Ethics of storytelling with science

Telling Stories with Data

December 4, 2017

Plan for today

Manipulation

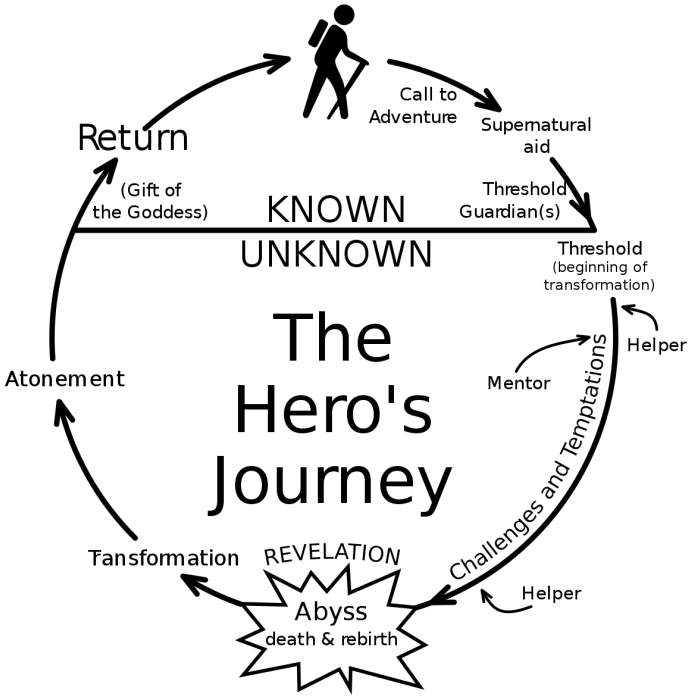
Misinterpretation

Ethos

Equity

Manipulation

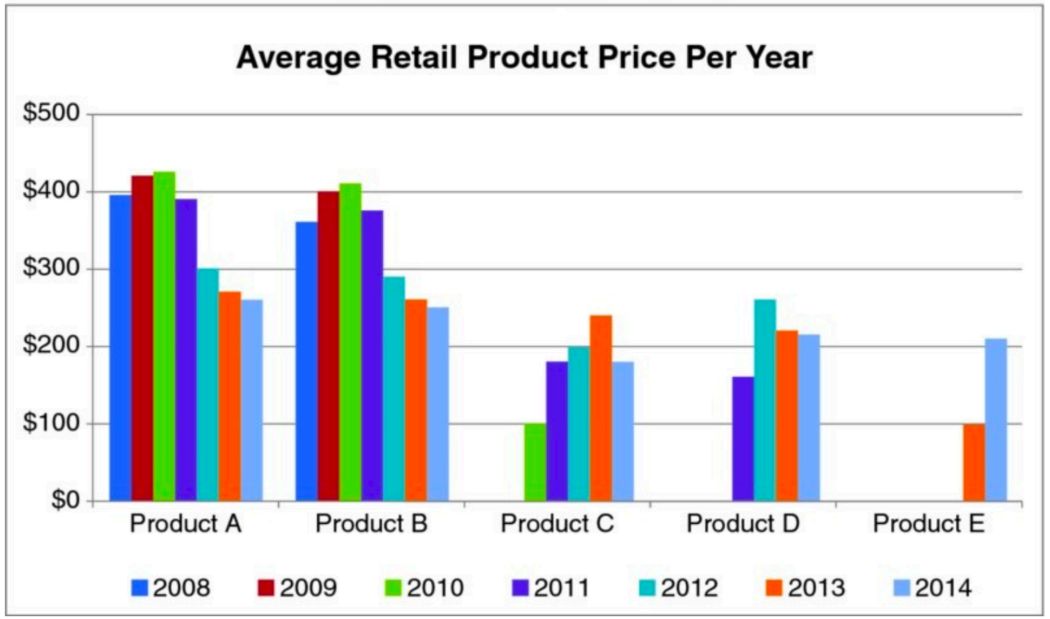
How can we not unethically manipulate our audience?


Return
Call to Adventure
Supernatural aid
(Gift of the Goddess)
KNOWN
UNKNOWN
Threshold Guardian(s)
Threshold
(beginning of transformation)
The Hero's Journey
Helper
Mentor
Atonement
Challenges and Temptations
Tansformation
REVELATION
Abyss
death & rebirth
Helper


1. YOU
2. NEED
3. GO
4. SEARCH
5. FIND
6. TAKE
7. RETURN
8. CHANGE

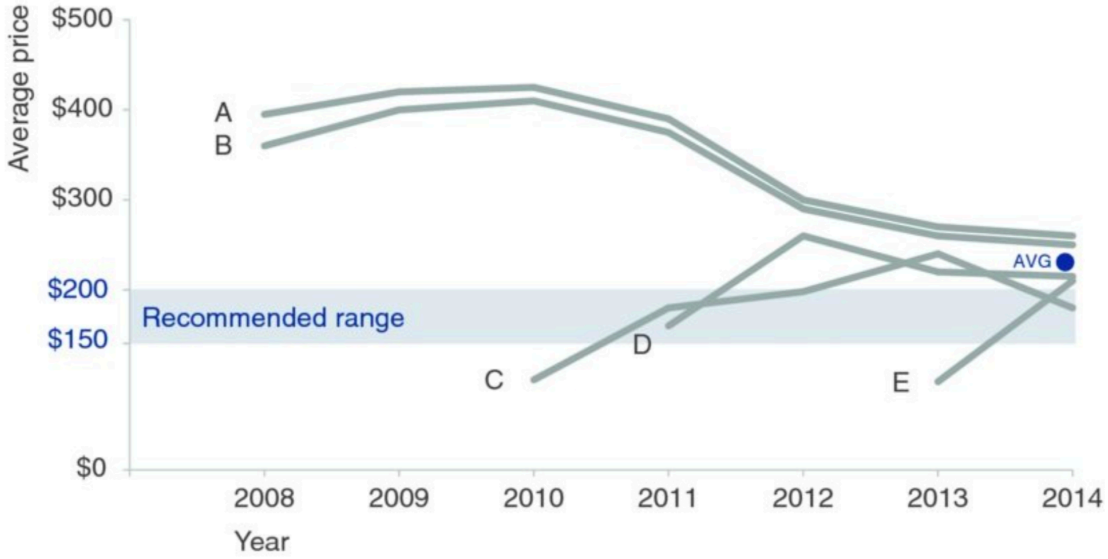

1
2
3
4
5
6
7
8
9
10
11
12
A likable audience is unaware that they have a problem or opportunity.
They are shown a unique idea that brings their world into an imbalance.
They are skeptical, afraid, and resistant to adopt it because it will require change, and change is hard.
But a presenter with experience, valuable insights, and magical tools will help on the journey.
So they decide to jump in and commit to the idea.
Now the real work begins, but it's hard. People and things oppose the effort to change.
They are determined to push the idea forward and begin to work on new skills to be successful.
They take a major step toward your idea, and it doesn't quite work out as they'd thought.
They get discouraged and consider giving up on the idea, but they begin to see some benefit from their efforts.
They decide to continue on with a renewed excitement, even though the resistance around them is chronic.
Utilizing their new tools, they try one final time to push the idea forward and are victorious.
The idea is widely adopted and the galaxy is a better place.
Ordinary World
Call to Adventure
Refusal of the Call
Meeting with the Mentor
Crossing the Threshold
Tests, Allies, and Enemies
Approach the Inmost Cave
Ordeal
Reward (seizing the sword)
Road Back
Resurrection
Return with the Elixir
Ordinary World
Special World

Price has declined for all products on the market since the launch of Product C in 2010



To be competitive, we recommend introducing our product *below the $223 average* price point in the **$150–$200 range**

Retail price over time



What to do?

Emphasize story, but make full data available

Don’t break data visualization rules

Don’t make people do bad stuff

Misinterpretation

How can we make sure the public really understands the science?

Should science be narrative?

Against storytelling of scientific results

To the Editor: Krzywinski and Cairo[1] beautifully illustrate the widespread view that scientific writing should follow a journalistic 'storytelling', wherein the choice of what data to plot, and how, is tailored to the message the authors want to deliver. However, they do not discuss the pitfalls of the approach, which often result in a distorted and unrepresentative display of data—one that does not do justice to experimental complexities and their myriad of interpretations.

Nature Methods | Correspondence

Reply to: "Against storytelling of scientific results"

Martin Krzywinski & Alberto Cairo

Info | Sections | References

Subjects Publishing
Journal *Nature Methods* **10**, 1045 (2013)
DOI doi:10.1038/nmeth.2699
Download Citation

THIS AMERICAN LIFE
FROM WBEZ

555: The Incredible Rarity of Changing Your Mind

APR 24, 2015

It's rare for people to change what they believe, and if they do it, it's usually a long process. This week, stories of those very infrequent instances where people's opinions flip on fundamental things that they believe. Why does it happen in these particular and unusual circumstances? We explain.

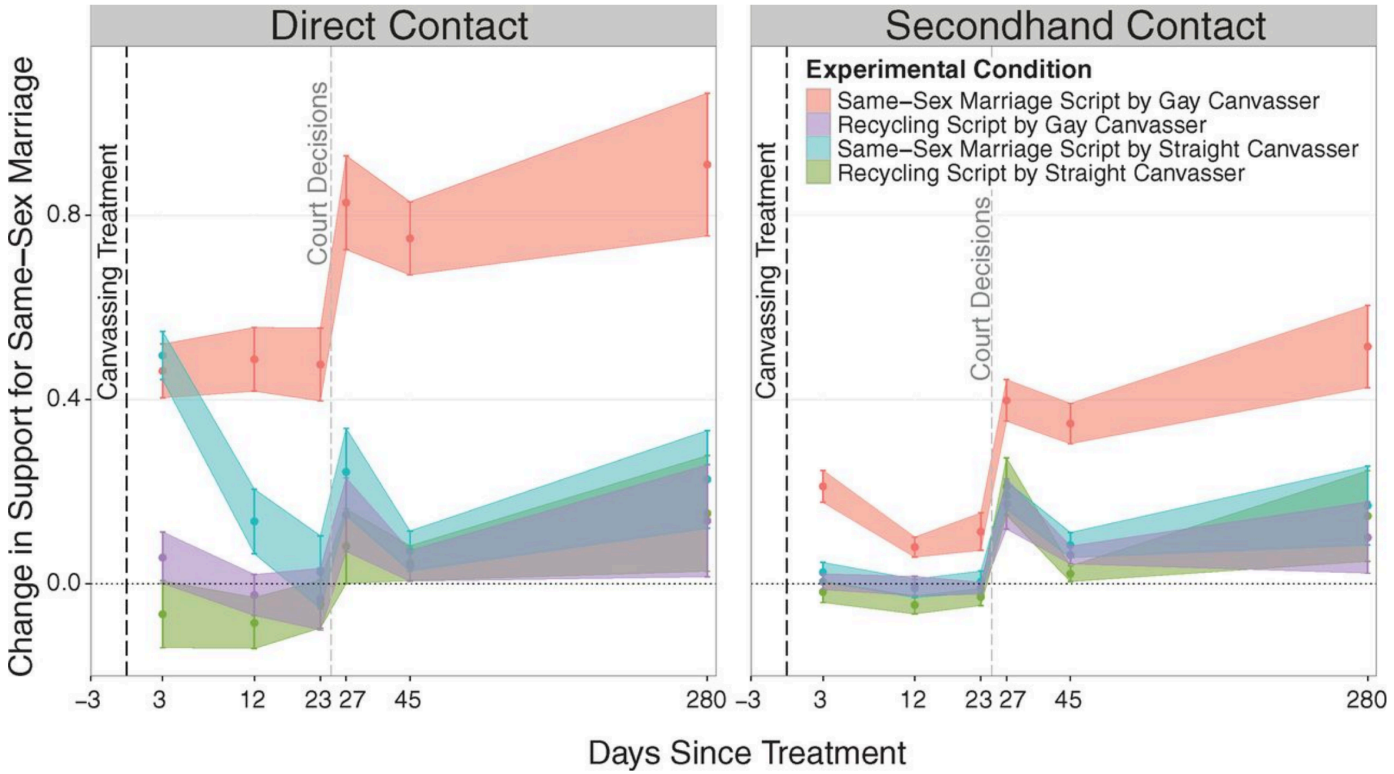
The iPad thing was LaCour's trademark. "He was sort of famous for taking his results from different studies he was working on, putting them on an iPad, and buttonholing people at the conferences and going over all of the research that he was doing, the different findings he had, and basically not letting the people go until they had an idea of what he was working on," says Tim Groeling, a communications professor at UCLA, who is listed as one of LaCour's references on his curriculum vitae. "It was infectious," continues Groeling. "Really cool stuff was on that iPad."

When contact changes minds: An experiment on transmission of support for gay equality

Michael J. LaCour[1], **Donald P. Green**[2]

+ See all authors and affiliations

Science 12 Dec 2014:
Vol. 346, Issue 6215, pp. 1366-1369
DOI: 10.1126/science.1256151



REPORT

Durably reducing transphobia: A field experiment on door-to-door canvassing

David Broockman[1,*], Joshua Kalla[2]

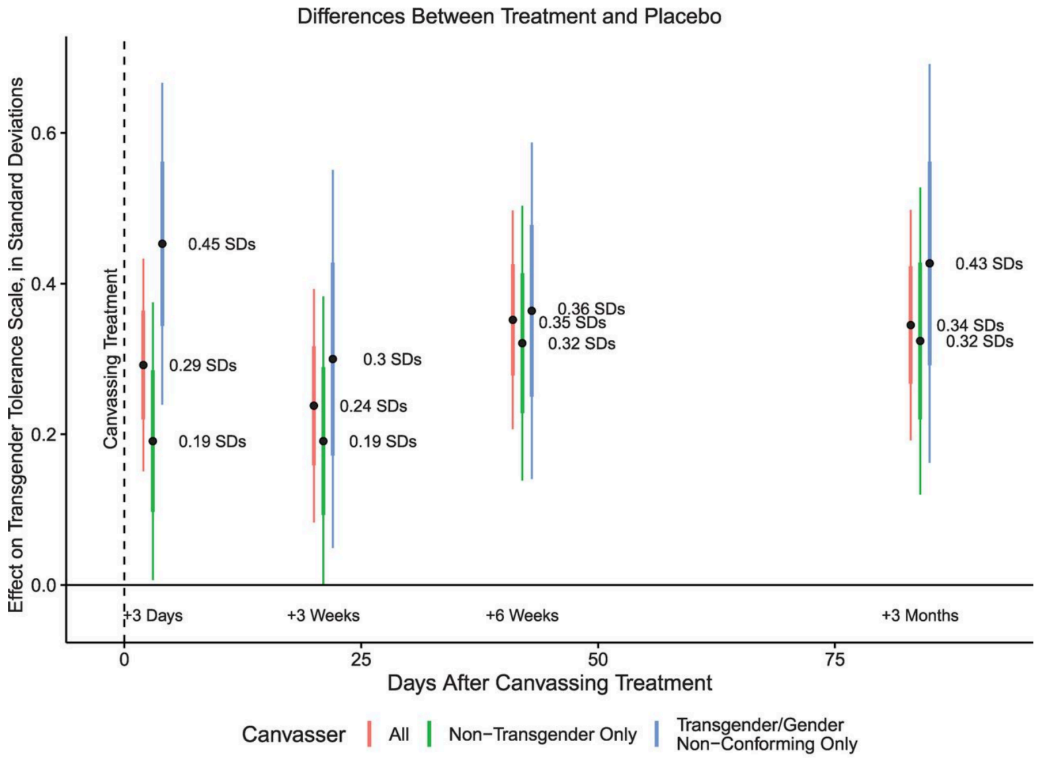
+ See all authors and affiliations

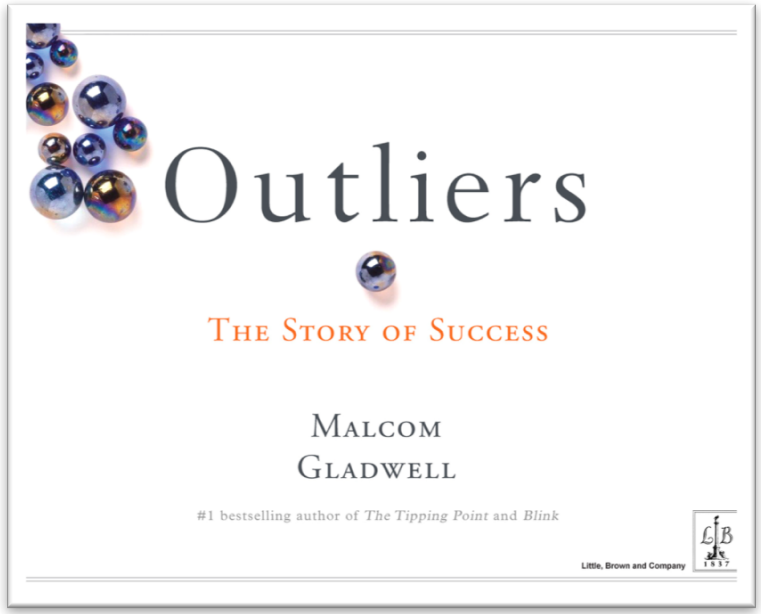
Science 08 Apr 2016:
Vol. 352, Issue 6282, pp. 220-224
DOI: 10.1126/science.aad9713

Irregularities in LaCour (2014)

David Broockman, Assistant Professor, Stanford GSB (as of July 1), dbroockman@stanford.edu
Joshua Kalla, Graduate Student, UC Berkeley, kalla@berkeley.edu
Peter Aronow, Assistant Professor, Yale University, peter.aronow@yale.edu

May 19, 2015





10,000 hours

"the magic number of greatness"

Psychological Review
1993, Vol. 100, No. 3, 363–406

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0033-295X/93/$3.00

The Role of Deliberate Practice in the Acquisition of Expert Performance

K. Anders Ericsson, Ralf Th. Krampe, and Clemens Tesch-Römer

The theoretical framework presented in this article explains expert performance as the end result of individuals' prolonged efforts to improve performance while negotiating motivational and external constraints. In most domains of expertise, individuals begin in their childhood a regimen of effortful activities (deliberate practice) designed to optimize improvement. Individual differences, even among elite performers, are closely related to assessed amounts of deliberate practice. Many characteristics once believed to reflect innate talent are actually the result of intense practice extended for a minimum of 10 years. Analysis of expert performance provides unique evidence on the potential and limits of extreme environmental adaptation and learning.

APRIL 2017 | Foundations of Faith

When we watch a great athletic or musical performance, we often say that the person is very gifted, which is usually true. But the performance is based upon years of preparation and practice. One well-known writer, Malcolm Gladwell, has called this the 10,000-hour rule. Researchers have determined that this amount of practice is necessary in athletics, musical performance, academic proficiency, specialized work skills, medical or legal expertise, and so on. One of these research experts asserts "that ten thousand hours of practice is required to achieve the level of mastery associated with being a world-class expert—in anything."[1]

Training history, deliberate practise and elite sports performance: an analysis in response to Tucker and Collins review—what makes champions?

K Anders Ericsson

bodies of knowledge for a more complete understanding of the complex development of elite performance.[1] In their recent article, Tucker and Collins[2] criticised a popularised but simplistic view of our work circulated on the internet, which suggests that anyone who has accumulated sufficient number of hours of practise in a given domain will automatically become an expert and a champion. Unfortunately they incorrectly attributed this view to me and my colleagues and criticised our research on deliberate practise.

"[A] popularized but simplistic view of our work, which suggests that anyone who has accumulated sufficient number of hours of practice in a given domain will automatically become an expert and a champion."

10,000 is average

Quality matters

There are other factors

Deliberate Practice and Performance in Music, Games, Sports, Education, and Professions: A Meta-Analysis

Brooke N. Macnamara[1], David Z. Hambrick[2], and Frederick L. Oswald[3]

[1]Princeton University; [2]Michigan State University; and [3]Rice University

Abstract

More than 20 years ago, researchers proposed that individual differences in performance in such domains as music, sports, and games largely reflect individual differences in amount of *deliberate practice*, which was defined as engagement in structured activities created specifically to improve performance in a domain. This view is a frequent topic of popular-science writing—but is it supported by empirical evidence? To answer this question, we conducted a meta-analysis covering all major domains in which deliberate practice has been investigated. We found that deliberate practice explained 26% of the variance in performance for games, 21% for music, 18% for sports, 4% for education, and less than 1% for professions. We conclude that deliberate practice is important, but not as important as has been argued.

What to do?

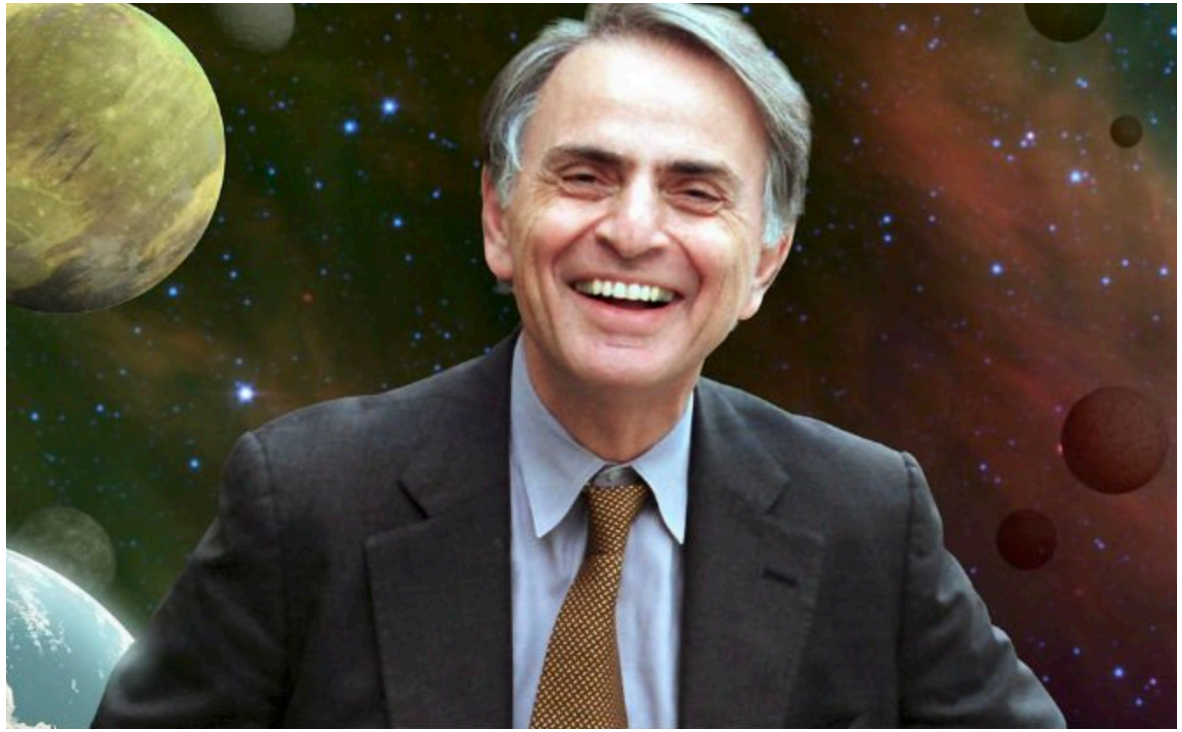
Be narrative, but not too narrative

Temper expectations

Ensure your explanation of findings is accurate

Ethos

Who can communicate science? Who are experts? What gives you ethos?




C O S M O S
A SPACETIME ODYSSEY

Commentary: Can we stop pretending Bill Nye is a science guy already?

Apr 24, 2017 9:10 pm

RADIOLAB

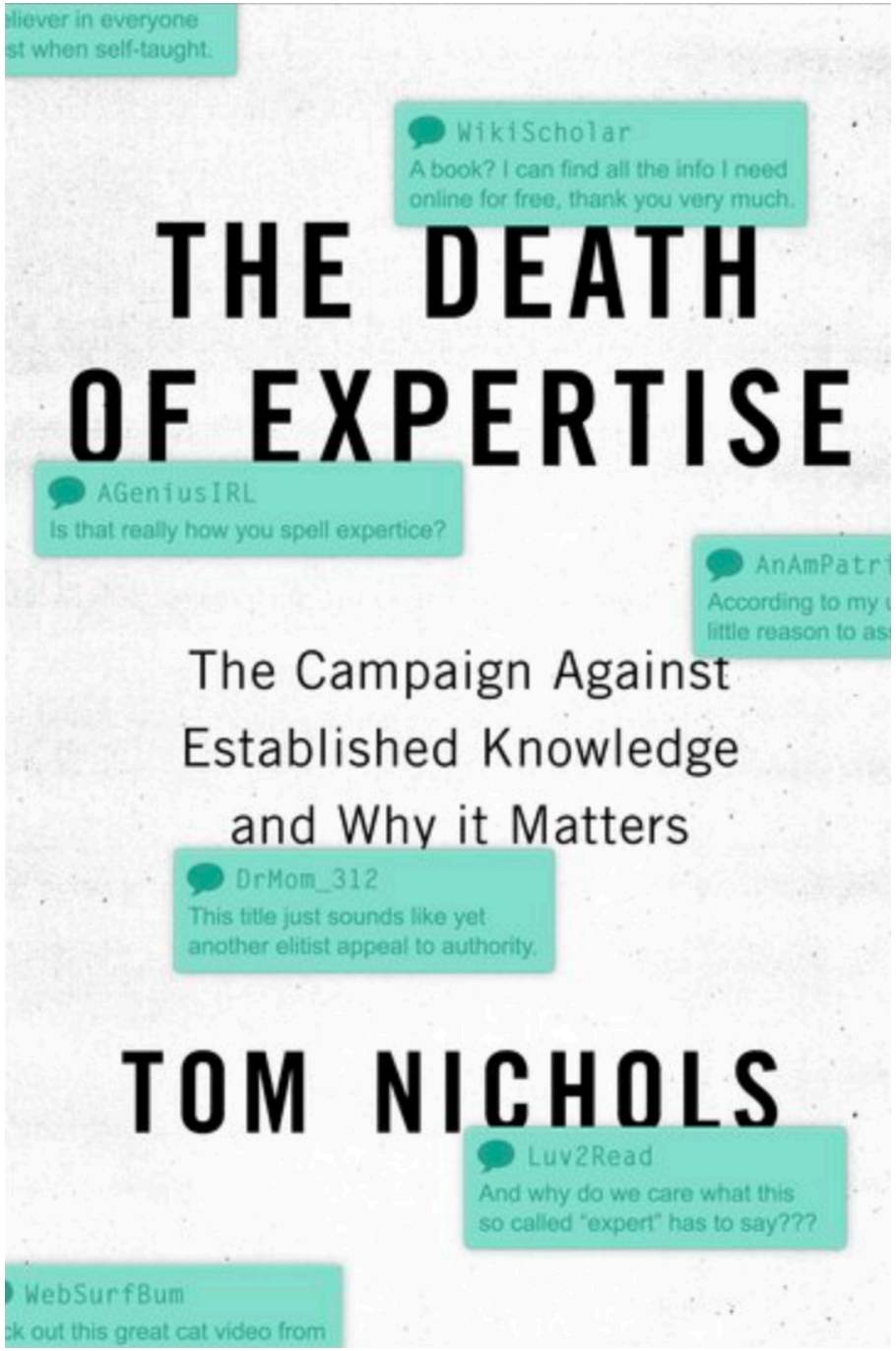
Gimlet

SCIENCE VS

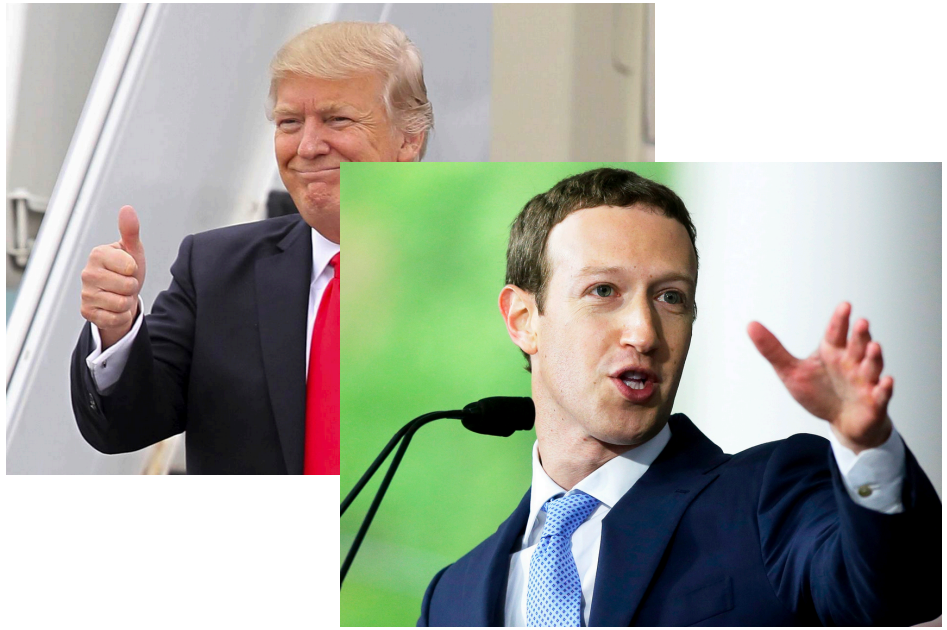
SCI FRI

Radiolab presents

MORE PERFECT



When ordinary citizens believe that no one knows more than anyone else, democratic institutions are in danger



Argumentum ad verecundiam

(Appeal to authority)

"You said that because an authority thinks something, it must therefore be true"

Doesn't necessarily apply to their evidence

Their findings aren't inherently true

“It’s impossible to be too dumb to get into the Kingdom of Heaven. It might be possible to be too smart, but it’s not possible to be too dumb!”

But to be learned is good if they hearken unto the counsels of God.

2 Nephi 9:29

And as all have not faith, seek ye diligently and teach one another words of wisdom; yea, seek ye out of the best books words of wisdom; seek learning, even by study and also by faith.

D&C 88:118

Whatever principle of intelligence we attain unto in this life, it will rise with us in the resurrection. And if a person gains more knowledge and intelligence in this life through his diligence and obedience than another, he will have so much the advantage in the world to come.

D&C 130:18–19

What to do?

Credentials do not make an expert

Credentials do not not make an expert

Credentials ≠ ethos

Expertise does not harm spirituality

Equity

Whose science should be communicated? How should you communicate science?

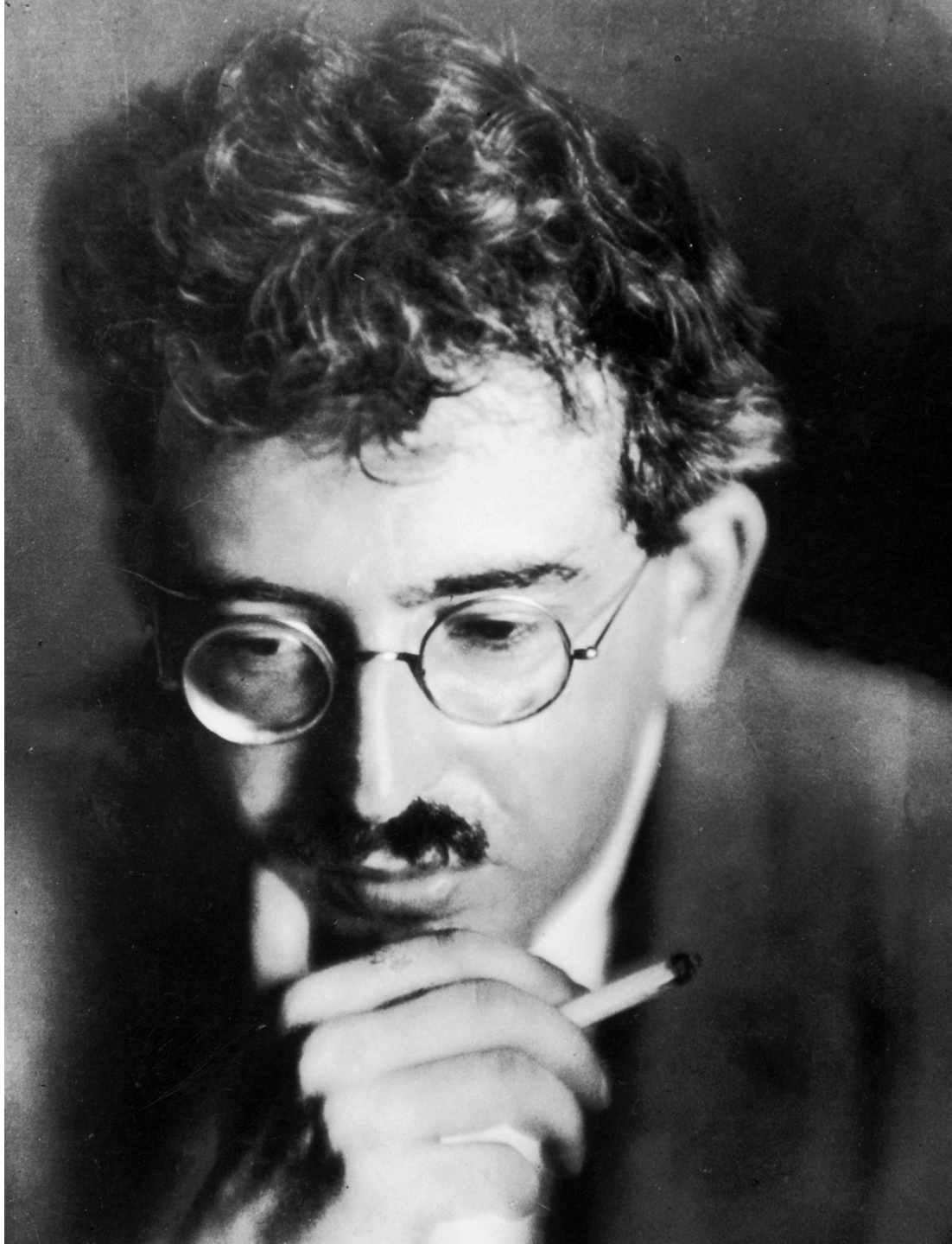
Dumbing down vs. translating

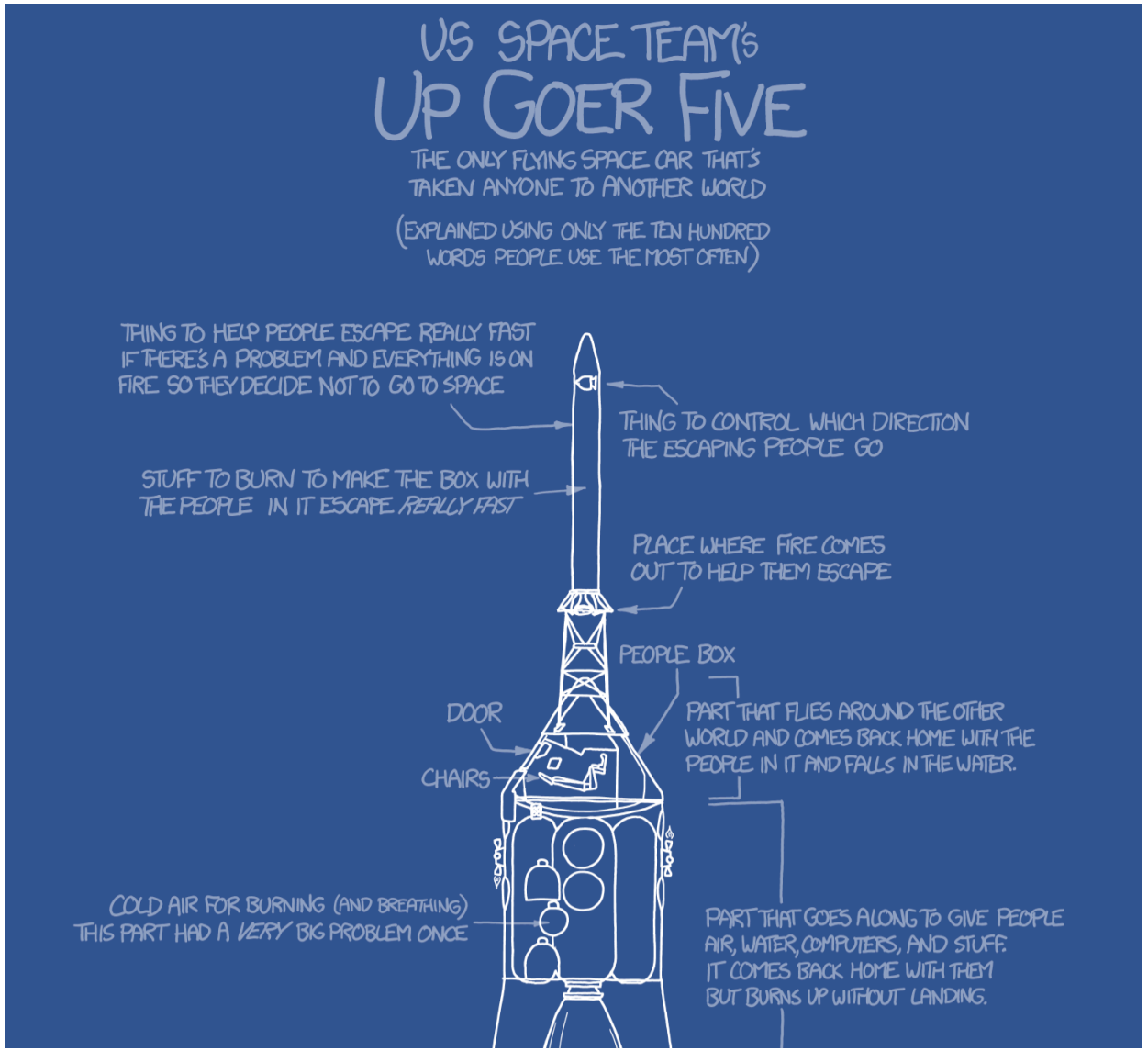
https://www.youtube.com/watch?v=opqla5Jiwuw

Translation

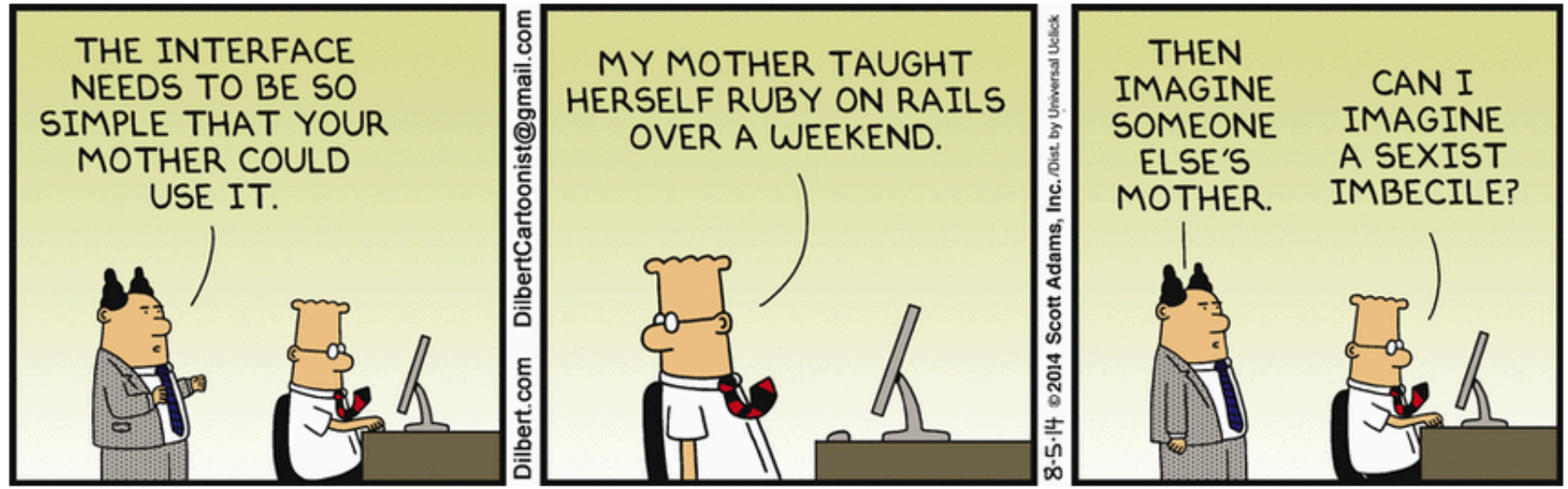
"…the task of the translator consists in finding that intended effect upon the language into which he is translating which produces in it the echo of the original"

Walter Benjamin, *The Task of the Translator*



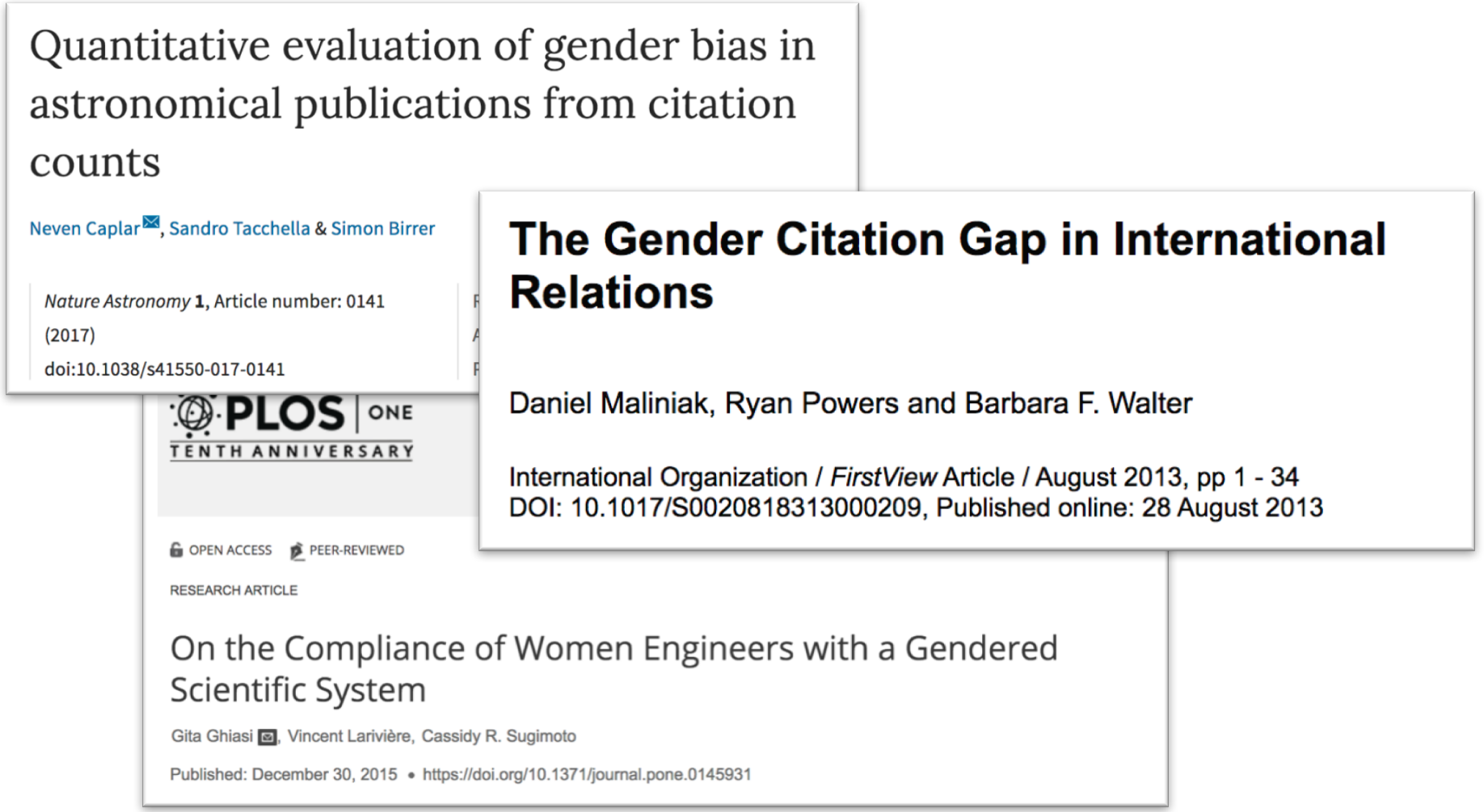


http://splasho.com/upgoer5/


THE INTERFACE NEEDS TO BE SO SIMPLE THAT YOUR MOTHER COULD USE IT.
Dilbert.com DilbertCartoonist@gmail.com
MY MOTHER TAUGHT HERSELF RUBY ON RAILS OVER A WEEKEND.
8-5-14 ©2014 Scott Adams, Inc./Dist. by Universal Uclick
THEN IMAGINE SOMEONE ELSE'S MOTHER.
CAN I IMAGINE A SEXIST IMBECILE?

https://www.youtube.com/watch?v=t7GUjKv9qSI

Inequalities in citation and press coverage



Quantitative evaluation of gender bias in astronomical publications from citation counts

Neven Caplar, Sandro Tacchella & Simon Birrer

Nature Astronomy **1**, Article number: 0141 (2017)
doi:10.1038/s41550-017-0141

The Gender Citation Gap in International Relations

Daniel Maliniak, Ryan Powers and Barbara F. Walter

International Organization / *FirstView* Article / August 2013, pp 1 - 34
DOI: 10.1017/S0020818313000209, Published online: 28 August 2013

PLOS ONE | TENTH ANNIVERSARY

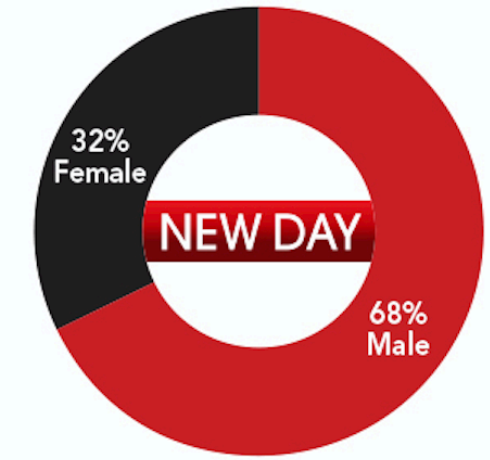
OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

On the Compliance of Women Engineers with a Gendered Scientific System

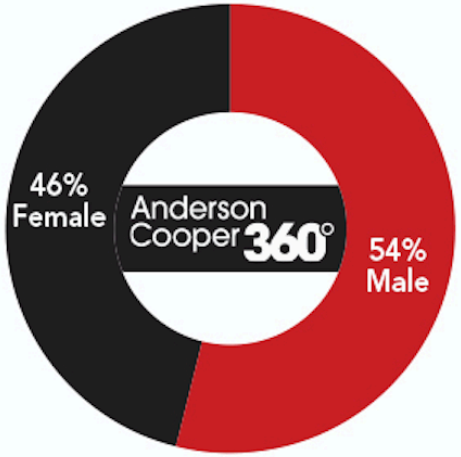
Gita Ghiasi, Vincent Larivière, Cassidy R. Sugimoto

Published: December 30, 2015 • https://doi.org/10.1371/journal.pone.0145931



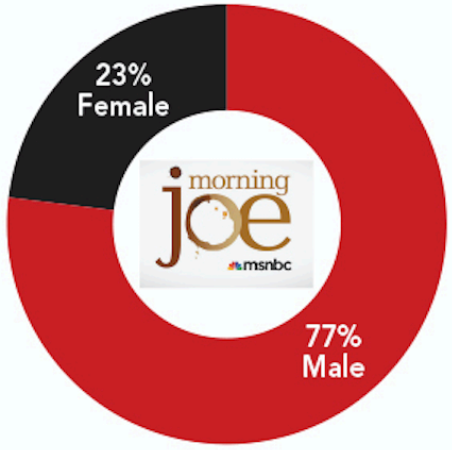
Male analysts (2486) Female analysts (1151)

CNN



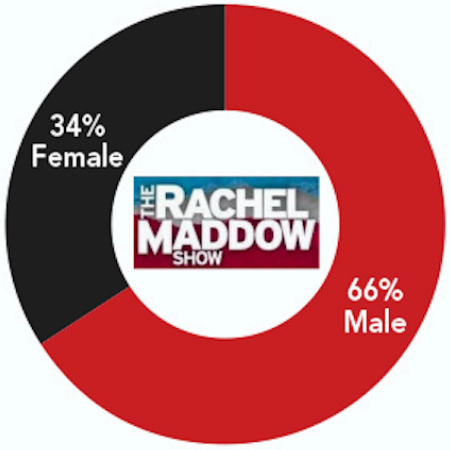
Male analysts (1216) Female analysts (1022)

CNN



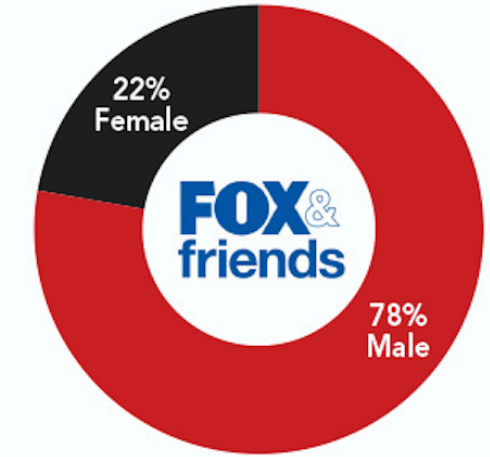
Male analysts (4121) Female analysts (1255)

msnbc



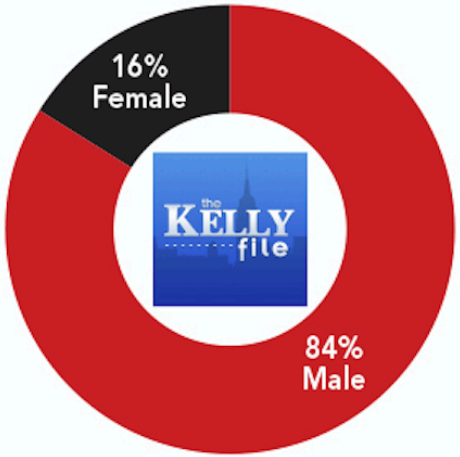
Male analysts (151) Female analysts (79)

msnbc



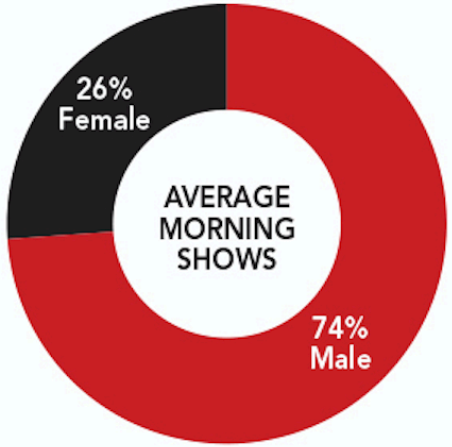
Male analysts (1313) Female analysts (373)

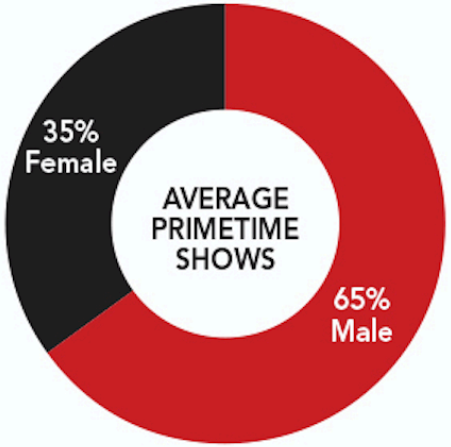
FOX



Male analysts (1019) Female analysts (201)

FOX





Addressing inequalities in coverage

LGBT Scholar Network
@LGBTscholars Follows you

BYUWomen in Business
@BYUWIB

WIB is a club at BYU created to help bring women interested in business together through mentoring, networking, and learning.

Academic Women in PA
@AWPARocks

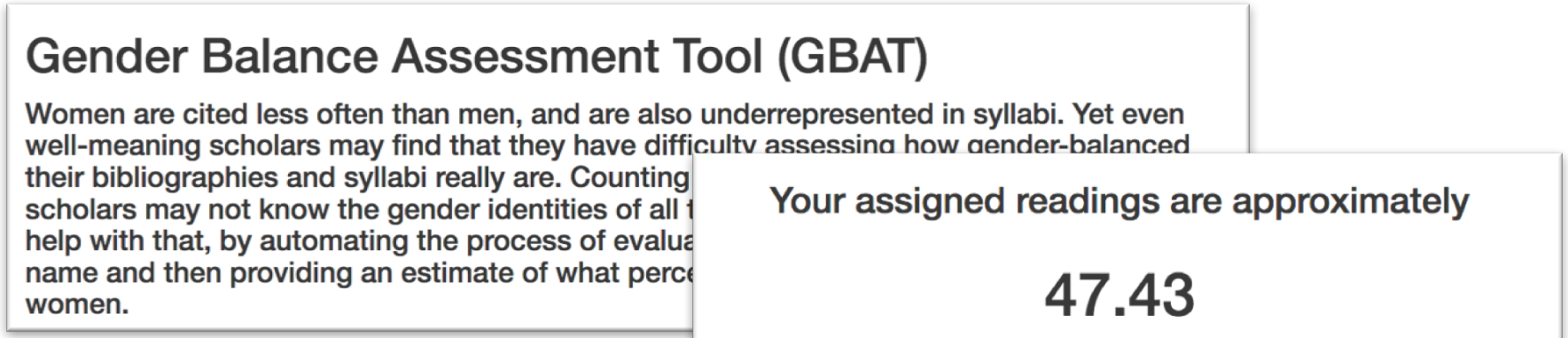
A network of women who are (or seeking to be) faculty in public administration seeking to address gender issues in the field.

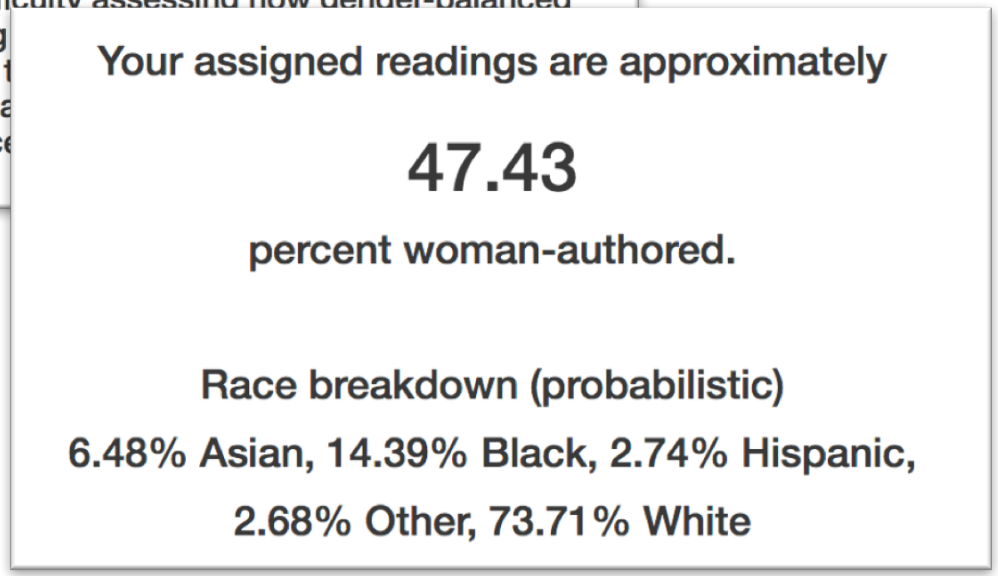
POCAlsoKnowStuff
@POCalsoknow

People of color also know stuff! (inspired by @womenalsoknow)

Addressing inequalities in coverage

https://jlsumner.shinyapps.io/syllabustool/





What to do?

- Do not dumb down your findings
- You are a translator
- Treat audience with respect
- Amplify underrepresented research