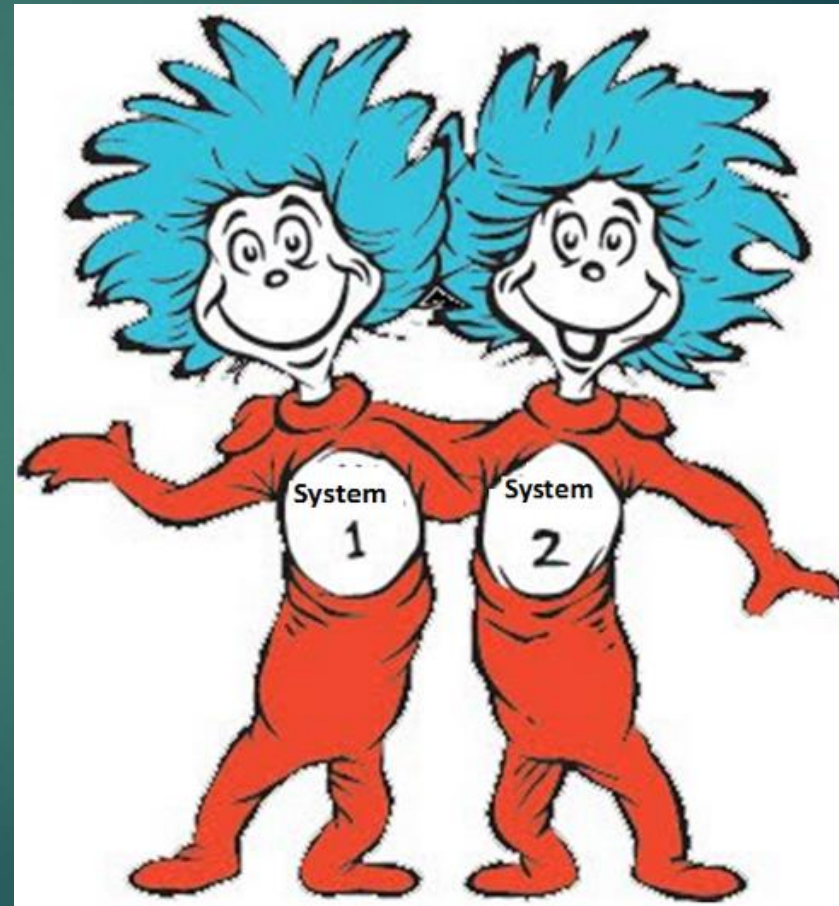
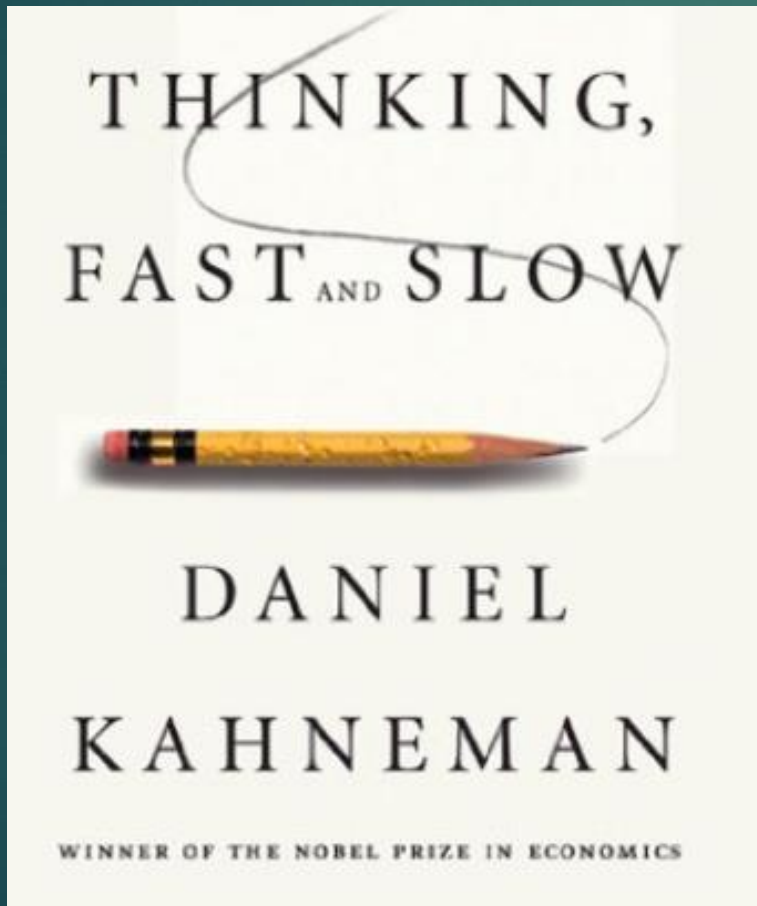
- ▶ *From split-brain studies*: the differing functions of our two hemispheres
- ▶ *Sleep studies*: Sleep stages and REM-related dreaming
- ▶ *Misinformation effect experiments*: the malleability of memory

# We've been surprised to learn . . .

- ▶ What works as therapy:
  - ▶ ECT
  - ▶ Light therapy
  - ▶ Microdosing psychedelics?
- ▶ And what doesn't:
  - ▶ Critical Incident Debriefing for trauma victims
  - ▶ D.A.R.E. drug abuse prevention
  - ▶ Sexual reorientation therapies
  - ▶ Permanent weight-loss programs

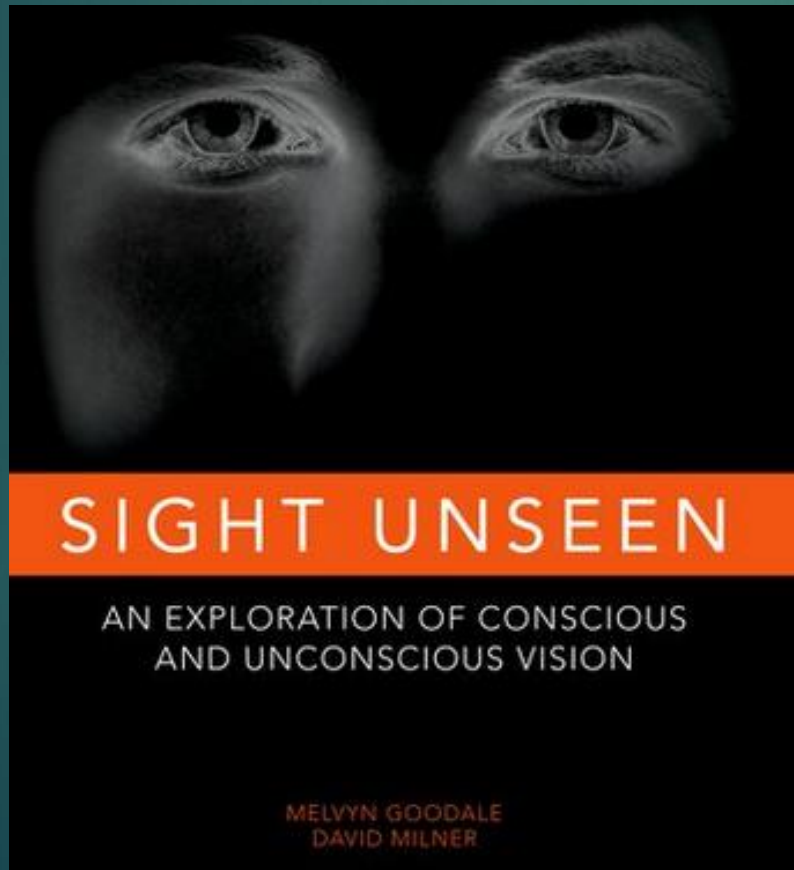
# We're surprised about . . .

- ▶ Dual processing—our two-track (controlled/automatic) mind:



# We're surprised about . . .

- ▶ Dual processing—our two-track (controlled/automatic) mind:
  - ▶ Blindsight (“sight unseen”)





# We're surprised about . . .

- ▶ Dual processing—our two-track (controlled/automatic) mind:
  - ▶ Implicit memory (e.g., H.M.: Henry Molaison)

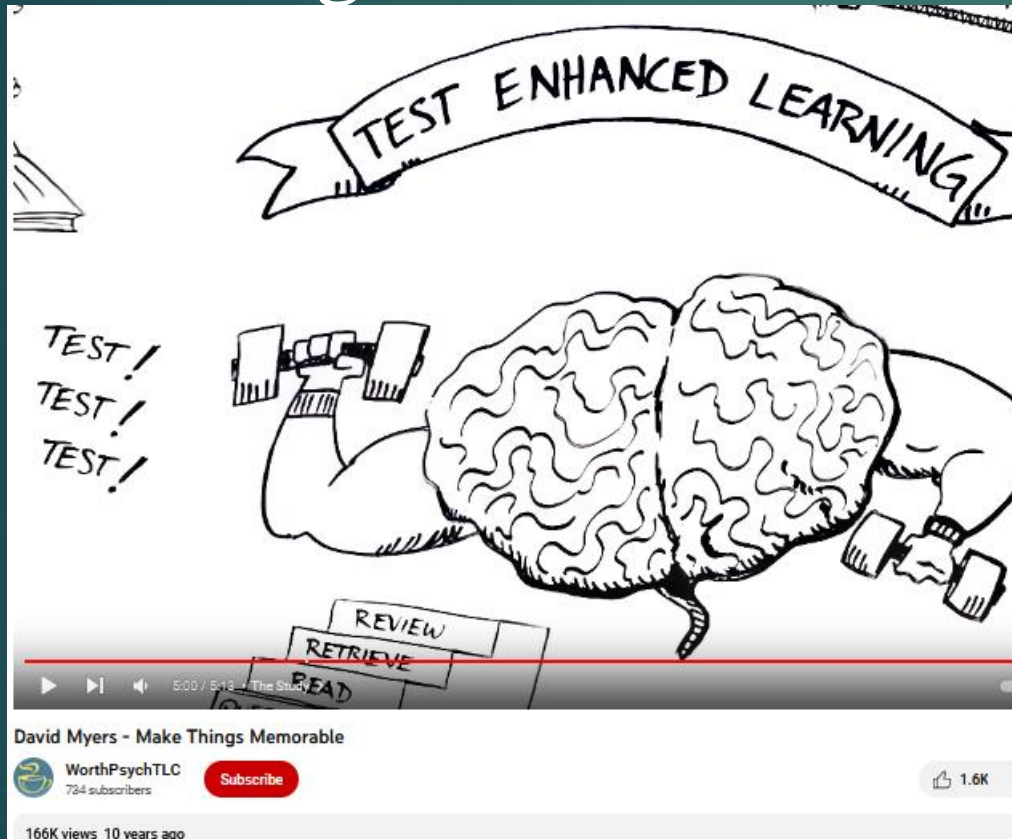


- ▶ Implicit bias (e.g., implicit associations)
- ▶ Thinking without thinking (e.g., creativity)



# We're surprised about . . .

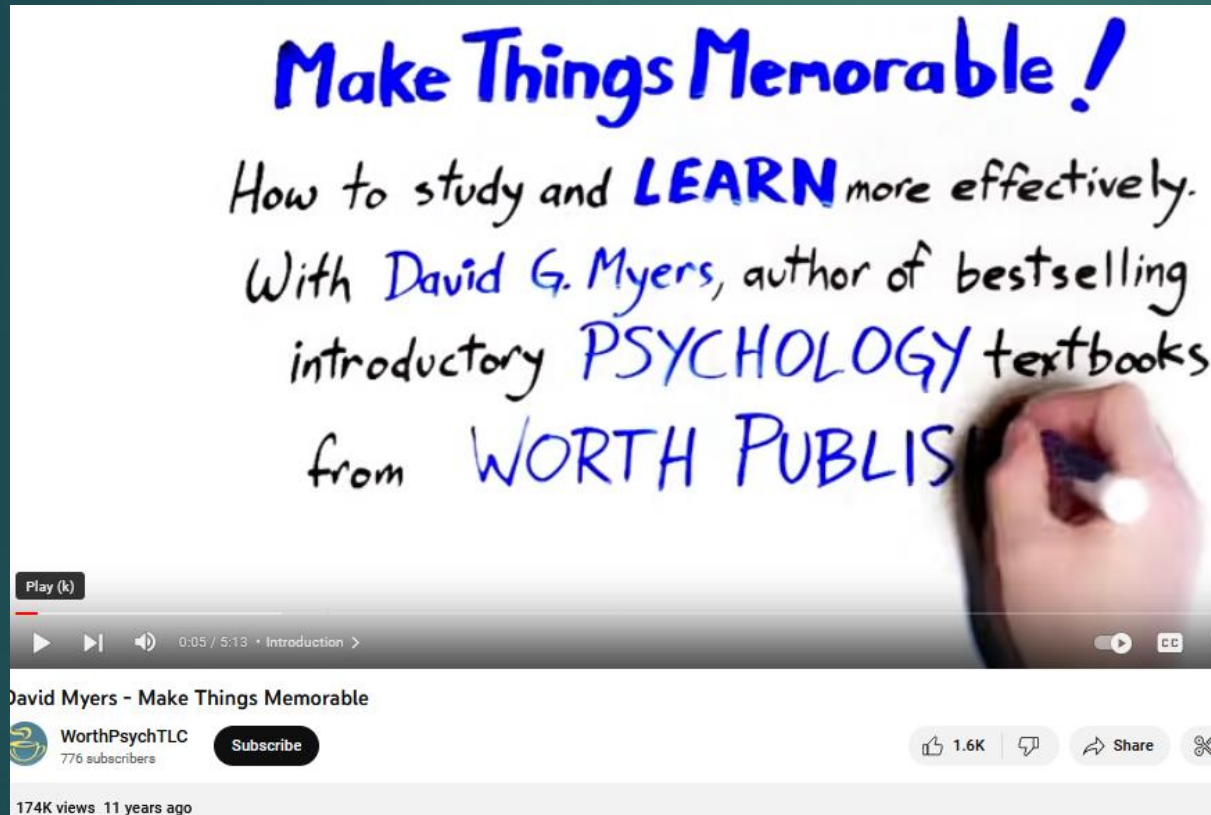
## ▶ The testing effect



[tinyurl.com/howtoremember](https://tinyurl.com/howtoremember)

# We're surprised about . . .

## ▶ The testing effect



**Make Things Memorable!**  
How to study and **LEARN** more effectively.  
With David G. Myers, author of bestselling  
introductory **PSYCHOLOGY** textbooks  
from **WORTH PUBLIS**

Play (k)  
0:05 / 5:13 · Introduction >  
David Myers - Make Things Memorable  
WorthPsychTLC  
776 subscribers  
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1.6K  
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174K views 11 years ago

[tinyurl.com/howtoremember](https://tinyurl.com/howtoremember)

# We're surprised about . . .

- ▶ The Dunning-Krueger effect: *ignorance of one's incompetence*
  - ▶ Those most incompetent (e.g., scoring low on grammar or logic) are also most likely to overestimate their knowledge

▶ Trevor Noah: “This

▶ Examples:



ELSEVIER

Social Science & Medicine

Volume 211, August 2018, Pages 274-281

“Knowing less but presuming more:  
Dunning-Kruger effects and the  
endorsement of anti-vaccine policy  
attitudes

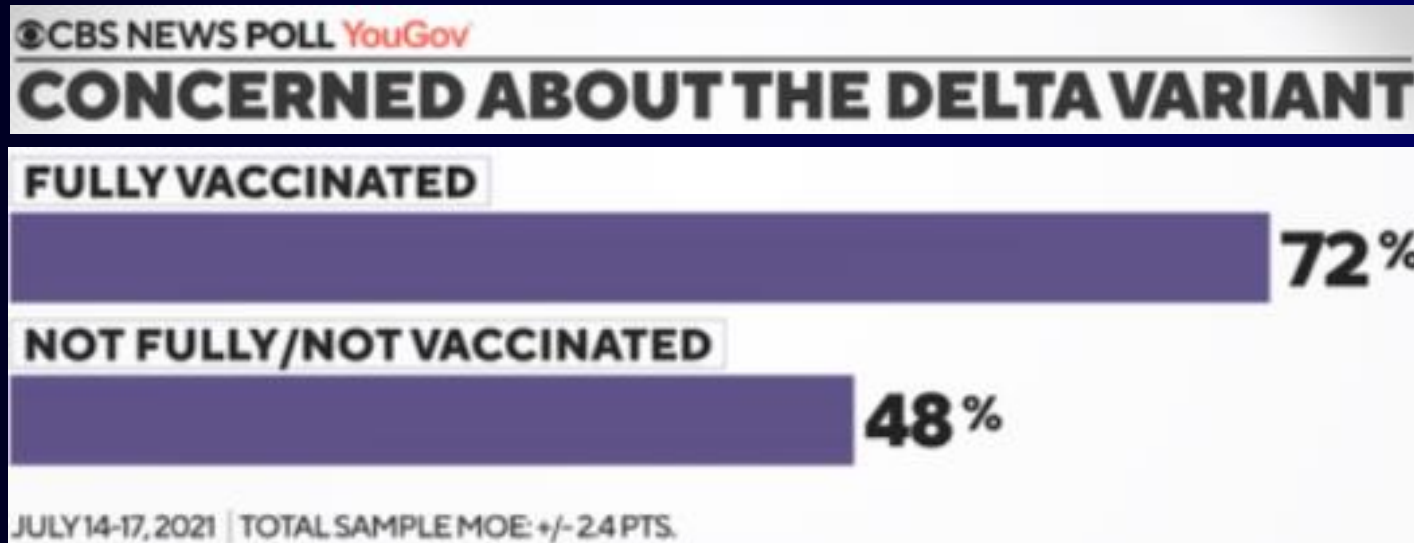
link

on.”

# Vaccinated folks fret Covid; Unvaccinated feel safer

(More protected people feel less protected.)

- Surgeon General Murthy (9/06/2021): “Vaccinated people may overestimate their peril, just as unvaccinated people may underestimate it.”

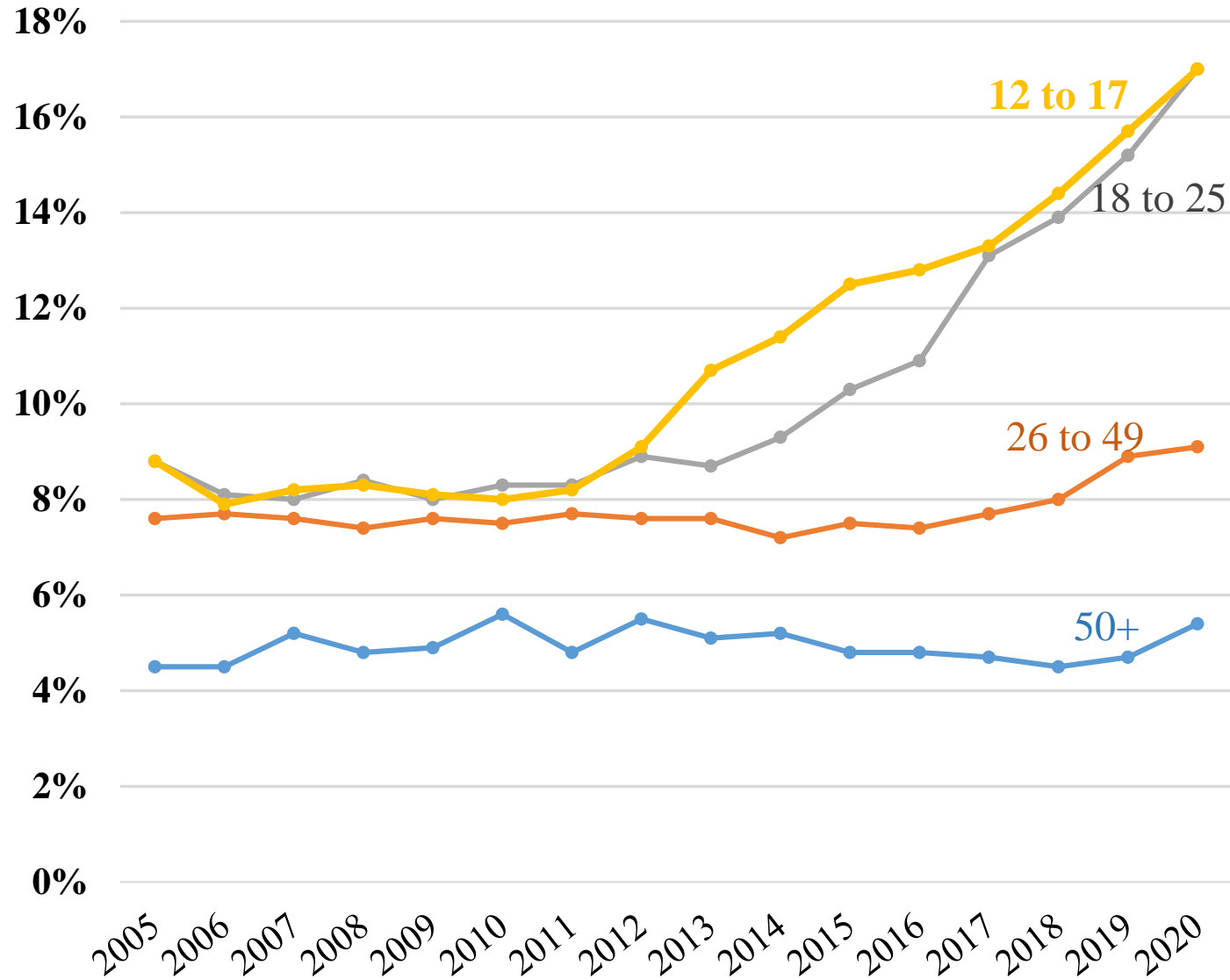


Aug. 29-Sept. 1, 2021, Washington Post-ABC News poll

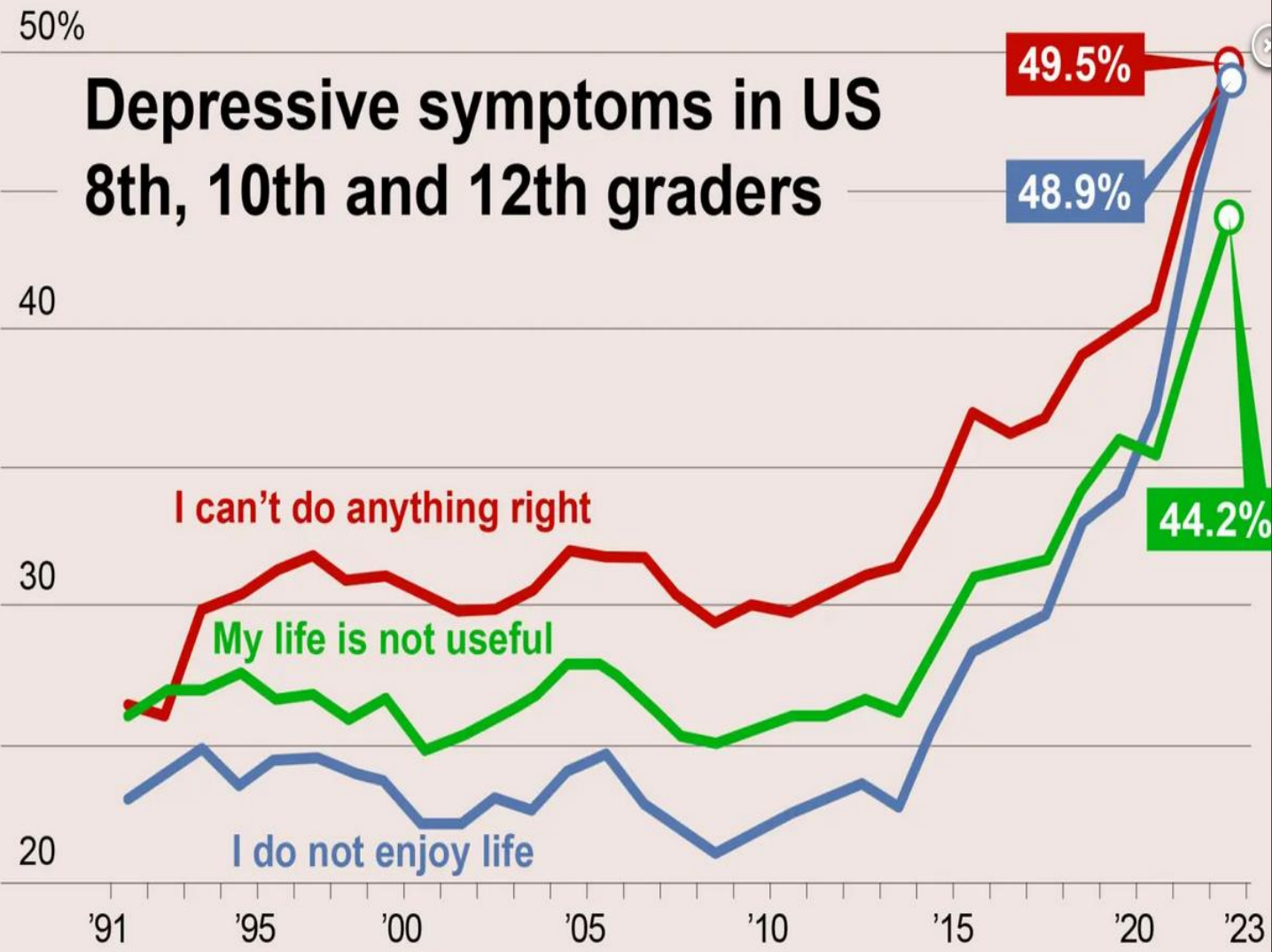
We're surprised about . . . teen mental health crisis

# Major Depressive Episode (past year)

(2020 National Survey on Drug Use and Health, SAMHSA.gov)







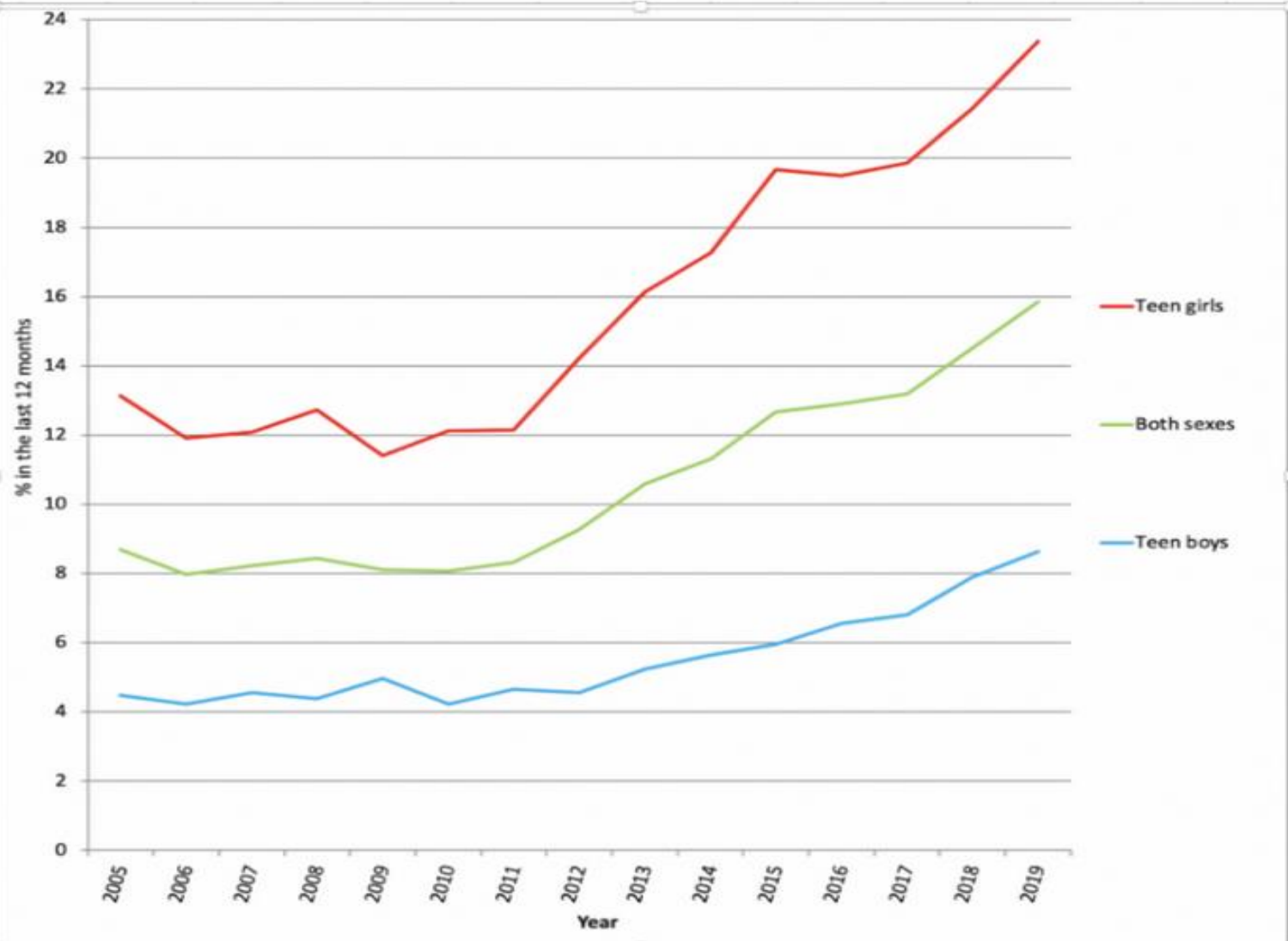


HEALTH

# Why are young people so miserable?



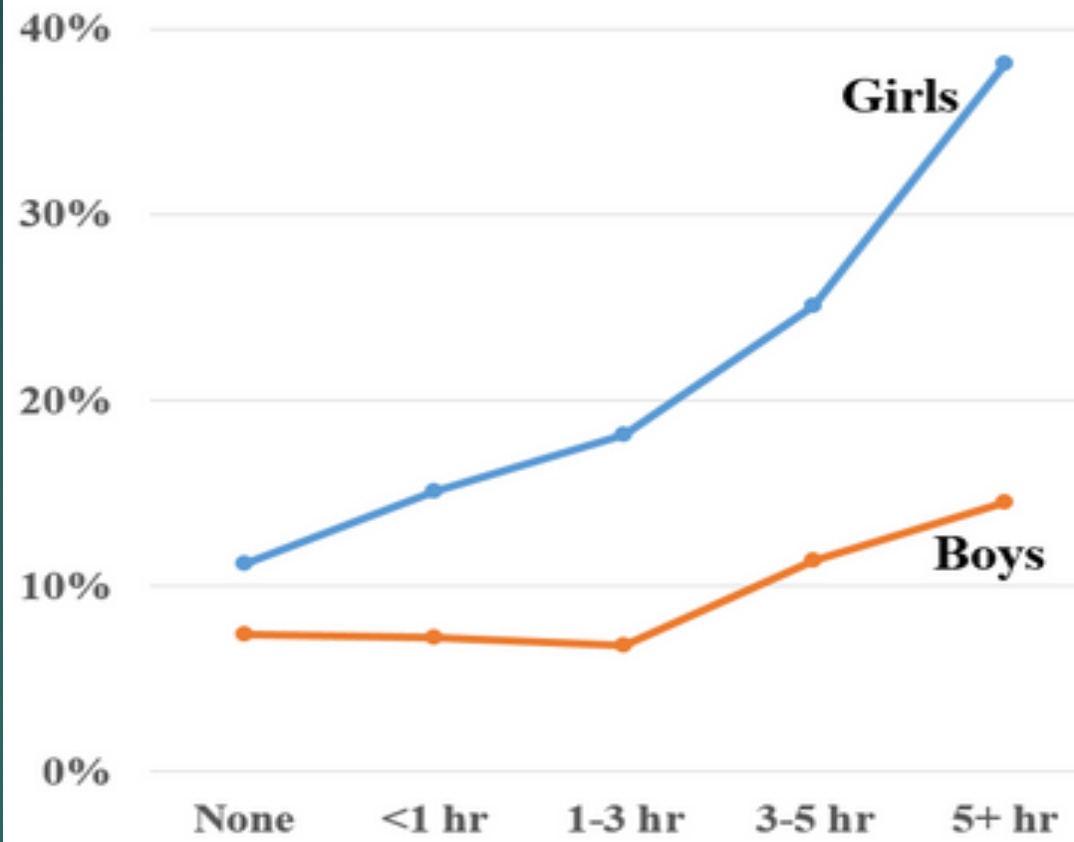
“Twenty years ago, life satisfaction surveys [showed young adults having] the highest readings . . . Now, a Harvard-led study examining a dozen measures of well-being show younger adults tallying the lowest scores of any age group.”

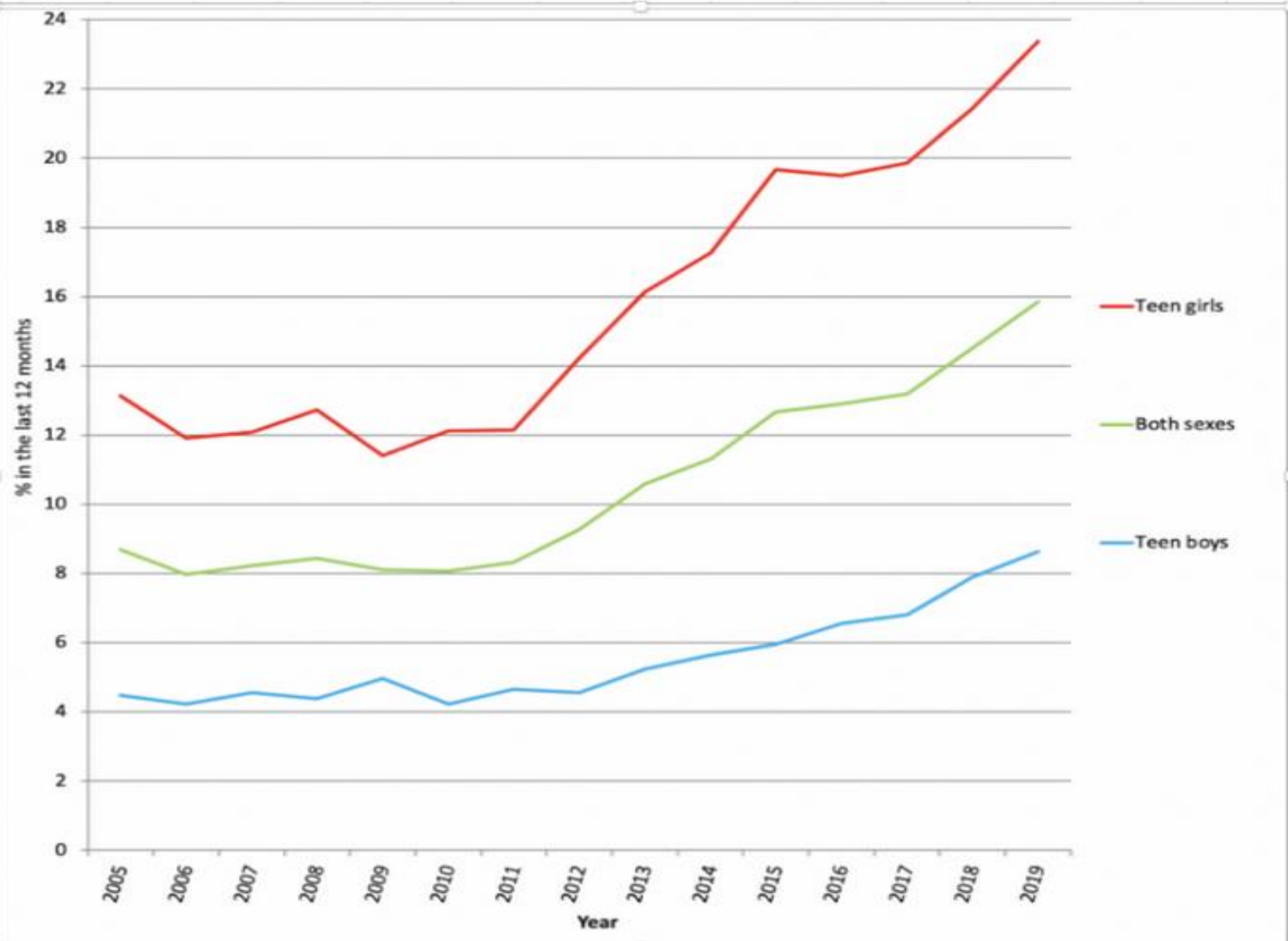


Percentage of American teens (12-17 years) experiencing a major depressive episode in the past 12 months. Source: National Survey of Drug Use and Health

- A convergence of evidence
  - Simultaneous w/ smart phone/social media spread
  - Correlation studies: time/risk

**Percent of UK Teens Depressed,  
by Daily Social Media Hours**



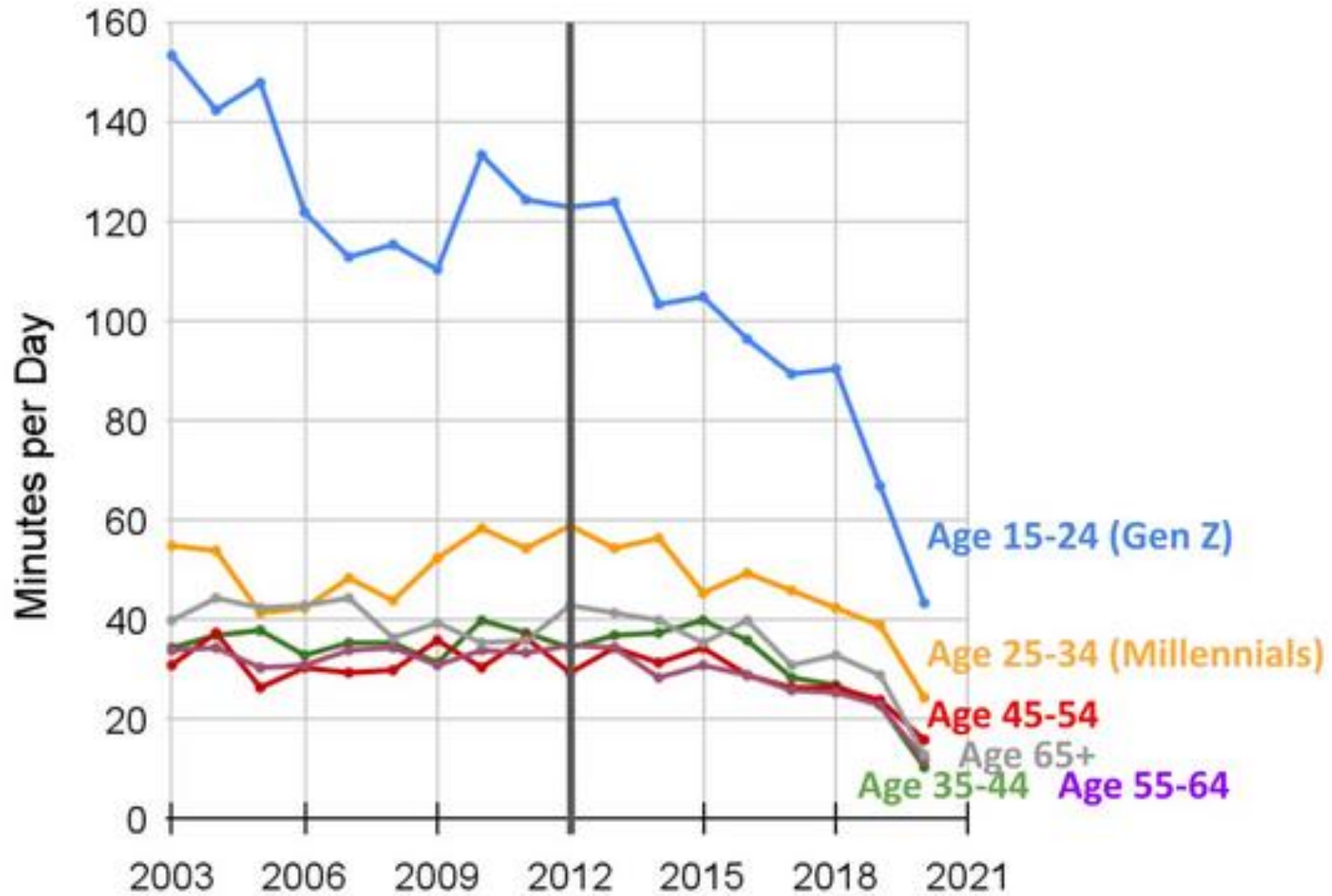


Percentage of American teens (12-17 years) experiencing a major depressive episode in the past 12 months. Source: National Survey of Drug Use and Health

- A convergence of evidence
  - Simultaneous w/ smart phone/social media spread
  - Correlation studies: time/risk
  - Longitudinal studies
  - Controlled experiments
  - Quasi-experiments
- Possible factors
  - Social comparison
  - Time drained from other activities, including sleep



# Daily Avg Time with Friends (minutes)



- 
- ▶ **Unsurprising (but important & replicable) findings**
  - ▶ **Surprising findings that**
    - ▶ astonish us with new insights
    - ▶ challenge our beliefs

# We're surprised that . . .

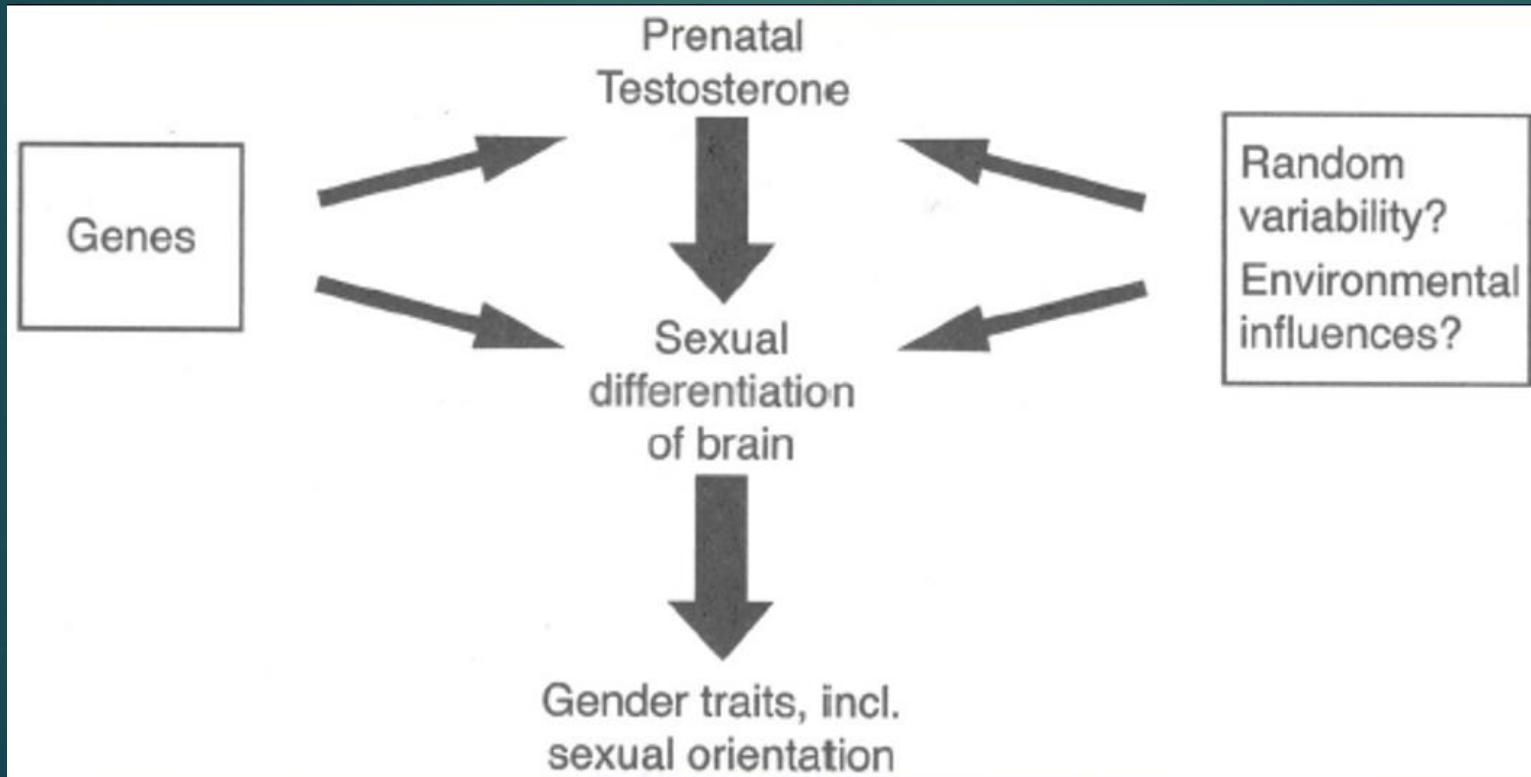
- ▶ Within the normal range of environments, the “shared environment” effect on personality and intelligence (including parental nurture shared by siblings) is ~nil.
  - ▶ Adoption studies: two adopted children are hardly more similar than either is to other children
  - ▶ Twin studies (from Polderman et al., review of 3000 studies of 14.6 million twins):
    - ▶ “Across all traits the reported heritability is 49 percent [and] the data are **inconsistent** with substantial influences from shared environment.”
- ▶ Robert Plomin (2019): “We would essentially be the same person if we had been adopted at birth and raised in a different family.” (Psychologist, March, 2019,

# Caveats . . .

- ▶ Parental *extremes* (neglect/abuse) *matter*
- ▶ *Stable co-parenting* correlates with children's flourishing (children w/ married birth parents at less risk, even after controlling for parental education, income, and race)
- ▶ Parents influence *values/beliefs* (politics, religion, etc.)
- ▶ Parents help provide *peer context* (neighborhood, schools)

# We are (or were) surprised that . .

- ▶ Sexual orientation is a natural disposition, not a moral choice
  - ▶ Parental nurture = 0

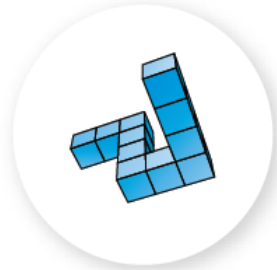




# We're surprised that . . .

- ▶ Many gay men's and women's traits appear intermediate to those of straight women and men
  - ▶ Example: Spatial ability

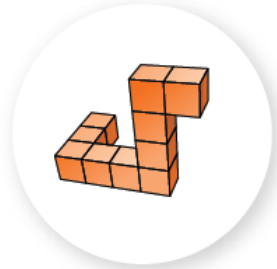
Which one of the options below matches the Original?



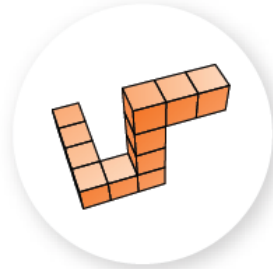
Original



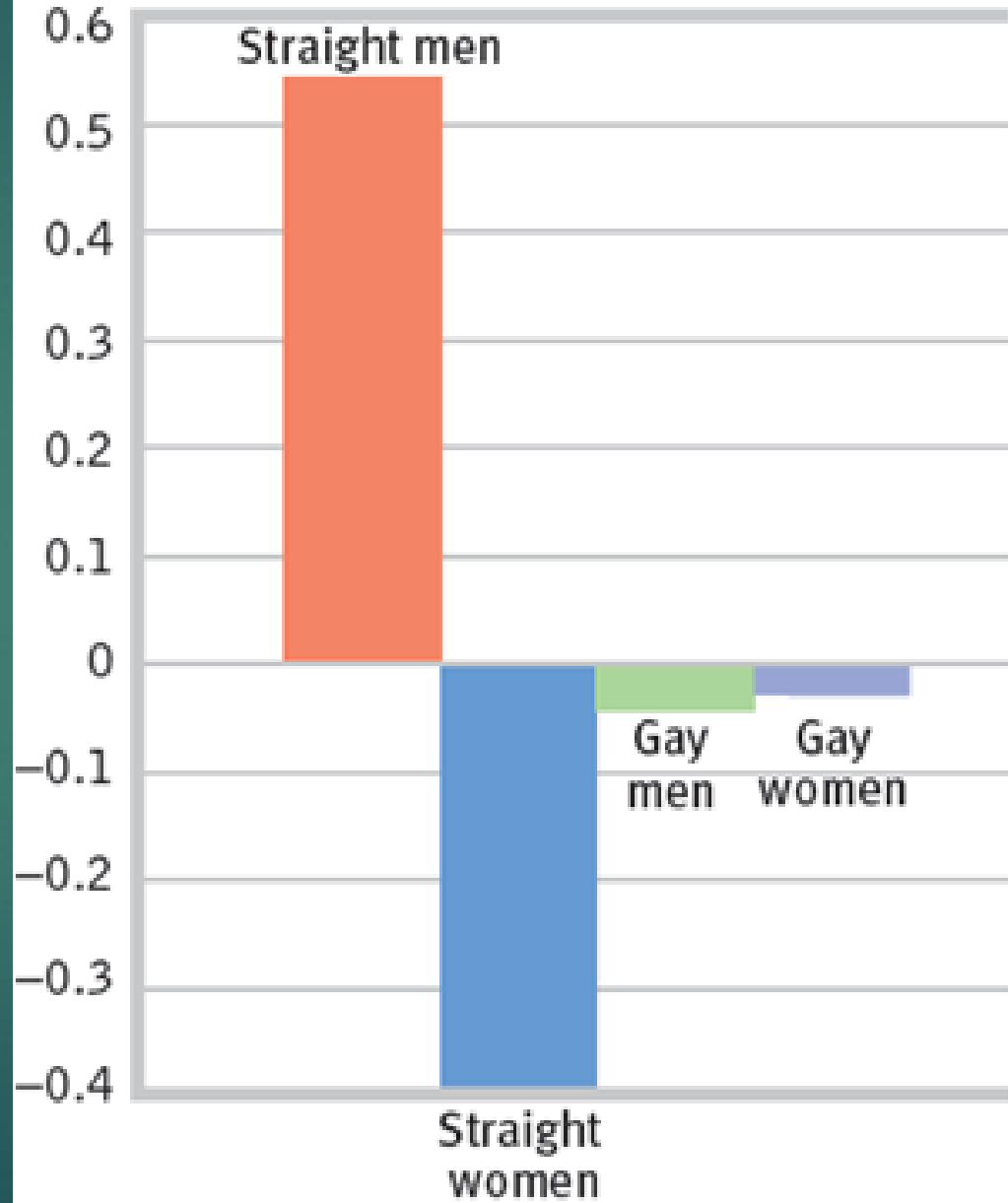
(a)



(b)



(c)



2015

# Sexual Orientation Change Efforts, Identity Conflict, and Psychosocial Health Amongst Same-Sex Attracted Mormons

John P. Dehlin

This study examined sexual orientation change efforts. . . in a sample of 1,612 same-sex attracted Mormons. A minimum of 66% of participants reported engaging in sexual orientation change efforts. . . .Overall, 0% of those attempting change reported an elimination of same-sex attraction, and less than 4% reported any change in sexual orientation.”

# We're surprised that . . .

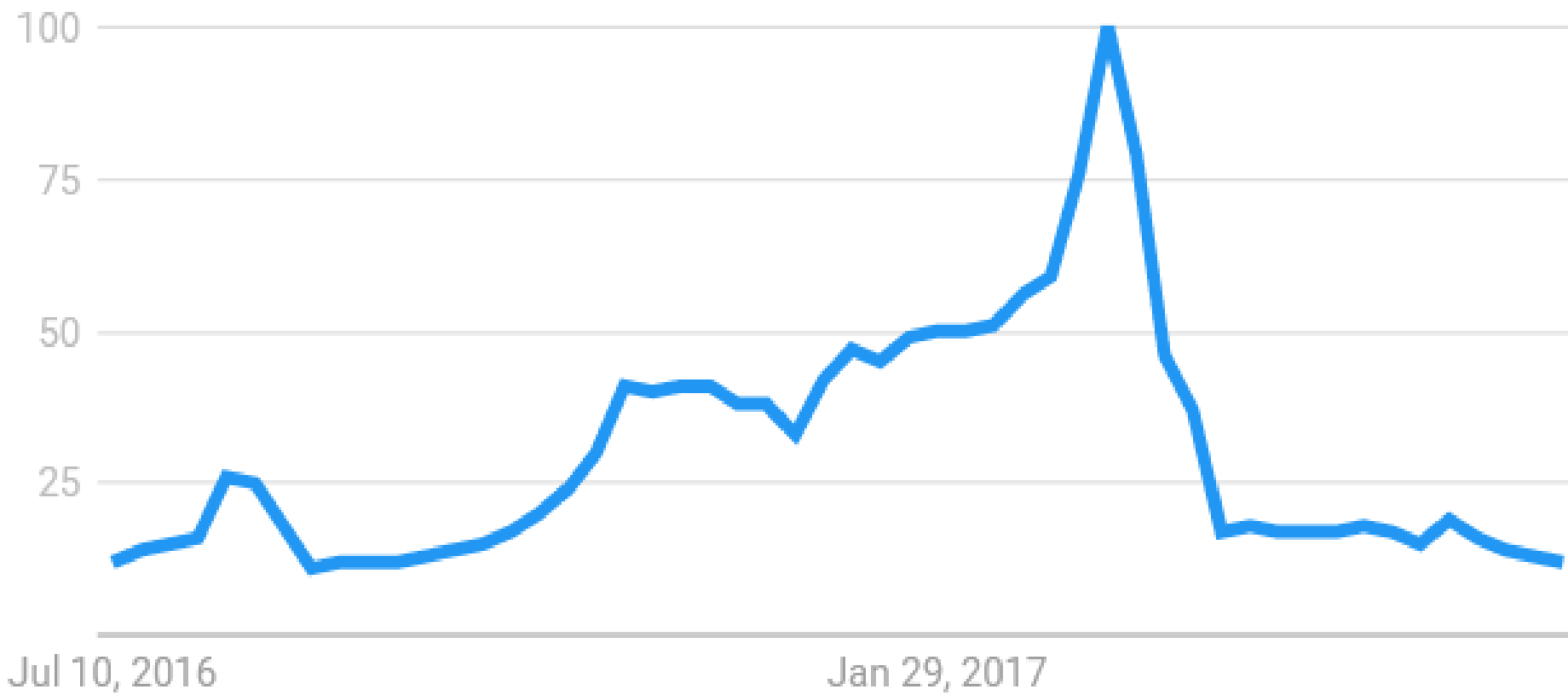
- ▶ Seasonal affective disorder may not exist



- ▶ Data from 34,292 CDC participants:
  - ▶ Is depression more common around winter solstice? (no)
  - ▶ For those living in cloudy areas? (no)
  - ▶ On cloudy days? In higher latitudes w/ less winter light? (no)

# Interest over time

● basketball





# Interest over time

● flu



● Depression  
Mood



+ Compare

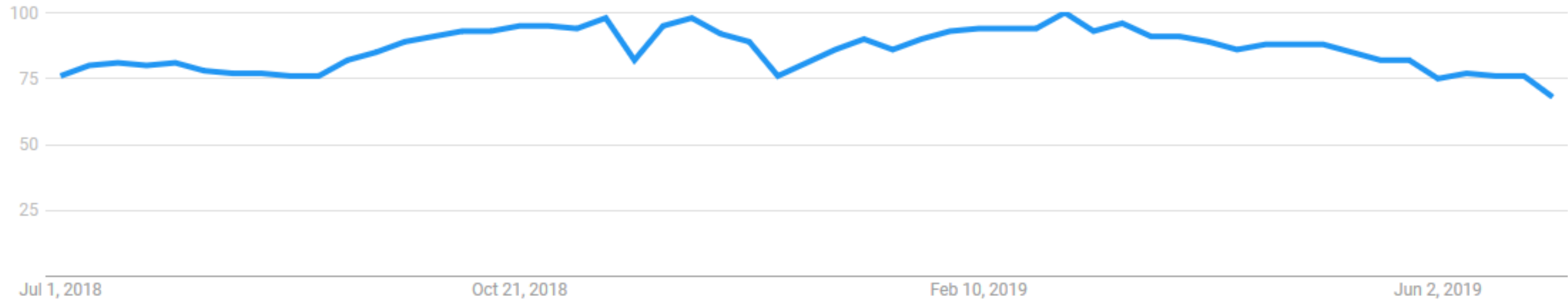
United States ▾

7/1/18 - 6/30/19 ▾

All categories ▾

Web Search ▾

Interest over time ?



● Depression

Mood



● flu

Search term



+ Add comparison

United States ▼

7/1/18 - 6/30/19 ▼

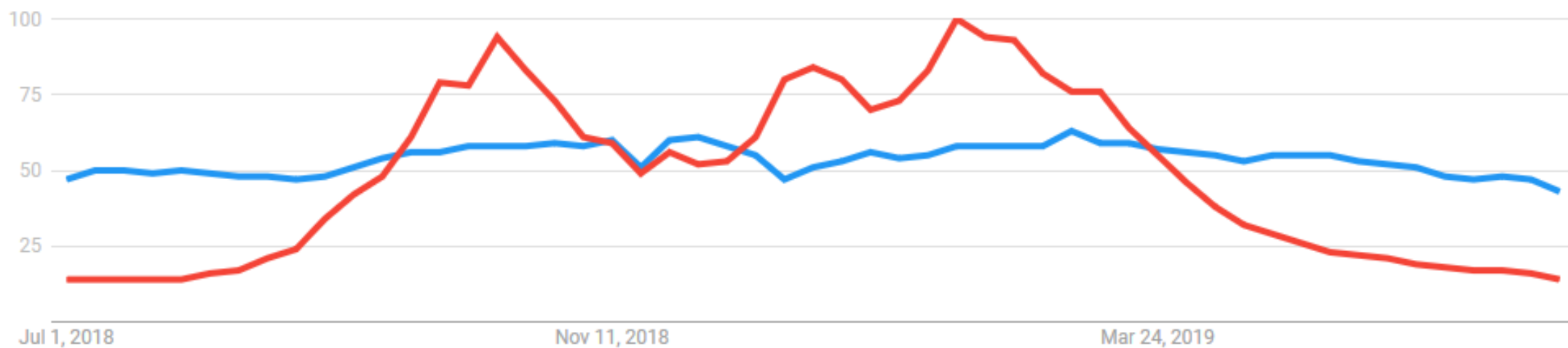
All categories ▼

Web Search ▼

! **Note:** This comparison contains both Search terms and Topics, which are measured differently.


[LEARN MORE](#)

Interest over time



Average



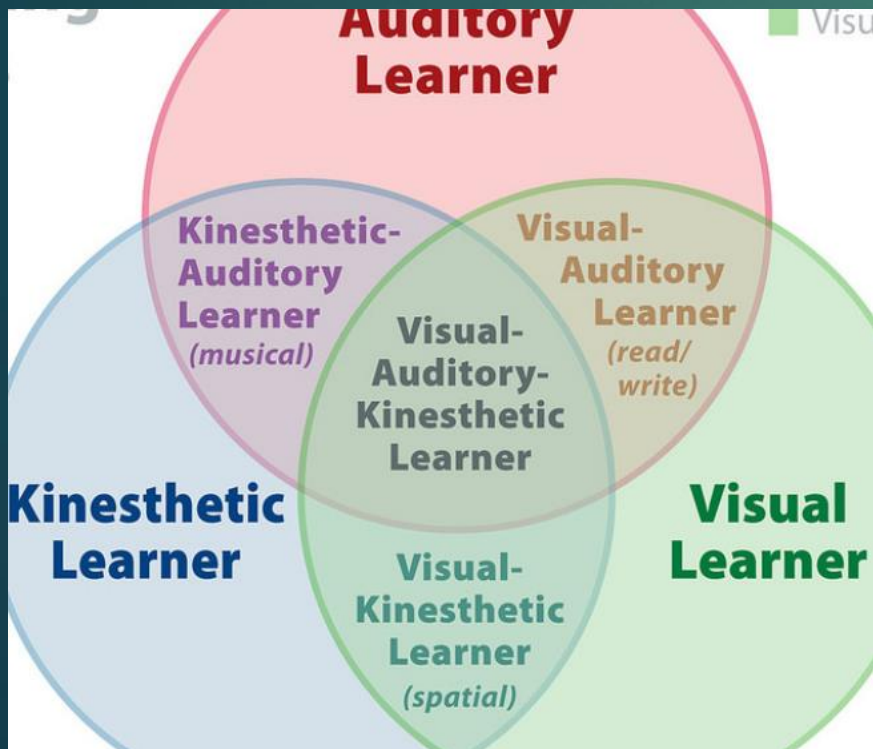


“It wasn’t what I expected. But facts are facts, and if one is proved to be wrong, one must just be humble about it and start again.”

~ Agatha Christie’s Miss Marple

# We're surprised that . . .

- ▶ *Learning styles*—assuming that teaching should align with students' varying ways of thinking and learning—have been discounted.



## The Scientific Status of Learning Styles Theories

Daniel T. Willingham, Elizabeth M. Hughes, David G. Dobolyi

## The Learning Styles Educational Neuromyth

## Learning Styles

### Concepts and Evidence

Harold Pashler,<sup>1</sup> Mark McDaniel,<sup>2</sup> Doug Rohrer,<sup>3</sup> and Robert Bjork<sup>4</sup>

“We conclude therefore, that at present, there is no adequate evidence base to justify incorporating learning-styles assessments into general educational practice.”



# We're surprised that . . .

- ▶ We too greatly *fear the wrong things*
  - ▶ air crashes
  - ▶ terrorism
  - ▶ immigrants
  - ▶ school shootings



The image shows a screenshot of a news article header from the Pew Research Center. At the top center is the Pew Research Center logo, a circular sunburst design, followed by the text "Pew Research Center". Below the logo are three navigation links: "MENU", "RESEARCH AREAS", and "SEARCH". The date "APRIL 18, 2018" is displayed on the left side. On the right side, there are three social media icons: Facebook, Twitter, and LinkedIn. The main headline of the article is "A majority of U.S. teens fear a shooting could happen at their school, and most parents share their concern".

Pew Research Center

MENU RESEARCH AREAS SEARCH

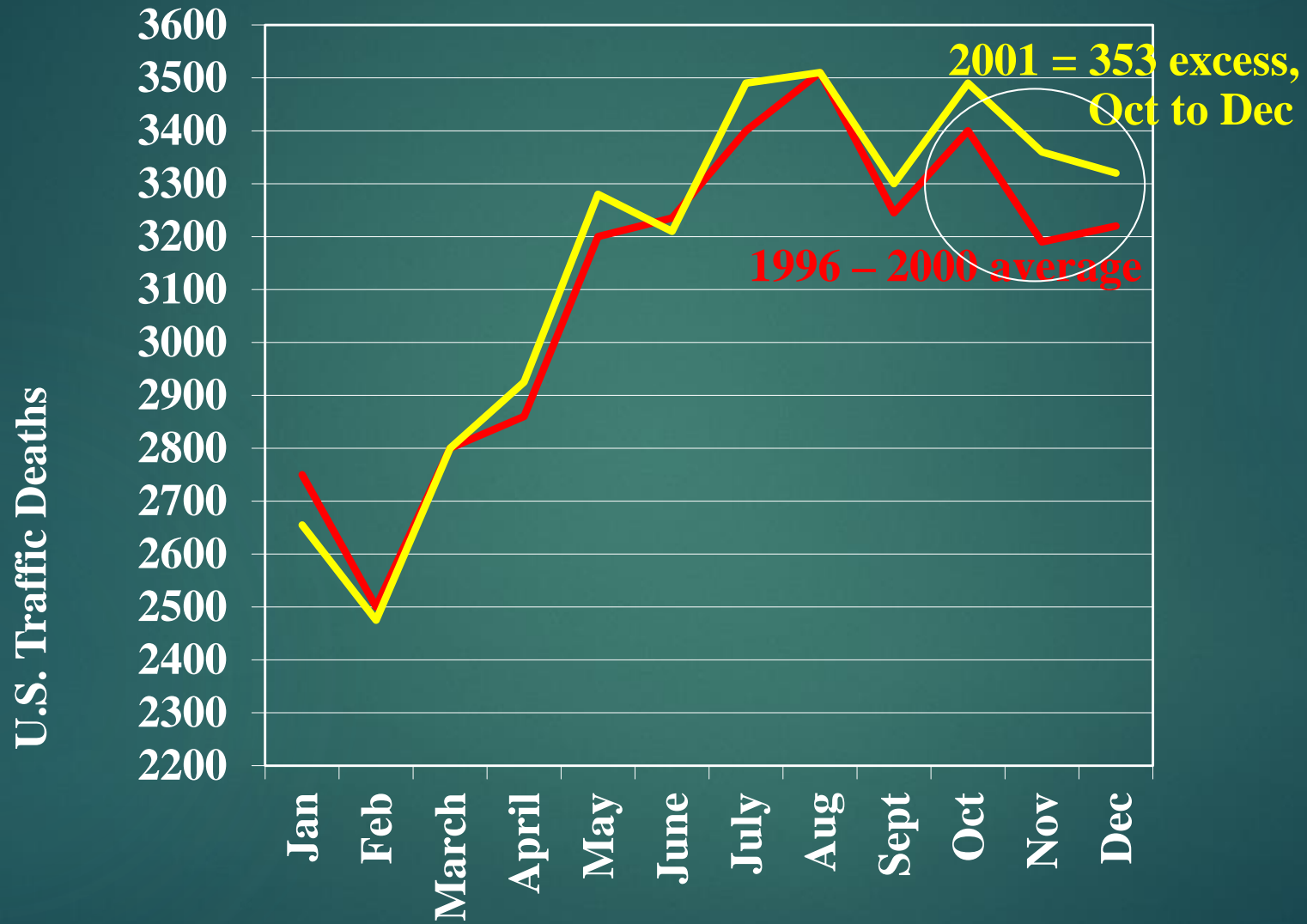
APRIL 18, 2018

**A majority of U.S. teens fear a shooting could happen at their school, and most parents share their concern**

# Fears of flying vs. driving

- ▶ Gallup: only 40 percent fly without fear
- ▶ Mile per mile, 501 times safer flying than driving
  - ▶ In the decade from 2010 through 2019, **222,460** people died in U.S. car or light truck accidents, and **14** died on scheduled flights.
- ▶ My post 9/11 prediction: If we now fly 20 percent less and instead drive half those unflown miles . . .

# Fatal accident increase after 9/11 (from Gigerenzer, 2004)



# We're surprised that . . .

- ▶ Brief “wise interventions” sometimes succeed where big interventions have failed?

A thirty-year follow-up of treatment effects.

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**McCord, Joan**

American Psychologist, Vol 33(3), Mar 1978, 284-289



AMERICAN  
PSYCHOLOGICAL  
ASSOCIATION

Psychological Review

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0033-295X/18/\$12.00

2018, Vol. 125, No. 5, 617–655  
<http://dx.doi.org/10.1037/rev0000115>

## Wise Interventions: Psychological Remedies for Social and Personal Problems

Gregory M. Walton  
Stanford University

Timothy D. Wilson  
University of Virginia

# We're surprised that . . .

- ▶ Random data (as in coin tosses) are streakier than expected




Cognitive Psychology

Volume 17, Issue 3, July 1985, Pages 295-314



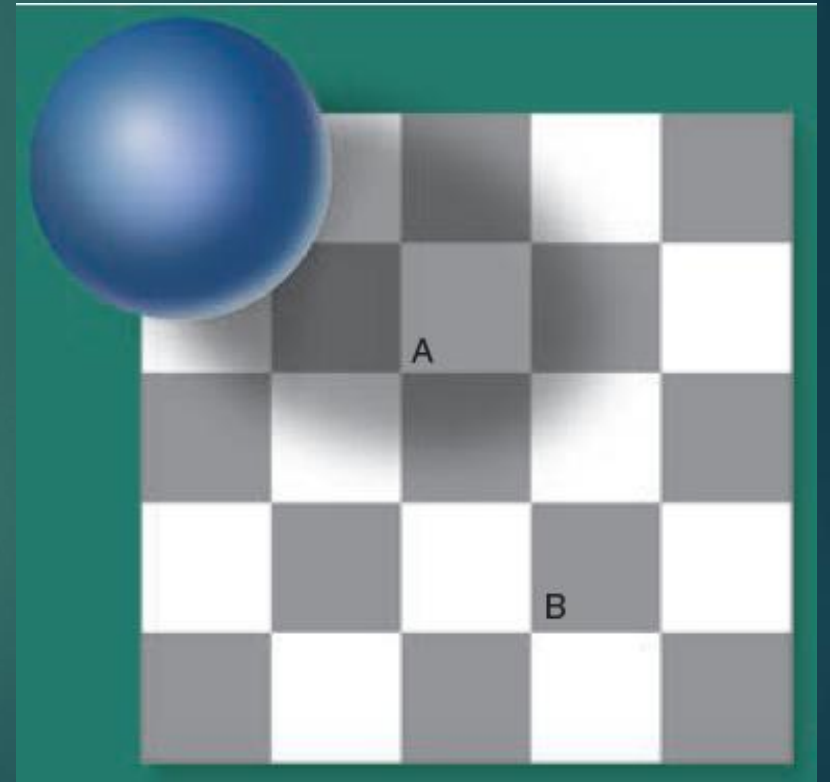
The hot hand in basketball: On the misperception of random sequences ☆

Thomas Gilovich , Robert Vallone, Amos Tversky



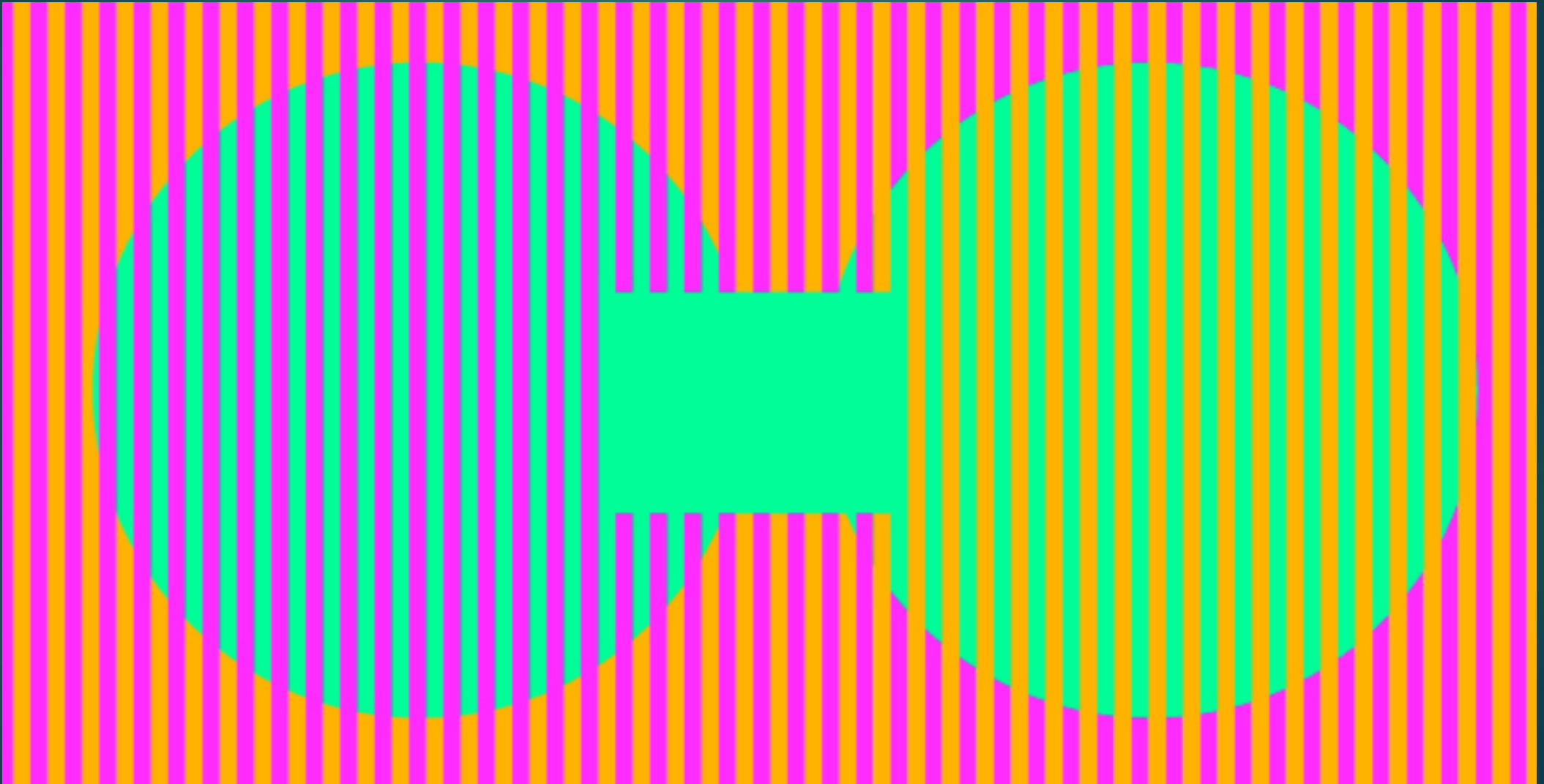
# We're surprised that . . .

- ▶ *Reality is often not as we perceive it* (much of what we see comes from well behind our eyes).
- ▶ Relative luminance demo:



Chico Marx: “Who you gonna believe: me, or your lying eyes?”

Manipulating our perception of color:

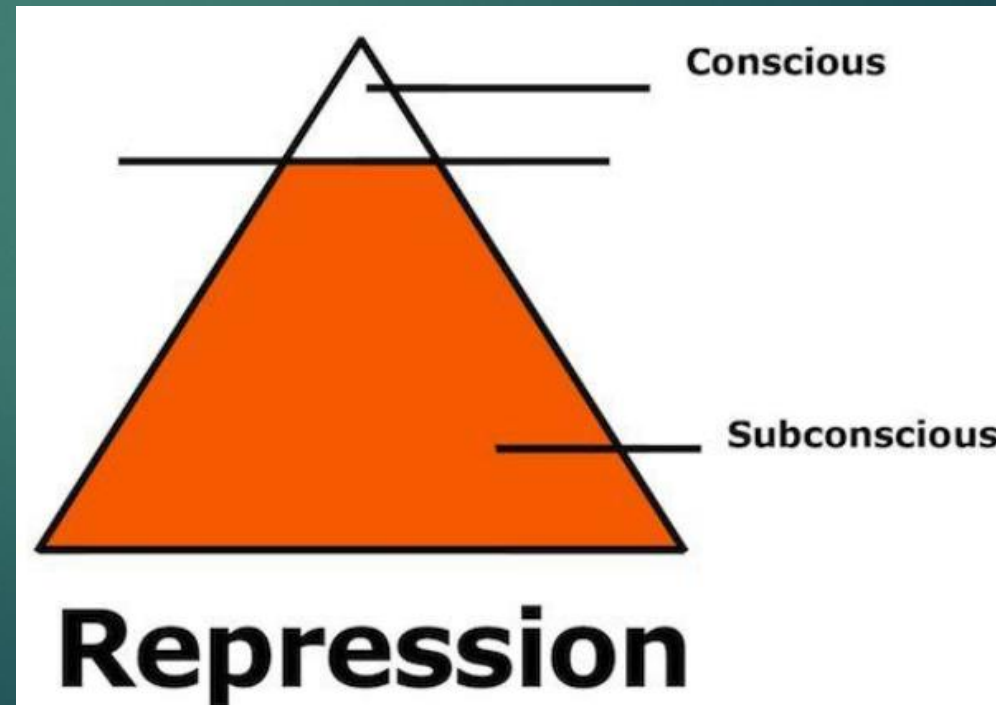




# We're surprised that . . .

## ▶ Repression rarely occurs

- ▶ Trauma (rape/torture/Holocaust) → haunting flashbacks
- ▶ John Kihlstrom: “Dozens of formal studies have yielded not a single convincing case of repression in the entire literature on trauma,”



**Truth.**

*It's more important now than ever.*

The New York Times

**Truth.**

*It's more important now than ever.*

The New York Times





# A reminder: Hindsight bias

- ▶ I-Knew-It-All-Along: After a research study, an election, or an investment the outcome was foreseeable.
  - ▶ “My grandmother could have predicted that finding.”
  - ▶ “Hillary was a flawed candidate.”
  - ▶ “The market was due for a correction.”
- ▶ Søren Kierkegaard: “Life is lived forwards, but understood backwards.”

# Concluding thoughts . . .

- ▶ Psychological science works
  - ▶ It affirms important, if unsurprising, truths
  - ▶ It sometimes surprises us
    - ▶ with discoveries that astonish us
    - ▶ with findings that challenge our assumptions
  - ▶ It is supported by a spirit of humility

# The Scientific Attitude

Three basic attitudes helped make modern science possible.

## 1 CURIOSITY:

Does it work?

When put to the test, can its predictions be confirmed?

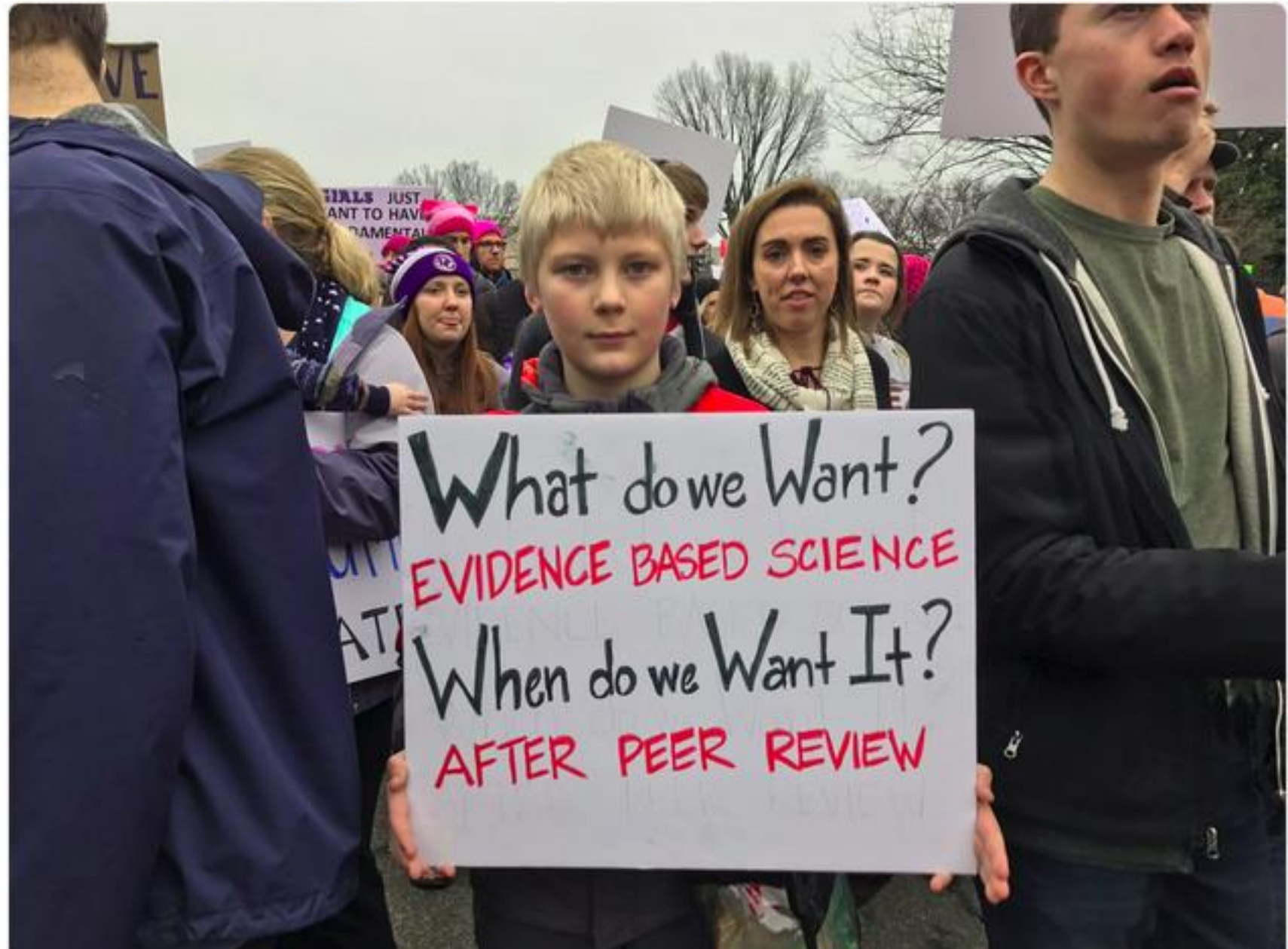
## 2 SKEPTICISM:

What do you mean?

How do you know?

## 3 HUMILITY:

Researchers must be willing to be surprised and follow new ideas. People and other animals don't always behave as our ideas and beliefs would predict.



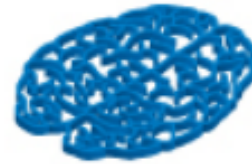


# Education works

It supports critical, analytical thinking



COGNITIVE PSYCHOLOGY



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Research Article

## Why Education Predicts Decreased Belief in Conspiracy Theories

[Jan-Willem van Prooijen](#)

First published: 28 November 2016 [Full publication history](#)

(e.g., 9/11 & moon landing as hoaxes; Royal fam killed Princess Di; Vaccines cause autism)




## Science Beliefs, Political Ideology, and Cognitive Sophistication

Gordon Pennycook<sup>1, 2</sup>, Bence Bago<sup>3</sup>, and Jonathon McPhetres<sup>4</sup>

Across the political spectrum, educated thinkers were better at evaluating evidence:  
“Educators ... should focus on increasing basic science literacy and critical thinking rather than the ideologies that purportedly divide people.”

# By studying psychological science we can

- ▶ Develop our critical thinking capacity
- ▶ Increase our sense of *wonder & respect* for the human creature

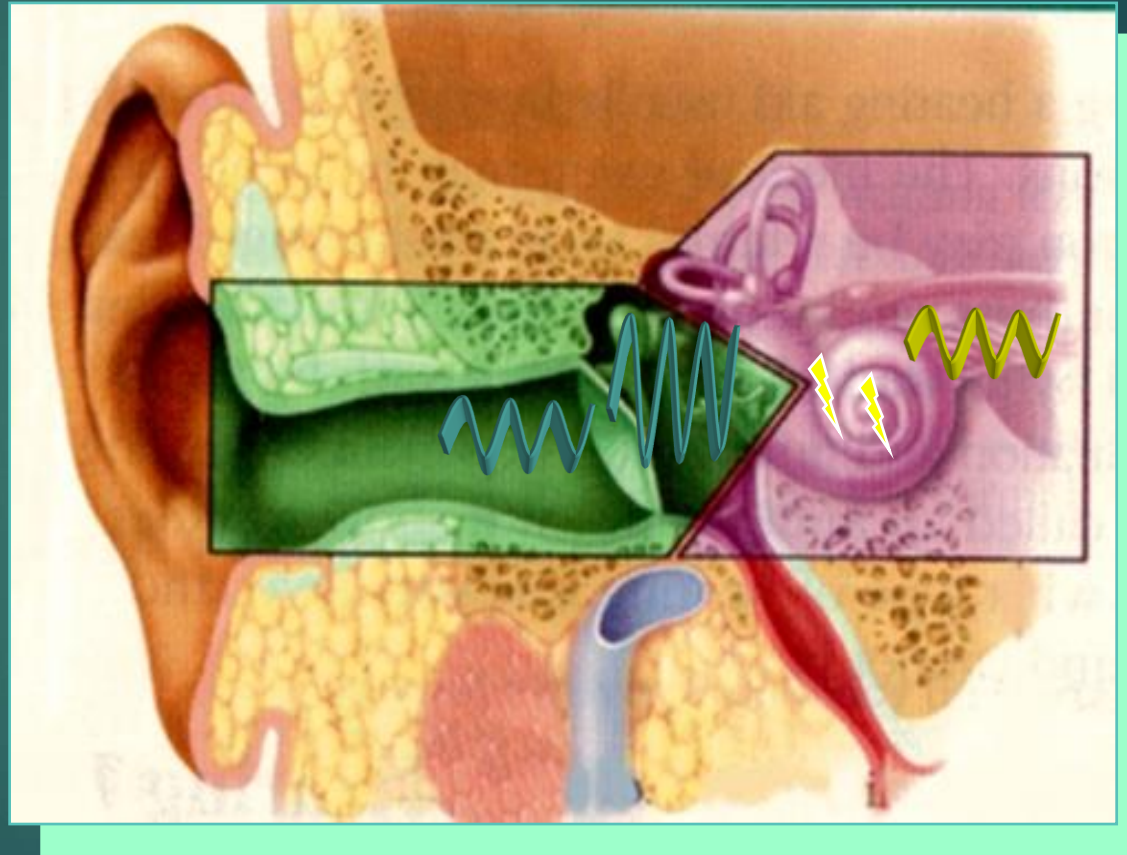


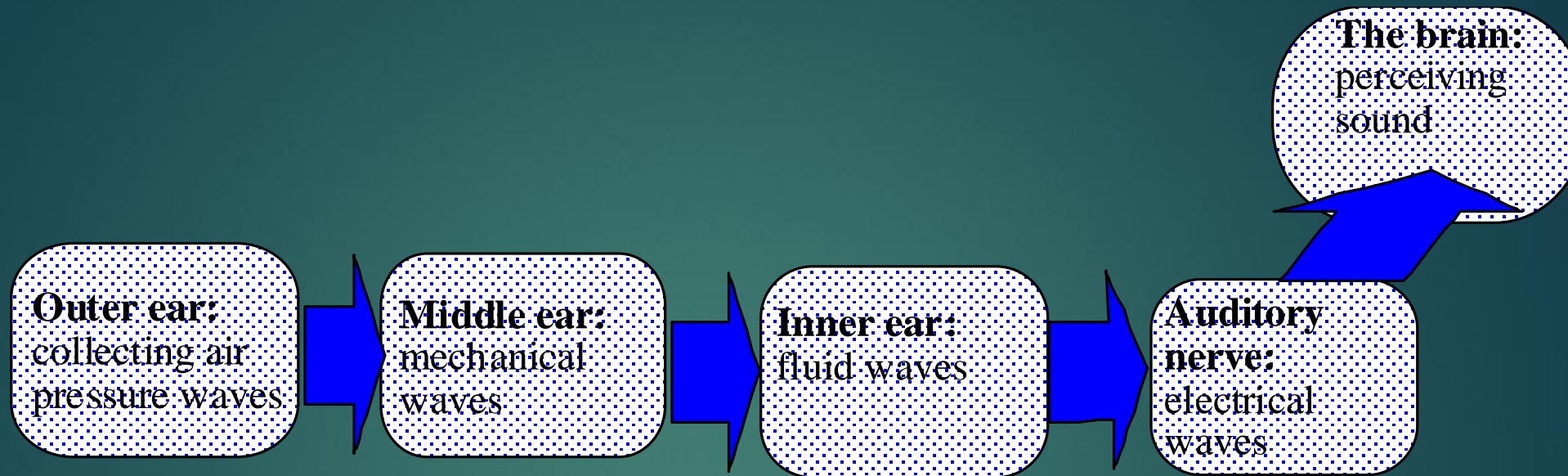
“I arise in the morning torn between  
the desire to save the world and a  
desire to savor the world.”

~ E. B. WHITE

# Truth . . . but also awe and beauty

Imagine an alien species that could pass thoughts from one head to another merely by pulsating air molecules in the space between them





**Mind-to-mind communication  
via vibrating air molecules**

# Conclusion

So, *yes*:

- ▶ Let's teach the importance of replication for winnowing truth. Let's separate the wheat from the chaff.
- ▶ Let's encourage critical thinking that's seasoned with healthy skepticism.
- ▶ And let us also be reassured that our evidence-derived principles of human behavior are overwhelmingly worth teaching as we help our students appreciate their wonder-full world.



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# % Religious “Nones” (NORC Surveys)

