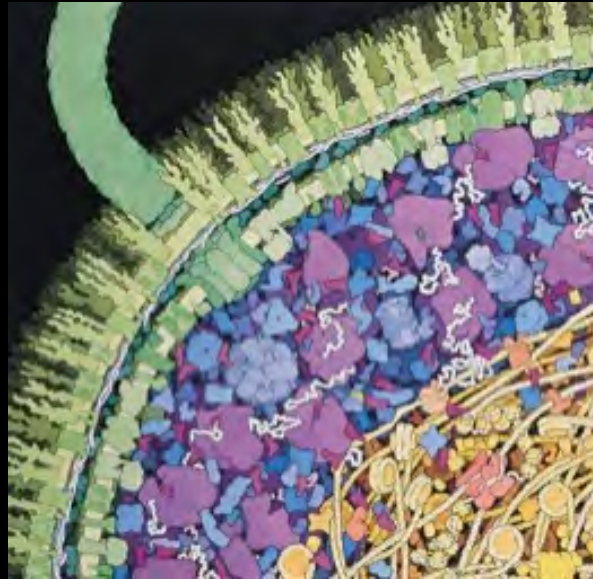


Only Converse?



A journalist sizes up the ^{tangly} problem of
science communication

Society for Integrative and Comparative Biology

John A. Moore Lecture

Rosalind Reid

[@rosreid](https://twitter.com/rosreid)

Executive Director
Council for the Advancement of Science Writing

January 8, 2017

for Lynn

from a sponge

#scicomm #onlyconverse #sicb2017

“Only connect! ... live in fragments no longer. Only connect, and the beast and the monk, robbed of the isolation that is life to either, will die.”

Howards End, E. M. Forster,
1910

Only converse?

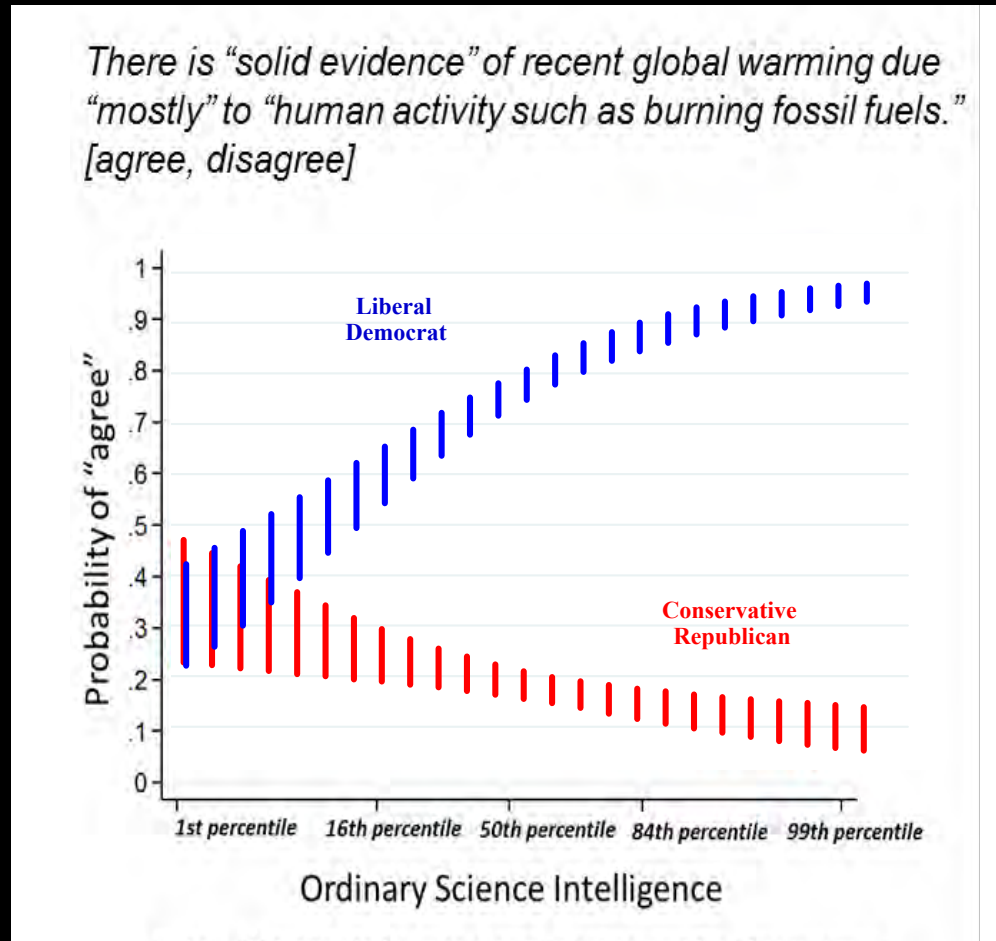
- social connection and science
 - some evidence
- why to connect
- some ways to connect
- some lessons and tips gleaned from a career in science communication

“A major portion of the crisis in science education results from our overemphasizing facts.”

“Science as a Way of Knowing—
Evolutionary Biology”

John A. Moore, *American Zoologist*, 1984

Evidence that polarization of opinion on charged topics *increases* with science literacy. You have your experts, I have mine.



Dan M. Kahan, Climate-science communication and the measurement problem

Advances in Political Psychology, V. 36, Suppl. 1, 2015

A major portion of the crisis in science
communication results from our
overemphasizing facts

... and having those facts become
associated with a belief system

Oxford Dictionaries Word of the Year 2016

post-truth: “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.”



Art Kellermann, MD

@ArtKellermannMD

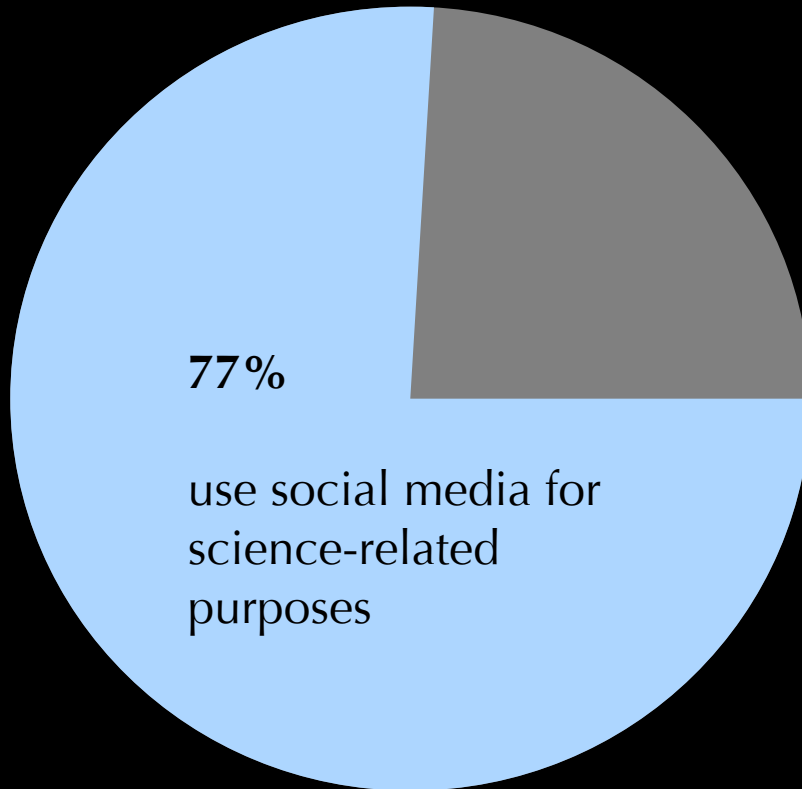
The truth still matters. Hug a scientist or
journalist today

7:46pm · 27 Dec 2016 · Twitter for iPhone

What would John Moore say?



Scientists and social media



used more than once a week:

Wikipedia 45.5%

ResearchGate 22.4%

Twitter 15.3%

YouTube 13.8%

Survey of UW-Madison science faculty (N=371),
September 2016

Science, Media and the Public Research Group
Department of Life Sciences Communication
scimep.wisc.edu

Scientists and social media

Views on social media as a public engagement tool

There are lay audiences interested in what I have to share about science on social media.

agree 55.1%

neither 34.4%

disagree 10.5%

Scientists should discuss potentially controversial topics, such as synthetic biology, on social media.

agree 62.9%

neither 30.9%

disagree 6.2%

Using social media is too time-consuming.

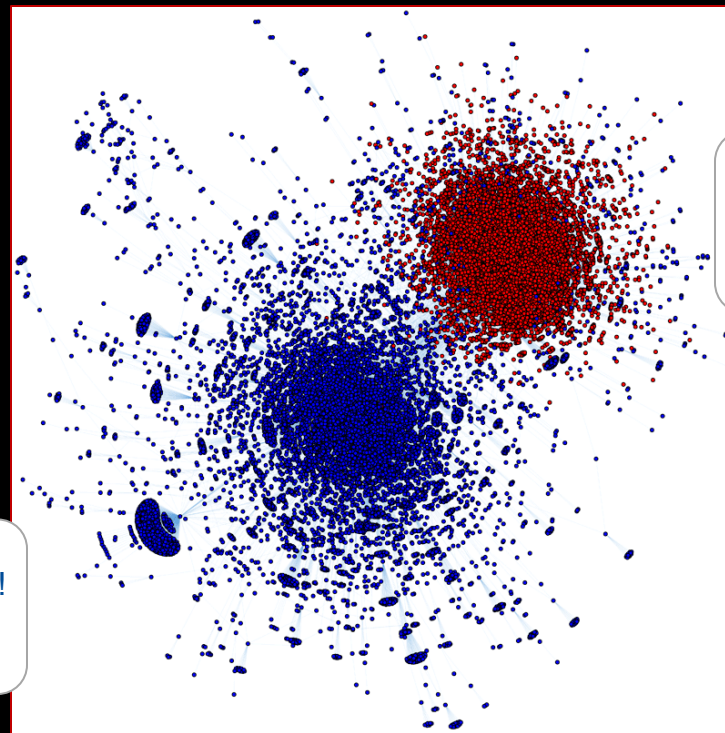
agree 58.1%

neither 27.4%

disagree 14.5%

The winter of our disconnect

“...the capacity for content injection creates a situation where literally anyone can decide what’s going to be on TV tonight.”

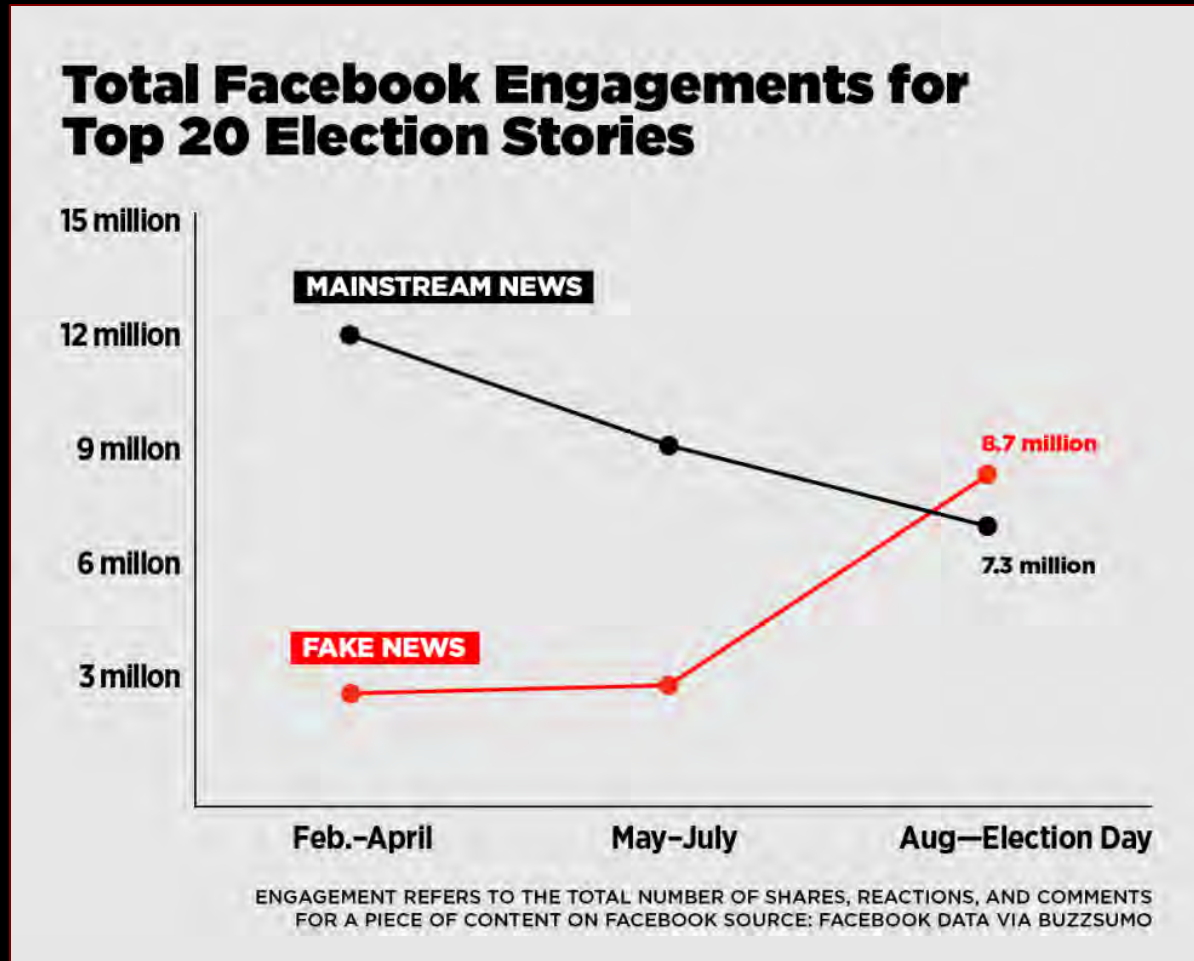


Couple Aborts Twin Boys For Being Wrong Gender..
<http://bit.ly/xyz> #tcot #christian
#tlot #teaparty #p2 #prolife

Please follow @----- for an
outstanding progressive voice!
#p2 #dems #prog #democrats
#tcot

retweet networks

The winter of our disconnect



The winter of our disconnect



frothy press releases

celebrities claiming cures

Dr. Oz “interviewing” Trump about his health

garbage science in predatory journals

Some propositions

1. In a time of increasing economic disparity and social polarization, scientists are relatively isolated from important segments of the public by:

- culture
- education
- economic status
- communication style

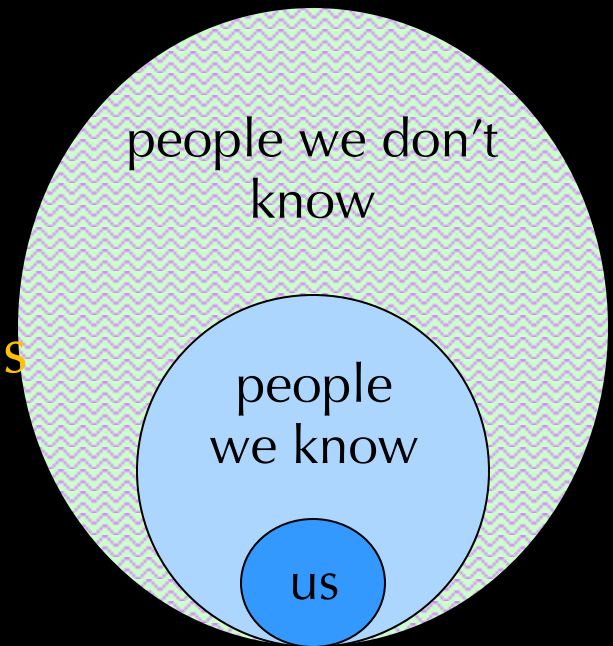
Some propositions

2. New technologies provide ways to engage directly with nonscientists and break down walls between science and other parts of society.
3. Among the biggest challenges to effective science communication in the technology age are courage, listening, and patience.
4. The rewards to science can be immense.

Some propositions

1. In a time of increasing economic disparity and social polarization, scientists are relatively isolated from important segments of the public.

Journalism 101: Assume nothing about the reader. Your audience likely shares neither your motivations or your life experience.

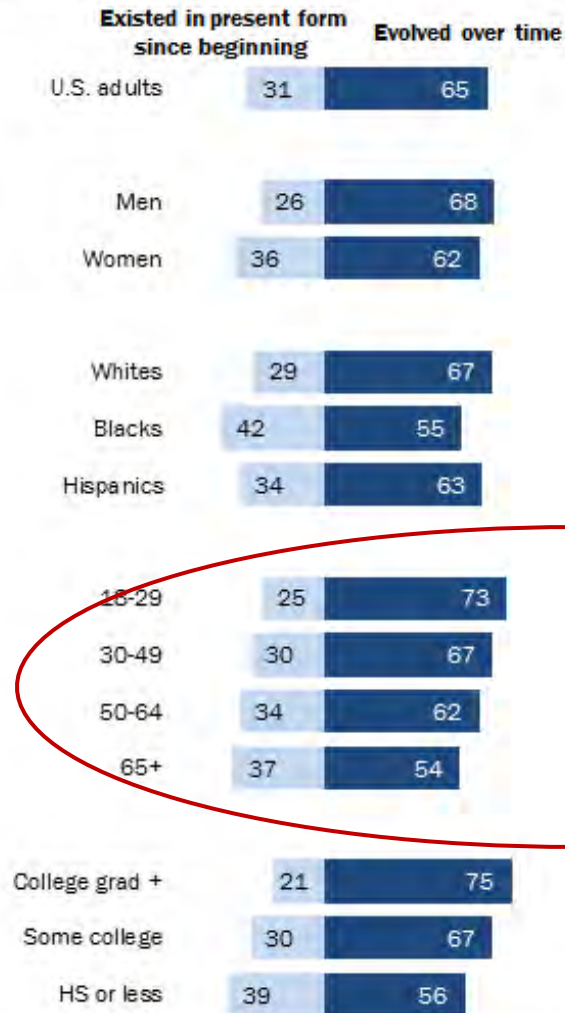


Young U.S. adults and Hispanics are more likely to adopt scientific views on evolution and climate change.

[original article](#)

Views on Evolution, by Key Demographics

% of U.S. adults who say humans and other living things have evolved over time or have existed in their present form from since the beginning of time

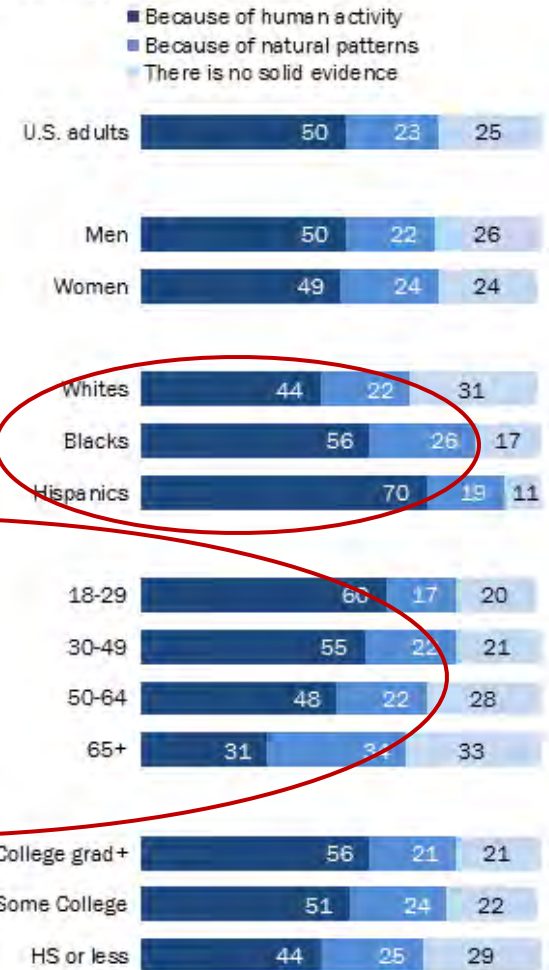


Survey of U.S. adults August 15-25, 2014. Q16. Those saying don't know are not shown. Whites and blacks include only non-Hispanics; Hispanics are of any race.

PEW RESEARCH CENTER

Views on Climate Change, by Key Demographics

% of U.S. adults saying that the earth is getting warmer because of human activity/because of natural patterns in earth's environment/or that there is no solid evidence that earth is getting warmer



Survey of U.S. adults August 15-25, 2014. Q20F1. Those saying don't know are not shown. Whites and blacks include only non-Hispanics; Hispanics are of any race.

PEW RESEARCH CENTER



TWEETS 135 FOLLOWING 294 FOLLOWERS 247 LIKES 36 MOMENTS 0

Edit profile

rosreid

@rosreid

Sci-editor, data dabbler, choral singer, peripatetic organizer. Passionate about science writing+understanding.

Amherst, MA, USA

casw.org/ros

Joined October 2008

8 Photos and videos



Who to follow · Refresh · View all

- Kati Moore** @KatiJane
Follow
- SciWriHandbook** @sciwritha...
Follow
- Irene Park** @S_Park89
Follow

Find friends

Trends · Change

- #RoseBowl**
32.6K Tweets
- #luxury**
10.1K Tweets
- #WinterClassic**
54.6K Tweets
- John Berger**
33.2K Tweets
- #cottonbowl**
18.4K Tweets
- #TheHypnoticEye**
- Repealing Obamacare**
24K Tweets
- #mondaymotivation**
@keeps3 is Tweeting about this

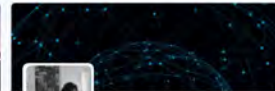


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Weird fictions in Lightspeed, Nightmare, F&SF etc. Science writer. Communications pro. Vegetarian foodie. Spoiler of dogs. Feminist. Novice...



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Investing in tech companies @PlayfairCapital. All things data, AI/ML, UX design, marketplaces, mobile. Recovering scientist, photographer,...



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10th World Conference of Science Journalists

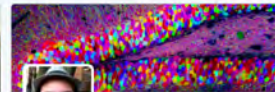


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Kelly Tyrrell

@kellytyrrell FOLLOWS YOU

Just here trying to make a difference. Science writer, runner, coffee drinker. Bikes and brews and skis and rocks, too. Tweets mine.



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@rpoivis FOLLOWS YOU

Freelance science writer, @Open_Notebook/@BWFUND Fellow, I write for @Medscape, @TecReview, @revistacomoves- neuroscientist -...



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Formulation Chemist | Business Guy | Trusted Science Advisor | Formulating Engaging Science Narratives



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Find discount vitamins, supplements, health foods, beauty products & more! Pickvitamin.com is your place for health living & fitness.



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Dennis John

@DennisMJohn FOLLOWS YOU

A passion for nature photography. Change is in the present. Managing complexity through transformational change processes, a new way of...



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Don

@ReviewsByDon FOLLOWS YOU



Follow

Nornewolff

@NNewolff FOLLOWS YOU



Follow

Kora

@qornik FOLLOWS YOU

easily inspired and doing her best to tread lightly - intrigued by people,



Follow

SciencePOD

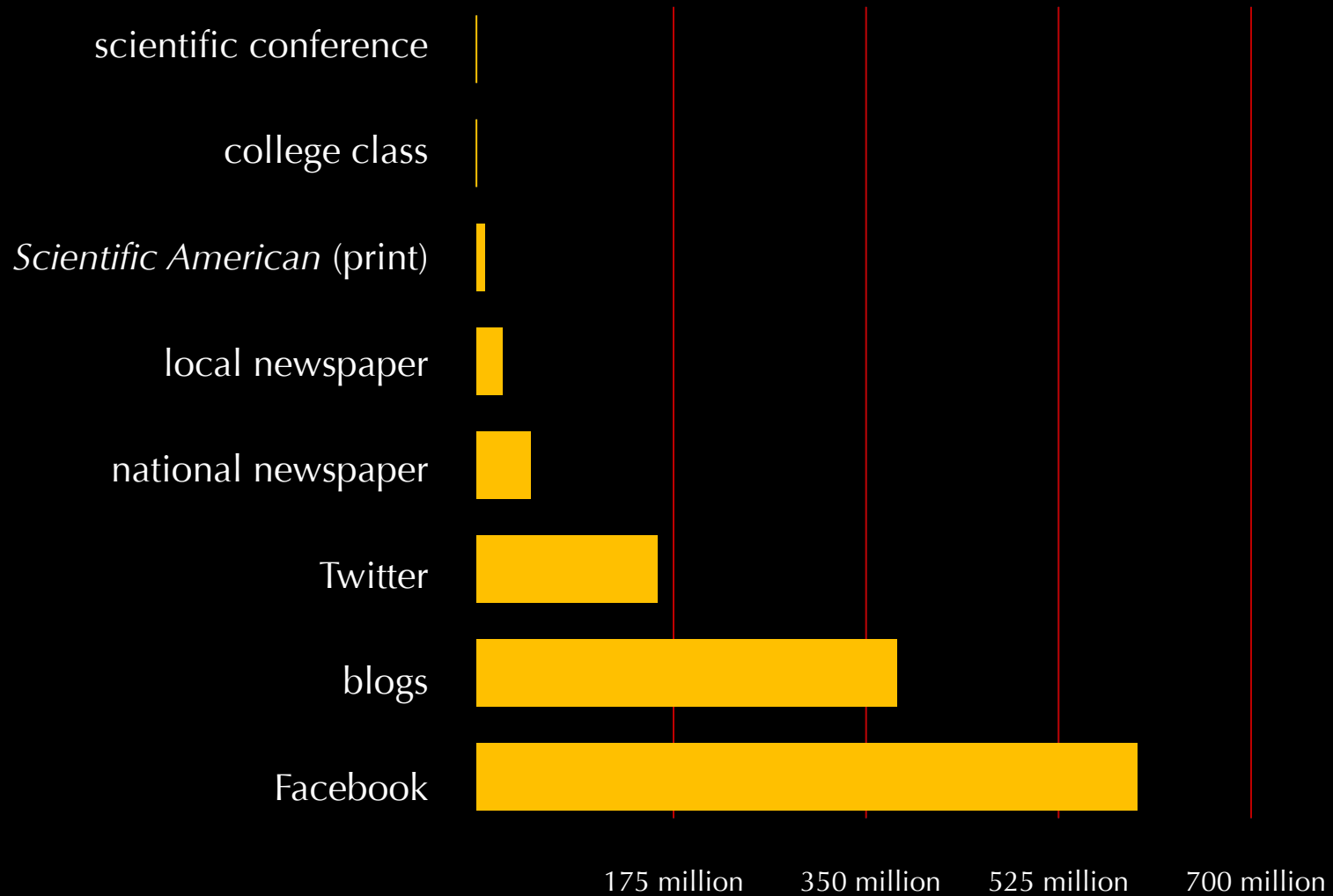
@SciencePOD FOLLOWS YOU

SciencePOD creates clear concise compelling #content, #translating

Some propositions

2. New technologies provide ways to engage directly with nonscientists and break down walls between science and other parts of society.

Monthly audience



“Sciencesploitation” and the misinformation cycle

Misleading “clickbait” headline on news website



Facebook post by alarmed reader



Tweets, texts by family and friends



Grieving mother: ‘I vaccinated my baby, and here’s what happened. Don’t let them do it to yours!’

Moms with kids, please read and share this!!!!



Defensive reaction, suspicion, further polarization



Reactive response by science-savvy individual



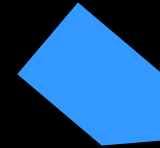
hogwash!

Information cycle

Misleading “clickbait” headline about vaccine risks on news website



Facebook post by alarmed reader



Tweets, texts by family and friends

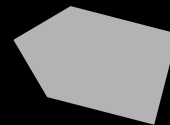
Reddit AMA: moderated discussion



The NEW REDDIT JOURNAL of SCIENCE

11.9 million subscribers
1,172 moderator roles

1 Introduction to reddit and r/science



Defusing response from science-savvy individual acknowledging concerns

Some propositions

3. Among the biggest challenges to effective science communication in the technology age are courage, listening, and patience.

4. The rewards to science can be immense.

- bridging the disconnect
- connecting with diverse communities
- new forms of engagement

Only converse.



[project site](#)

[dissertation](#)

Only converse.



Diverse Science Writers



A public list by DNLee

African-American, Latino, Native-American, Asian-American Journalists who cover STEM topics.

MEMBERS
63

SUBSCRIBERS
66

Subscribe

Tweets >

List members >

List subscribers >

More lists by @DNLee5 · View all

- SIUE/Southern Illinois
- TED
- Cornell/Upstate NY
- Black PhD/Edu
- POC STEM Professionals
- Research Tech
- Diverse Science Writers
- Science2
- SciComm
- Science IT
- Diversity & Inclusion
- Africa
- HipHopEd
- Oklahoma
- Higher Ed
- SMBSTL
- Education
- STEM Outreach
- Nature Bloggers
- Outdoors

List members



Living Chicago @LivingNChicago

Truly a web series for the green @ heart! From food, festivals to fun local ecologist & host Mila Marshall shows how our environment helps Chicago come alive!



Erica Bizzell @E_Bizzell

Microbiology PhD candidate at Emory University, working on bacterial pathogenesis, aspiring science writer who is interested in all things science



Kunmi Sobowale, MD @KMsob

Resident Psychiatrist @YalePsych | @Uchicago alum | #globalhealth | #mentalhealth | @Yale alum | @Fogarty_NIH alum



Emiliano Mega @mapache_rm

Science journalist based in Mexico. I write about LatAm for @SciAmEspanol, @SciDevNet_AL and @NewsfromScience. Se habla español. Torito picante.



The Huemyn. @ShylaHardwick

ZW. Queer. Biologist. Writer.



Culture Dish @culturedish

Cultivating diversity in science writing. Run by @scchak + @ashleythesmart. Yes pls RT. Profile artwork: klariart.com



iSpyBio @iSpyBio

The intelligent search engine for Life Sciences



Healthy NABJ @HealthyNABJ

Promoting diversity in health and science journalism by tweeting news, opportunities and more. Tweets by @marissaaevans. #HealthyNABJ #HealthJournoJob



jane c. hu @jane_c_hu

science journalist, @Open_Notebook fellow, part-time quadruped. jejune, according to reviewer 2. fan of all brassicas. always gets the name of the dog.



Lisa Song @lisalsong

Reporter for @InsideClimate covering fracking, env health, climate change. Fan of geology. lisa.song@insideclimatenews.org. PGP key: ow.ly/P358K

list

Skill does matter

Science communication toolkit

- Humor
- Simple, effective sentences
- Analogy and metaphor
- Visual explanations that use informal, vernacular visual language
- Listening

Skill does matter

Science communication toolkit

- Humor
 - disarms, connects, humanizes
 - attracts followers! social media rewards tweeps with attitude and personality (but hold the snark)
- Simple, effective sentences
 - don't "dumb down" science but respect the reader's intelligence
 - use basic techniques of effective writing, e.g. active voice and concise phrases (writing tweets is a way to learn concision)

Skill does matter

Science communication toolkit

- Analogy and metaphor
 - choose metaphors that connect with the audience's context
- Visual explanations that use informal, vernacular visual language
 - plush vegetables

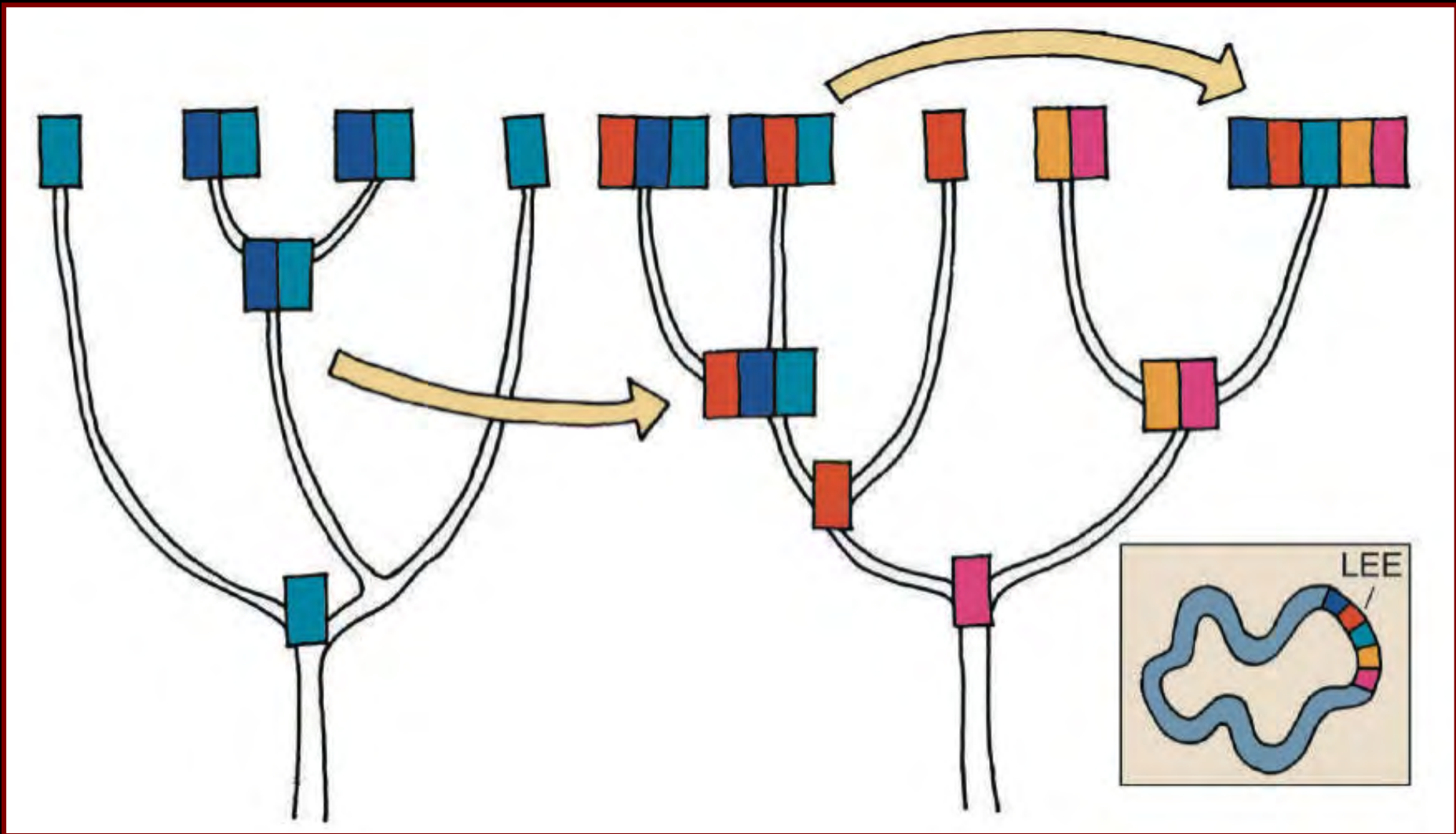


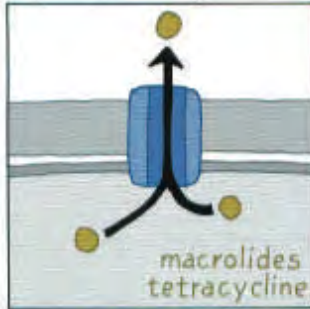
illustration by Tom Dunne, *American Scientist*

resistance mechanisms

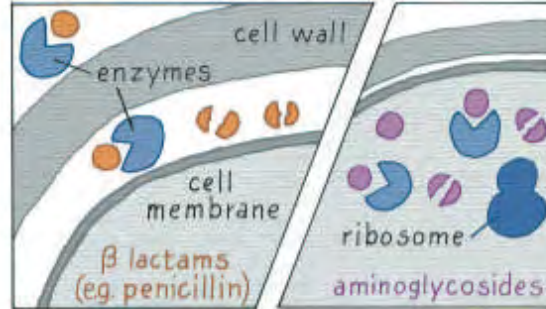
specific drugs

multi-drug

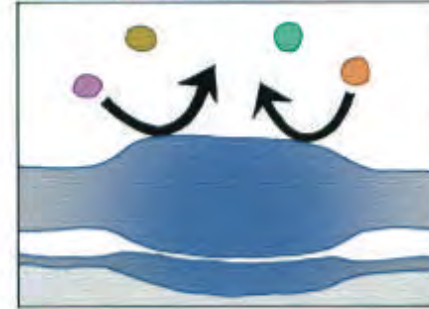
bacterial pumps expel the drug



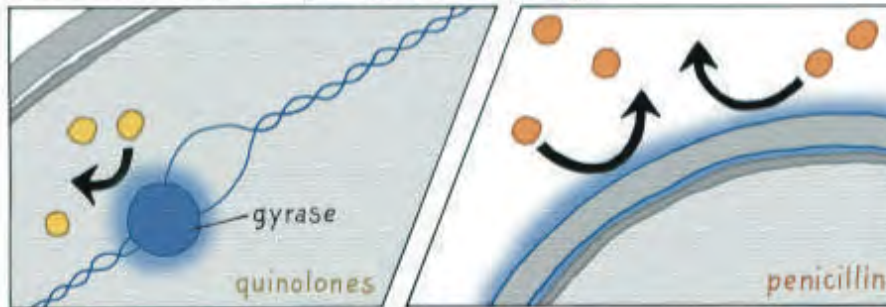
bacteria inactivate the drug



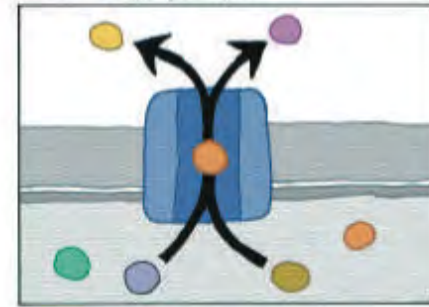
cell less permeable



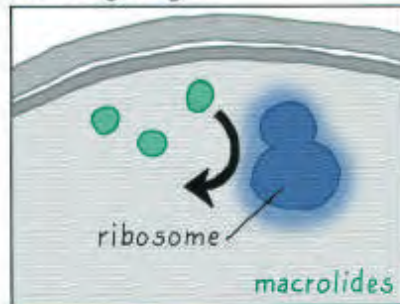
mutation prevents drug from affecting target



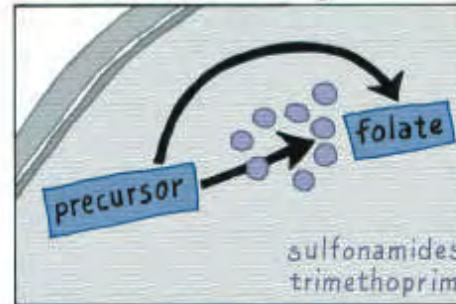
multi-drug pumps



bacteria protect the drug target



bacteria circumvent the effects of the drug



cells form biofilms

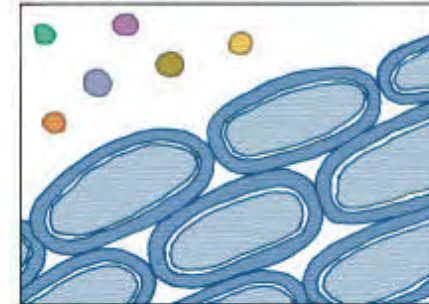


illustration by Stephanie Freese, *American Scientist*

Skill does matter

Science communication toolkit

- BE the geek you are.

Gwen Pearson  

@bug_gwen

I'm a bug AND a feature! I do bug outreach and write about science. Part of @ento_allies. Tweets personal/do not represent employers etc etc yadda yadda

Low Earth Orbit, Indiana · bit.ly/GwenPearson

TWEETS	FOLLOWING	FOLLOWERS	LISTED		
35,764	801	14,681	971		

Followed by [Ivan Oransky](#), [NESCent](#), [Ginger Pinholster](#) and [more](#).

 USER  MENTIONS  LISTS  COLLECTIONS  LIKES

Skill does matter

Science communication toolkit

- Listening
 - and experimenting with new ways to do science



gardenroots
The Arizona Garden Project



Jonathan Eisen ✓

@phylogenomics

Prof. @UCDavis; Guardian of Microbial Diversity; #OpenScience & #STEMDiversity fan; past: @harvard @stanford @johnshopkins

📍 Davis, CA

🌐 phylogenomics.wordpress.com



Kevin Esvelt

@kesvelt

Sculpting evolution & promoting responsive science, MIT Media Lab.

📍 Cambridge, MA

🌐 sculptingevolution.org



Opportunity knocks

- Encourage your students to be creative and improvisational communicators
- Support and learn from your institution's research communications staff

Opportunity knocks

- Take advantage of opportunities to write and engage with varied audiences in accessible and conversational modes

(and be sure to support student initiatives!)



Making Science Communication A Conversation

About ComSciCon

The Communicating Science Workshop series provides a unique professional development opportunity to graduate students



The new world of science communication

is

richer

scarier

and

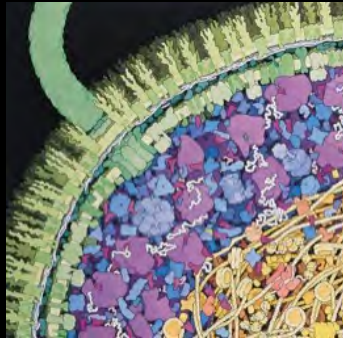
full of potential for connecting science
to important and diverse communities

The new world of science communication

“Every young scientist in this room should be talking to people about what they do, why it matters, and why they should care... Reach out. Talk to people. And maybe listen to people.”

Michael Specter, *The New Yorker*
[Stanford Bio-X Seminar](#)
September 28, 2016

Only converse!



Thank you.

ros@casw.org • @rosreid

Science communication links

Images and text in this file are hyperlinked to sites referred to in the talk. Only click!

Additional links for improving your science communication skills:

- [COMPASS](#), a nonprofit organization promoting effective engagement of scientists on environmental topics
- [AAAS Mass Media Fellowships](#), a great experience for students and postdocs
- [CASW Showcase](#), the best science writing curated and annotated
- [Alan Alda Center for Communicating Science](#)