Media Literacy

School of Computer Science
Carnegie Mellon University

Ardon Shorr
Jesse Dunietz

1

We have some reasonable concerns

2

Astrobiology. 2018 Feb;18(2):207-223. doi: 10.1089/ast.2017.1649. Epub 2018 Jan 10.

Astrovirology: Viruses at Large in the Universe.

Berliner AJ[1], Mochizuki T[2], Stedman KM[3].

Author information

Abstract

Viruses are the most abundant biological entities on modern Earth. They are highly diverse both in structure and genomic sequence, play critical roles in evolution, strongly influence terran biogeochemistry, and are believed to have played important roles in the origin and evolution of life. However, there is yet very little focus on viruses in astrobiology. Viruses arguably have coexisted with cellular life-forms since the earliest stages of life, may have been directly involved therein, and have profoundly influenced cellular evolution. Viruses are the only entities on modern Earth to use either RNA or DNA in both single- and double-stranded forms for their genetic material and thus may provide a model for the putative RNA-protein world. With this review, we hope to inspire integration of virus research into astrobiology and also point out pressing unanswered questions in astrovirology, particularly regarding the detection of virus biosignatures and whether viruses could be spread extraterrestrially. We present basic virology principles, an inclusive definition of viruses, review current virology research pertinent to astrobiology, and propose ideas for future astrovirology research foci. Key Words: Astrobiology-Virology-Biosignatures-Origin of life-Roadmap. Astrobiology 18, 207-223.

PMID: 29319335 DOI: 10.1089/ast.2017.1649

3

Astrobiology. 2018 Feb;18(2):207-223. doi: 10.1089/ast.2017.1649. Epub 2018 Jan 10.

Astrovirology: Viruses at Large in the Universe.

Berliner AJ[1], Mochizuki T[2], Stedman KM[3].

Author information

Abstract

Viruses are the most abundant biological entities on modern Earth. They are highly diverse both in structure and genomic sequence, play

unanswered questions in astrovirology, particularly regarding the detection of virus biosignatures

the earliest stages of life, may have been directly involved therein, and have profoundly influenced cellular evolution. Viruses are the only entities on modern Earth to use either RNA or DNA in both single- and double-stranded forms for their genetic material and thus may provide a model for the putative RNA-protein world. With this review, we hope to inspire integration of virus research into astrobiology and also point out pressing unanswered questions in astrovirology, particularly regarding the detection of virus biosignatures and whether viruses could be spread extraterrestrially. We present basic virology principles, an inclusive definition of viruses, review current virology research pertinent to astrobiology, and propose ideas for future astrovirology research foci. Key Words: Astrobiology-Virology-Biosignatures-Origin of life-Roadmap. Astrobiology 18, 207-223.

PMID: 29319335 DOI: 10.1089/ast.2017.1649

4

5

We have some reasonable concerns
though they happen rarely

6

"When scientists complain
about the way their stories were covered
it's because they've not delivered any message
and left the journalists
to think up one for themselves.

Natasha Loder

7

"**A ship in port is safe
but that's not what ships
are built for.**

Grace Hopper

8

Talking about research is mostly beneficial

Articles covered in popular press receive
73% more citations

[1] Importance of the Lay Press in the Transmission of Medical Knowledge to the Scientific Community. Phillips *et al*., N Engl J Med 1991

[2] "Diffusion of News About Research," Science Communication Kiernan 2003

9

Media Literacy

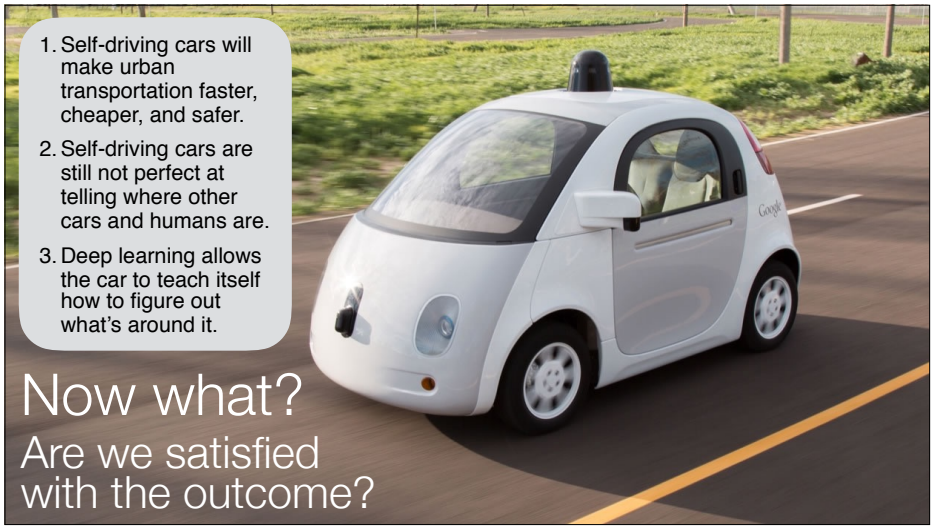
Practice interviews
Goal-driven communication
Break
Distilling your message
Crafting a narrative
Mechanics of interviewing

10

Media Literacy

Practice interviews
Goal-driven communication
Break
Distilling your message
Crafting a narrative
Mechanics of interviewing

11



12

It's hard to hit a target
when you're not aiming

13

Unless we set explicit goals,
we risk not having an impact

14

Which points you include depends on your goal

Default

- Self-driving cars will make urban transportation faster, cheaper, and safer.
- Self-driving cars are still not perfect at telling where other cars and humans are.
- Deep learning allows the car to teach itself how to figure out what's around it.

Influence public sentiment

- Self-driving cars will make urban transportation faster, cheaper, and safer.
- What matters is whether self-driving technology is safer than humans.
- Self-driving cars will drastically improve mobility for the elderly and disabled.

Temper expectations

- It will be many years before fully driverless cars are commonplace.
- Initial deployments will be constrained to limited scenarios.

15

Which points you include depends on your goal

Influence public sentiment

- Self-driving cars will make urban transportation faster, cheaper, and safer.
- What matters is whether self-driving technology is safer than humans.
- Self-driving cars will drastically improve mobility for the elderly and disabled.

Temper expectations

- It will be many years before fully driverless cars are commonplace.
- Initial deployments will be constrained to limited scenarios.

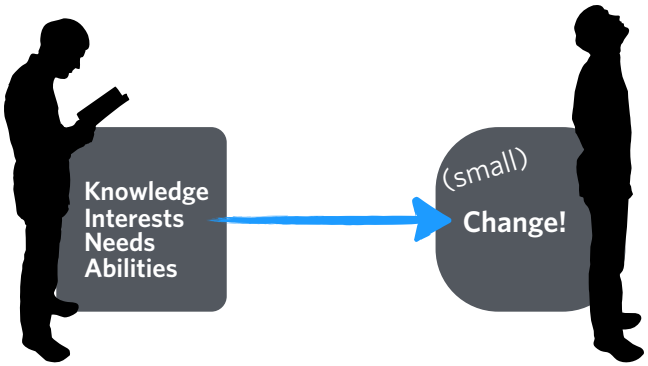
Entertain

- The software can be confused by silly things like stop signs on school buses.
- The car pulls together information from lasers, radar, and cameras to build a 3D model of the world.

16

17

Making a change
means knowing where the audience is starting



18

A tool to articulate goals:

	From	To
Think		
Do		

19

A tool to articulate goals:
Improve sentiment about self-driving cars

	From	To
Think	Self-driving cars are dangerous Their biggest problem is ethics They will kill me to save a pedestrian	The question is whether they're safer than humans Their biggest problem is unpredictable circumstances
Do	Avoid using Oppose adoption	Ride in self-driving cars Endorse regulations allowing them on the road

20

You could have many larger goals

Advocacy
Give context for current events
Influence public sentiment
Advocate for policy change
Show how science affects them

Recreational learning
Inspire awe/wonder
Entertain / support learners

Self-interest
Make yourself better-known
Get your work adopted
Raise funding
Invite citizen contributions

Science education
Support formal education
Make little baby scientists

21

Media Literacy

Practice interviews
Goal-driven communication

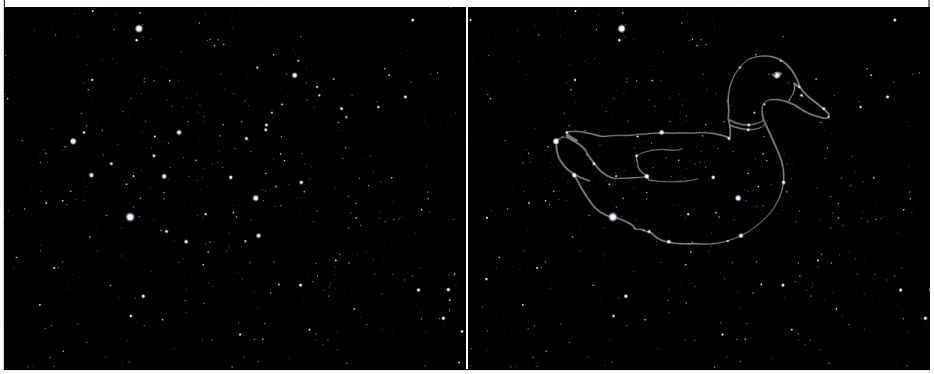
Break

Distilling your message

Crafting a narrative
Mechanics of interviewing

22

A central message provides a focal point among competing demands for attention



23

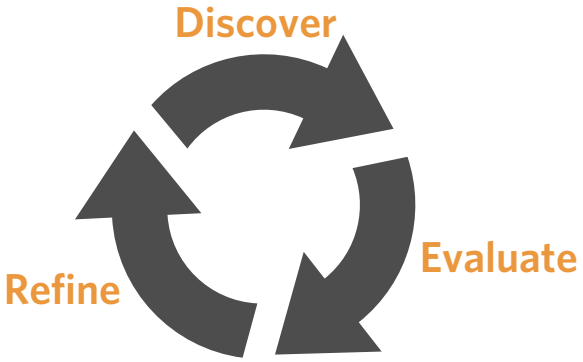
"Half-life your message" helps distill your key points

60 seconds
30 seconds
15 seconds
8 seconds

Aurbach, Prater, Patterson, & Zikmund-Fisher (2018)

24

The goal is discovery
not a perfect soundbite



25

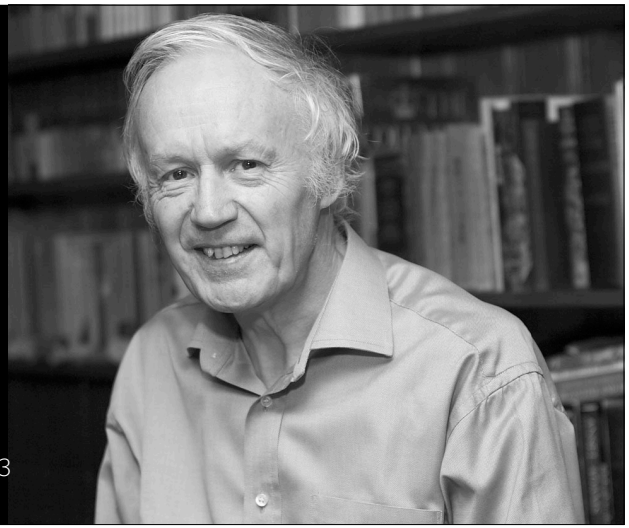
Media Literacy

- Practice interviews
- Goal-driven communication
- Break
- Distilling your message
- Crafting a narrative
- Mechanics of interviewing

26

Why doesn't this work for NPR?

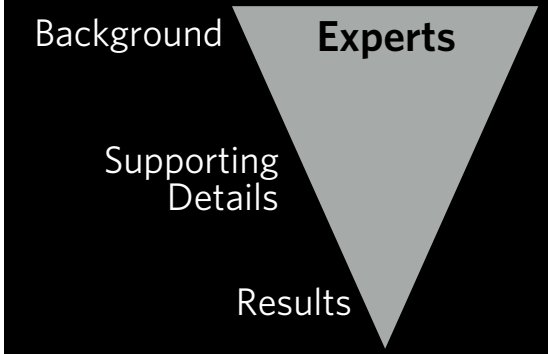
Why do you think he answered this way?



Anthony Leggett
Nobel Prize in Physics, 2003
Raw interview with NPR

27

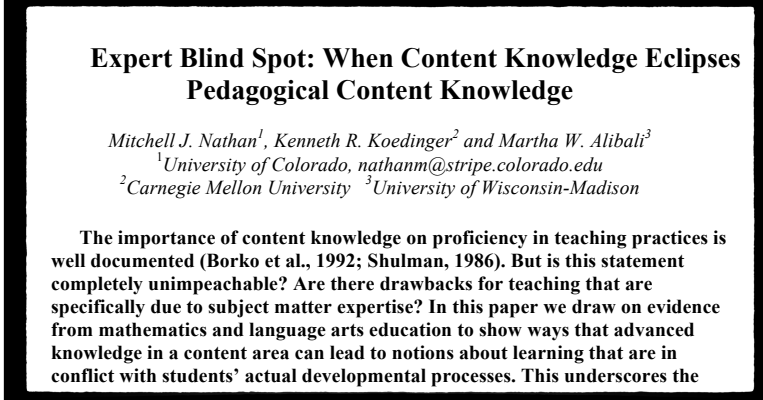
Communication is hard because
we're trained to establish credibility and nuance



Somerville and Hassol 2011. Communicating the Science of Climate Change

28

Communication is hard because we're blind to what our audience knows



Expert Blind Spot: When Content Knowledge Eclipses Pedagogical Content Knowledge

Mitchell J. Nathan[1], Kenneth R. Koedinger[2] and Martha W. Alibali[3]
[1]University of Colorado, nathanm@stripe.colorado.edu
[2]Carnegie Mellon University [3]University of Wisconsin-Madison

The importance of content knowledge on proficiency in teaching practices is well documented (Borko et al., 1992; Shulman, 1986). But is this statement completely unimpeachable? Are there drawbacks for teaching that are specifically due to subject matter expertise? In this paper we draw on evidence from mathematics and language arts education to show ways that advanced knowledge in a content area can lead to notions about learning that are in conflict with students' actual developmental processes. This underscores the

29

Stories can be an antidote they prompt us to include critical information

- **Goal**
- **Obstacle**
- **Approach**
- **Result**

} Elements of a compelling story

30

Research can fit into a storytelling template

Goal	Problem you're trying to solve
Obstacle	Why it's difficult
Approach	Your approach
Result	Results (so far)
Benefit	Progress on the problem

31

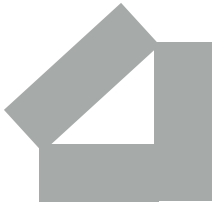
We can tell stories about algorithms

Goal	Computers should understand language!
Obstacle	Language is weird and unpredictable
Approach	Machine learning, maybe?
Result	Slowly approaching the level of a 3-year-old
Benefit	A digital assistant that actually gets me

32

Goal Start with what's at stake

What's the problem?
Why do you care?
Negative space



33

Goal, but **Obstacle**

is a series of parallel statements to connect your work into a big picture problem

We want [**Goal**], but [**obstacle**].

Solving the obstacle becomes the new goal

We want to [**solve obstacle**], but [**more detailed obstacle**].

34

Goal	**Killing cancer cells** usually **hurts the surrounding tissue**.
Obstacle	**Specifically targeting** cancer cells is hard because cancer **disguises immune signals.**
Obstacle	We've tried to **inject T-cells that recognize cancer**, but these T-cells don't **last very long** in the body.
Obstacle	
Approach	We found **a new method**
Result	**to add persistent T-cells.**
Benefit	This resulted in **specifically killing leukemia tumors.**

35

Stories move vertically in **detail**
And horizontally in **solving problems**

Big picture

Detail

Goal
What we want is not what we have

Obstacle
Here's how we see the problem

Approach
Here's how we try to solve it

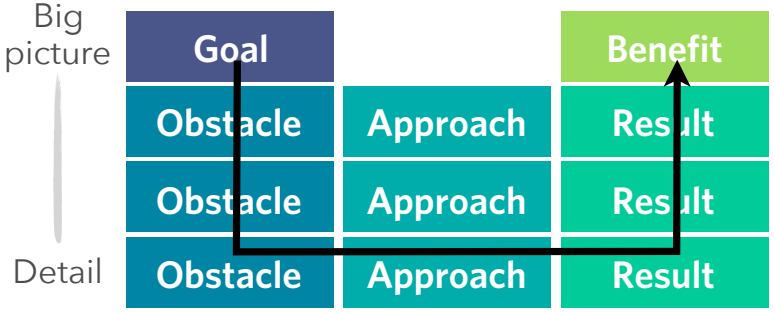
Result
What we found

Benefit
A better world

Problem → Solution

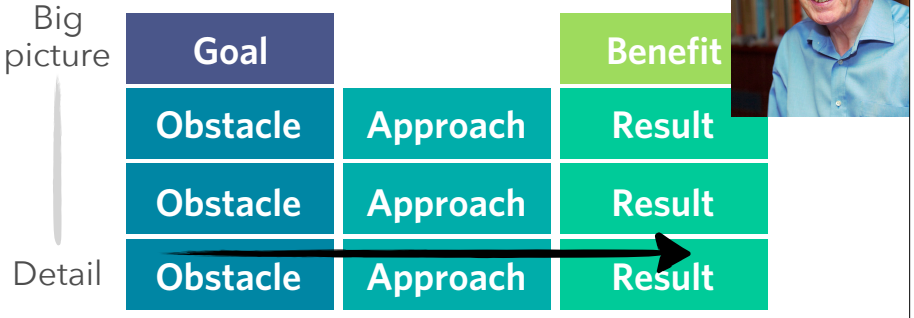
36

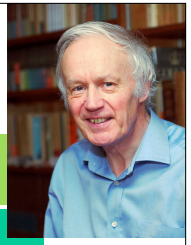
Different explanations are different paths through the same idea-space



37

Leggett's path was disconnected from motivation and payoff





38

In Search of the Dream Team: Temporally Constrained Multi-Armed Bandits for Identifying Effective Team Structures

Sharon Zhou, Melissa Valentine, Michael S. Bernstein
Stanford University
sharonz@cs.stanford.edu, mav@stanford.edu, msb@cs.stanford.edu

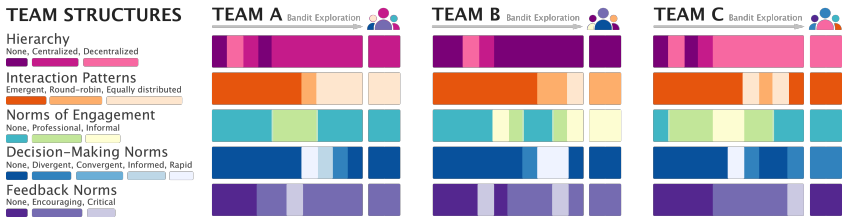


Figure 1. Each team succeeds under different roles, norms, and interaction patterns: there are no universally ideal team structures. The DreamTeam system exposes teams to a series of different team structures over time to identify effective structures for each team, based on feedback. We introduce multi-armed bandits with temporal constraints to guide this exploration without overwhelming teams in a deluge of simultaneous changes.

39

Goal
Obstacle
Obstacle
Obstacle
Approach
Result
Benefit

Team structures—roles, norms, and interaction patterns— define how teams work. HCI researchers have theorized ideal team structures and built systems nudging teams towards them, such as those increasing turn-taking, deliberation, and knowledge distribution. However, organizational behavior research argues against the existence of universally ideal structures. Teams are diverse and excel under different structures: while one team might flourish under hierarchical leadership and a critical culture, another will flounder.

In this paper, we present *DreamTeam*: a system that explores a large space of possible team structures to identify effective structures for each team based on observable feedback. To avoid overwhelming teams with too many changes, DreamTeam introduces *multi-armed bandits with temporal constraints*: an algorithm that manages the timing of exploration–exploitation trade-offs across multiple bandits simultaneously.

A field experiment demonstrated that DreamTeam teams outperformed self-managing teams by 38%, manager-led teams by 46%, and teams with unconstrained bandits by 41%. This research advances computation as a powerful partner in establishing effective teamwork.

40

Goal	Good team work requires good team rules. We want to nudge people to use the best team rules.
Obstacle	But maybe there is no universally ideal team rules
Goal	So we want to explore a large space of team rules
Obstacle	But involves overwhelming change
Goal	To make changes that aren't overwhelming,
Approach	We're limiting the amount of changes
Result	This outperforms other forms of management
Benefit	Computation can help us do our best team work

41

We're solving problems at many levels

Goal	**Approach**	**Result**
Working in teams can be productive or awful		
There isn't an ideal set of rules for every team	We come up with custom rules	Our teams solve puzzles 46% better

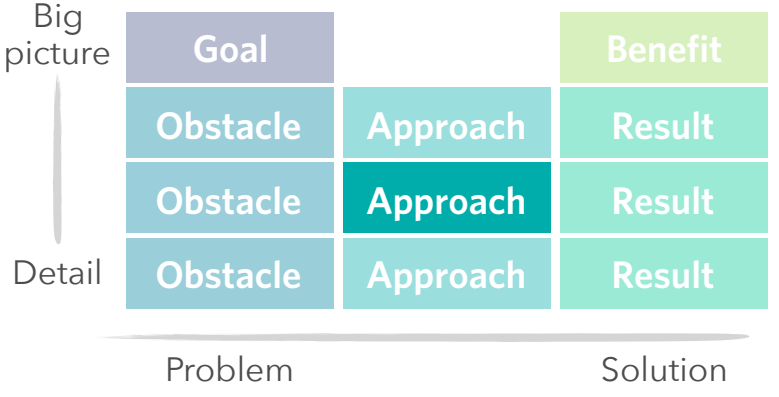
42

We're solving problems at many levels

Goal	**Approach**	**Result**
Working in teams can be productive or awful	We figured out a way…	to help teams work better
There isn't an ideal set of rules for every team	We come up with custom rules	Our teams solve puzzles 46% better
We can't try all the combinations of rules	limit the number of changes you make	In 40 cycles we found good dynamics
…	…	…
The tolerance for change changes over time	$y \propto (t - T/2)^2$ increase likelihood of changes during the middle.	We limited the number of changes at each time

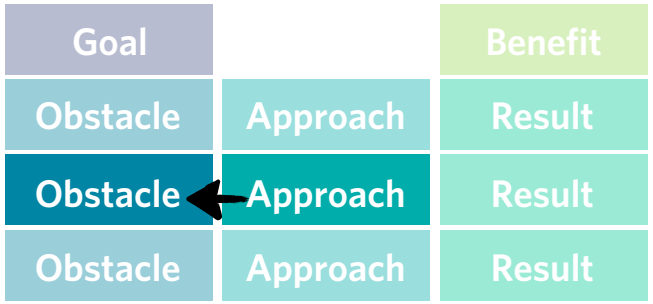
43

Tell the story with a U-shape, Build the story middle-out



44

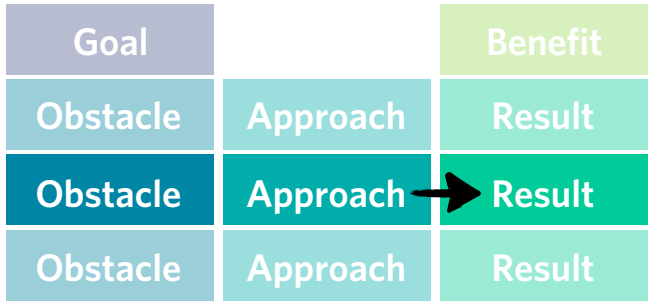
To fill in the gaps, ask yourself these questions:



"What problem does that solve?"

45

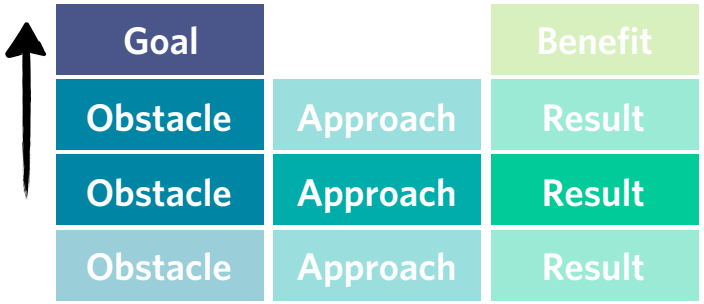
To fill in the gaps, ask yourself these questions:



"What happens when we do that?"

46

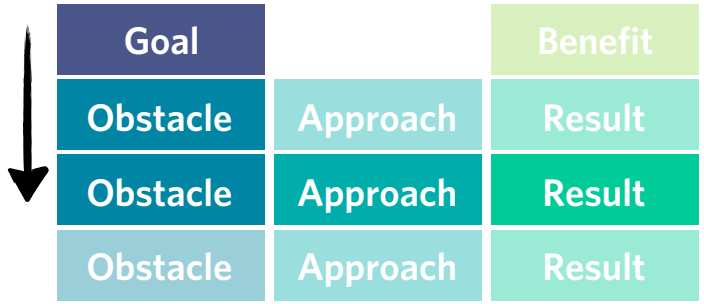
To fill in the gaps, ask yourself these questions:



"Why do you want to solve that problem?"

47

To fill in the gaps, ask yourself these questions:



"Why is that hard? Why hasn't it been done?

48

To fill in the gaps, ask yourself these questions:

Goal		Benefit
Obstacle	Approach	Result
Obstacle	Approach	Result
Obstacle	Approach	Result

"What are the benefits of that solution?"

49

To fill in the gaps, ask yourself these questions:

Why do you want to solve that problem?

Why is that important?

Goal

What do you do?

Benefit

Obstacle → Approach → Result

What problem does that solve?

What do you find?

50

Focus on the meaning behind the details

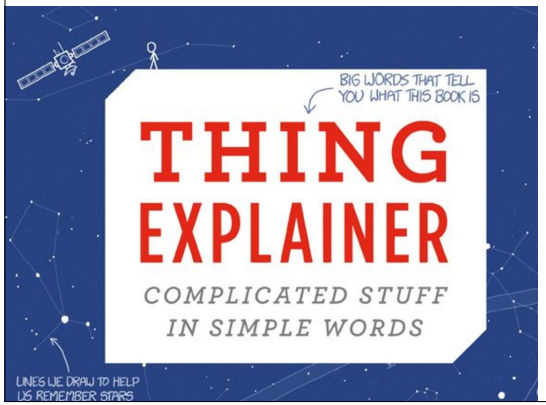
"Excitation was restricted to a femtoliter volume" ▶ We eliminated a major source of noise

"Trivalent nitrogen bonds contain 945 kJ/mol" ▶ Nitrogen clings so tightly to itself, nobody knew if it could be pried apart

"I'm building an annotated corpus" ▶ I'm collecting examples to show the computer what to look for

51

Focus on the meaning behind the details



Tiny bags of water you're made of

Boxes that make clothes smell better

Shape checker

52

Some terms have a different general meaning

Scientific term	Public meaning	Better choice
enhance	improve	intensify, increase
positive trend	good trend	upward trend
positive feedback	praise	self-reinforcing cycle
theory	hunch, speculation	scientific understanding
uncertainty	ignorance	range
error	mistake, wrong, incorrect	difference from exact true number
bias	distortion, political motive	difference from a measurement
sign	indication, astrological sign	plus or minus sign
values	ethics, monetary value	numbers, quantity
manipulation	illicit tampering	scientific data processing
anomaly	abnormal occurrence	change from long-term average

Somerville and Hassol 2011. Communicating the Science of Climate Change

53

54

Media Literacy

Practice interviews
Goal-driven communication

Break

Distilling your message
Crafting a narrative
Mechanics of interviewing

55

Mechanics of interviewing

1. Before the interview
2. During the interview
3. After the interview
4. Seeking out press

56

1. Before the interview

Find out about your audience

Distill your message,
then prepare points to support it

Practice, practice, practice

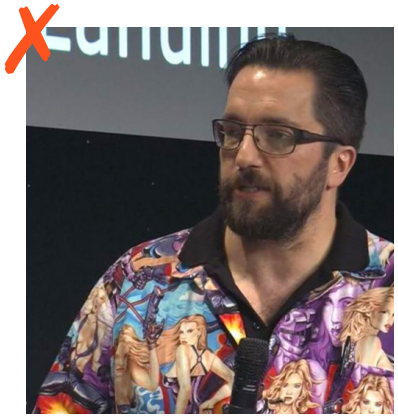
57

2. During the interview

Have a warm, friendly conversation

Incorporate the question into your answers

Look and sound professional



58

3. After the interview

Follow up on any questions

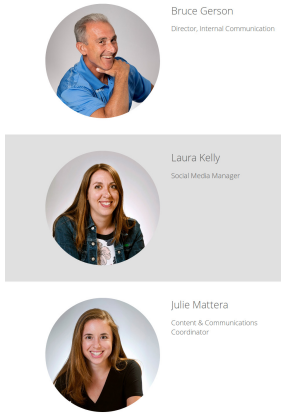
Don't expect to check a draft

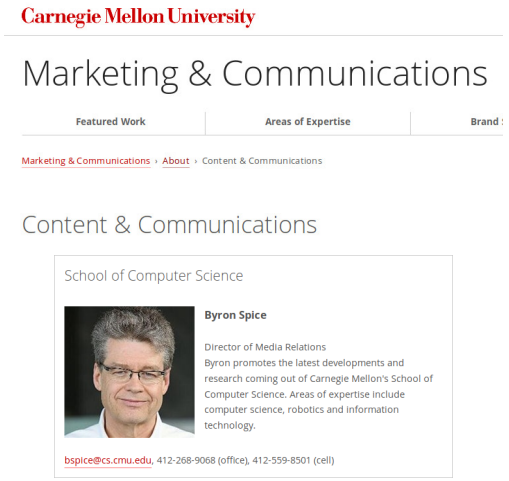
Do expect to be sent the final piece

Do let them know (nicely!)
if they got something wrong

59

4. Seeking out press





60

Tell them what makes it **newsworthy**

Proximity	Timeliness
Prominence	Conflict
Impact	Human interest

61

Mechanics of interviewing

1. Before the interview
   Distill your message, prepare vivid examples and metaphors
2. During the interview
   Have a friendly, professional conversation
3. After the interview
   Follow up, build a relationship
4. Seeking out press
   University marketing is your friend, consider what's newsworthy

62

Media Literacy

Practice interviews
Goal-driven communication

Break

Distilling your message
Crafting a narrative
Mechanics of interviewing

63

Media Literacy

School of Computer Science
Carnegie Mellon University

Ardon Shorr
Jesse Dunietz

64

Media Literacy

School of Computer Science
Carnegie Mellon University

Ardon Shorr
Jesse Dunietz

1

Part 1: Articulate your message

- Goal-driven communication
- Distilling your message
- Crafting a narrative
- Mechanics of interviewing

2

Goal-driven communication

Which points you include depends on your goal

Default

- Self-driving cars will make urban transportation faster, cheaper, and safer.
- Self-driving cars are still not perfect at telling where other cars and humans are.
- Deep learning allows the car to teach itself how to figure out what's around it.

Influence public sentiment

- Self-driving cars will make urban transportation faster, cheaper, and safer.
- What matters is whether self-driving technology is safer than humans.
- Self-driving cars will drastically improve mobility for the elderly and disabled.

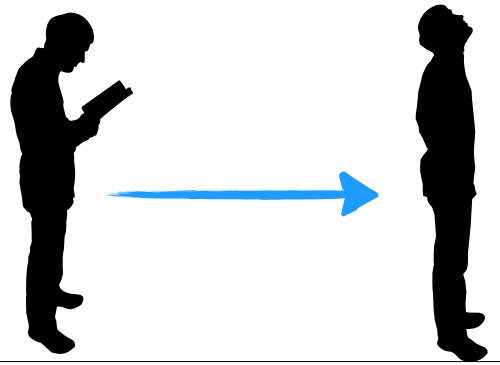
Temper expectations

- It will be many years before fully driverless cars are commonplace.
- Initial deployments will be constrained to limited scenarios.

3

Goal-driven communication

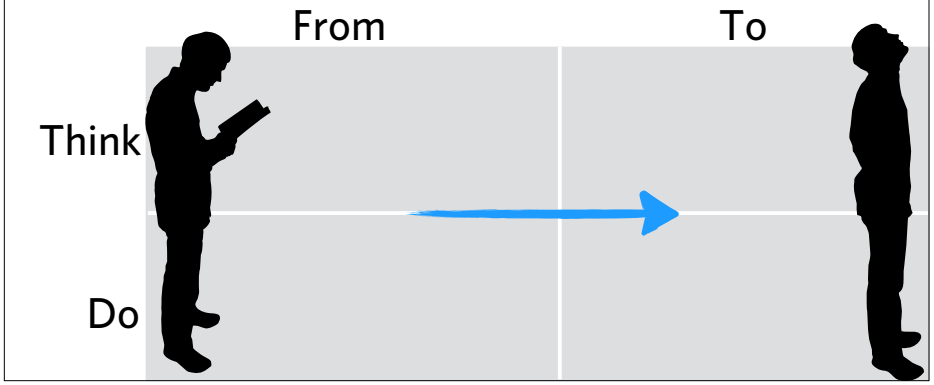
Goals are about changes in the audience



4

Goal-driven communication

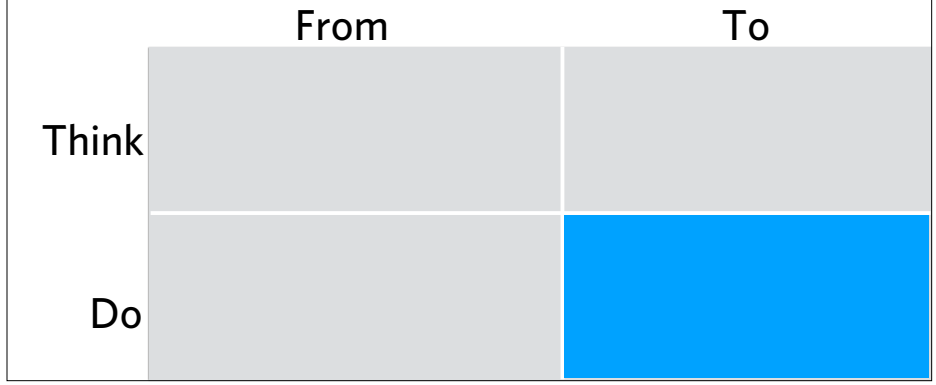
A tool to articulate goals



5

Goal-driven communication

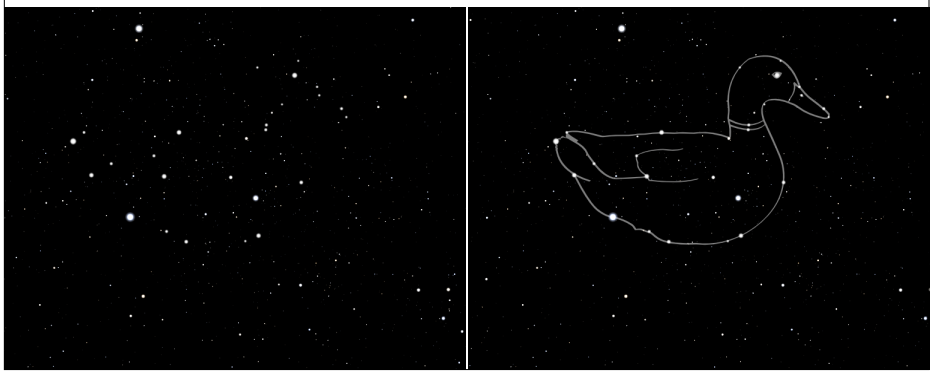
A tool to articulate goals



6

Distilling your message

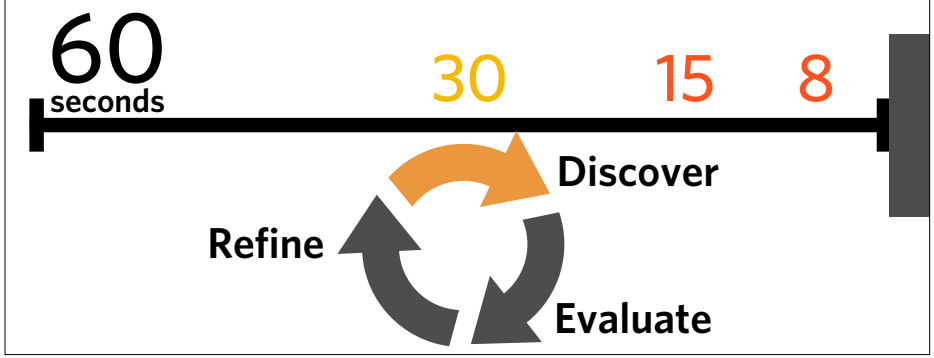
Don't point at stars, name the constellation



7

Distilling your message

Half-life your message is a tool of discovery



8

Crafting a narrative

Stories prompt us to include critical information

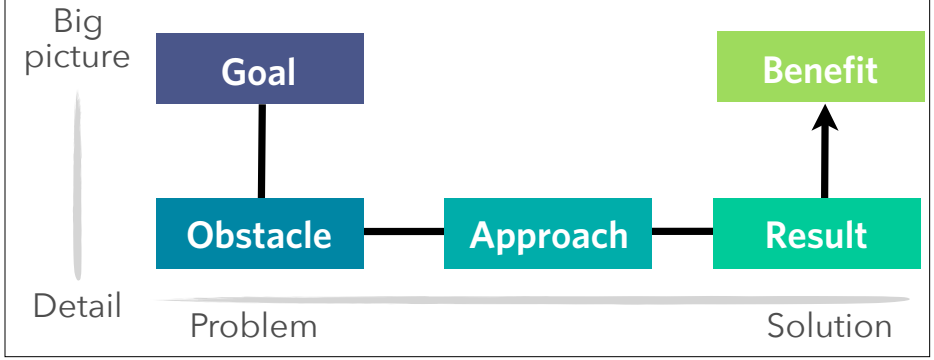
Goal
Obstacle
Approach
Result
Benefit

Elements of a compelling story

9

Crafting a narrative

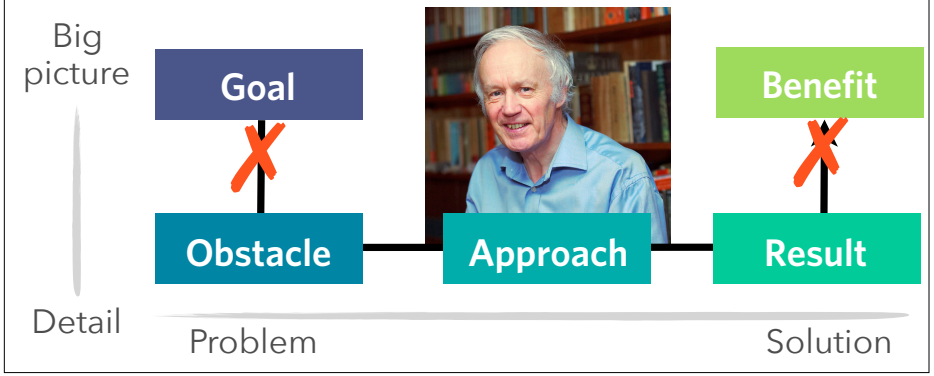
We can think of alternate paths through a 2D story



10

Crafting a narrative

Broken paths lead to failed communication



11

Crafting a narrative

12

Mechanics of interviewing

Preparing for a media interview

Cultured.Fit

Interviews are opportunities to put a face to research, correct misconceptions, and engage in a conversation with the public.

Before the interview

Know your audience
- What is the news outlet or TV show?
- Who reads, listens to, or watches it?

Know your journalist
- You can even ask them what they want to know. What will the interview focus on?
- What angles have previous pieces taken?

Distill your message
- Decide on 1-3 main points you want to get across and how you will present them.

Identify your story
- What's surprising, exciting, difficult, or upsetting about your subject?

Prepare vivid examples
- Back up each of your main ideas with examples, stories, metaphors, quotes.

Why is this important?
- Answer the "so what?" question.
- Why should the listener care about it?
- Why do *you* care about it?

Anticipate tough questions
- Every field has parts that make some people uncomfortable. Are you doing research on animals? What are you doing with my personal information? Are you going to create a black hole?
- They are often asking: can I trust you?

13

Part 2: Be Compelling

- Art of the sound bite
- Navigating social factors
- Fielding challenging questions
- Workshopping answers

14

Part 2: Be Compelling

- Art of the sound bite
- Navigating social factors
- Fielding challenging questions
- Workshopping answers

15

16

A good sound bite
packs many implications
into a few memorable words.

17

A good sound bite
packs many implications
into a few memorable words.

Triples	Medical negligence cases are now **more frequent, more expensive, and more expertly argued** than ever before.
Contrasts	Ask **not** what your country can do for you, **but** what you can do for your country.
Absolutes/ superlatives	This is **the strongest material** humans have **ever** created.
Unexpected twists on the familiar	Never put off until tomorrow what you can **avoid doing altogether**.

18

A good sound bite
packs many implications
into a few memorable words.

Your analogy

Audience's Associations

19

Sideways Dictionary: "It's like a dictionary, but using analogies instead of definitions"

Please Explain

2 Factor Authentication
API
Access Control List
Ad Blocking

Sideways Dictionary Login About

20

Sideways Dictionary: “It's like a dictionary, but using analogies instead of definitions"

Which analogy works best? Why?

When might a different one be better?

What properties make an analogy better or worse?

21

A strong analogy…

…captures the key insight(s)

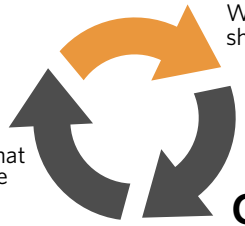
…avoids distracting implications

…relies on familiar, concrete objects

…is simpler than the target concept

22

To generate analogies, identify, generate, and reconcile



Identify
What properties & associations should the analogy have?

Generate
Search for familiar phenomena that share the desired properties

Reconcile
Articulate properties that are captured, and those revealed to be missing

23

Pick a term closely related to your field to generate an analogy for

Agile development
Mechanism design
Optimizing compiler
Eventual consistency
Streaming algorithm
Markov decision process
Receding horizon control

Generative model
Sequence alignment
Integer linear models
Convex hull
Bezier curves
Network address translation
Memory cache
Convolutional Neural Network

24

Part 2: Be Compelling

Art of the sound bite

Navigating social factors

Fielding challenging questions

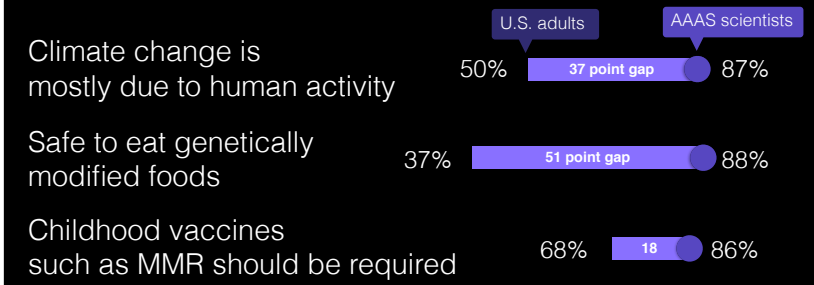
Workshopping answers

25

Navigating social factors

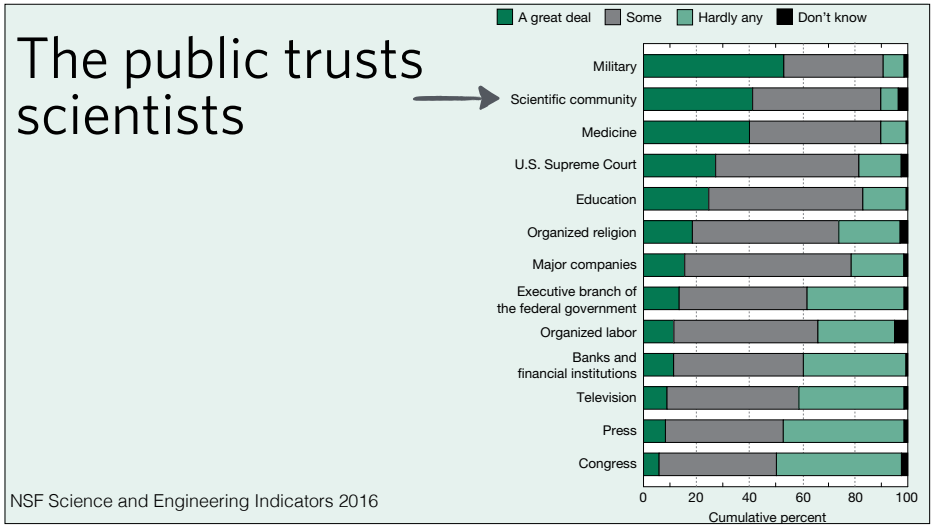
26

There's a large gap between the public and scientists



27

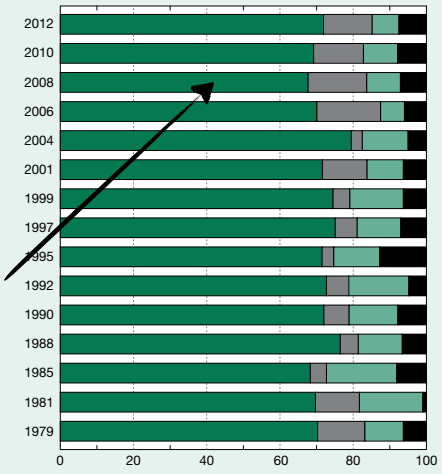
The public trusts scientists



28

The public trusts research

"Climategate"



NSF Science and Engineering Indicators 2016

29

"You are an intensely privileged group of people.
You have more cultural, social, economic authority than any other group. You're it. You're the hegemon.

I understand that you're being harassed.
I understand that you're frustrated.
And that's a really good thing. You have a responsibility.
You have to be the adult in the room."

Mark Largent, Historian of Science

30

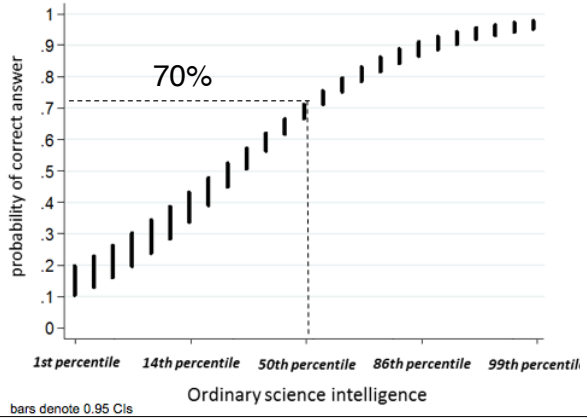
Navigating social factors

Trusting science isn't the problem

Science literacy isn't the problem

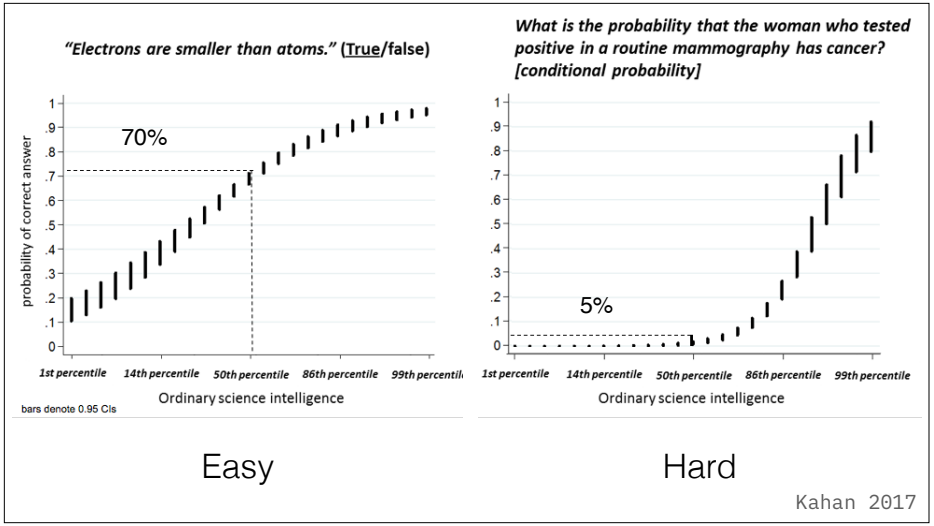
31

"Electrons are smaller than atoms." (True/false)

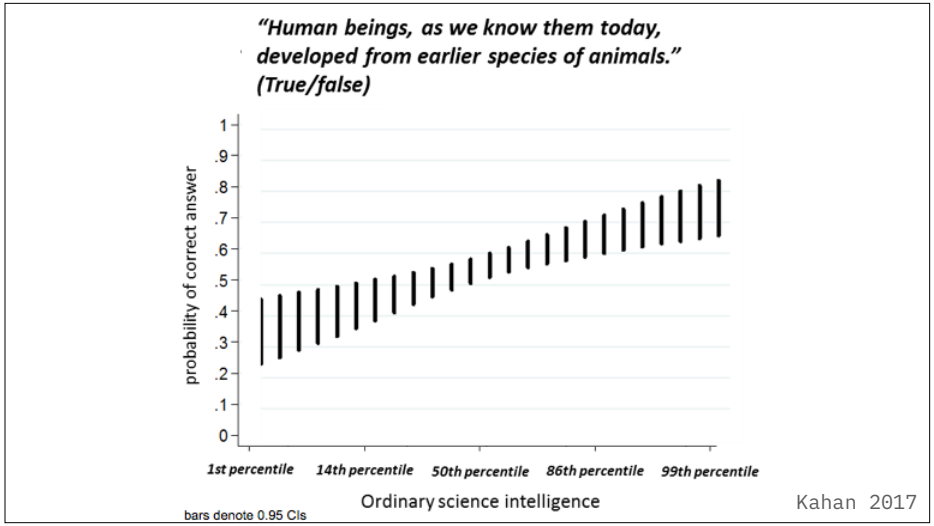


Kahan 2017

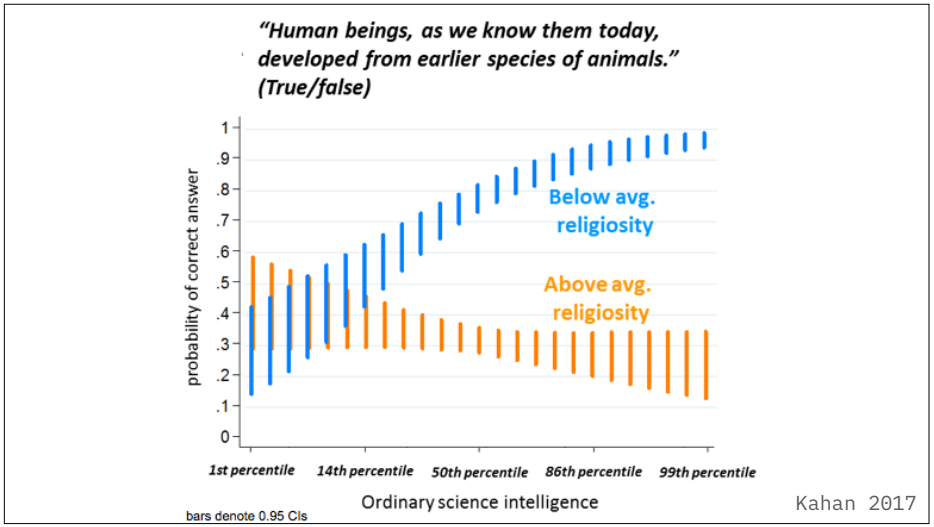
32


"Electrons are smaller than atoms." (True/false)
What is the probability that the woman who tested positive in a routine mammography has cancer? [conditional probability]
probability of correct answer
70%
5%
1st percentile
14th percentile
50th percentile
86th percentile
99th percentile
Ordinary science intelligence
bars denote 0.95 CIs
Easy
Hard
Kahan 2017

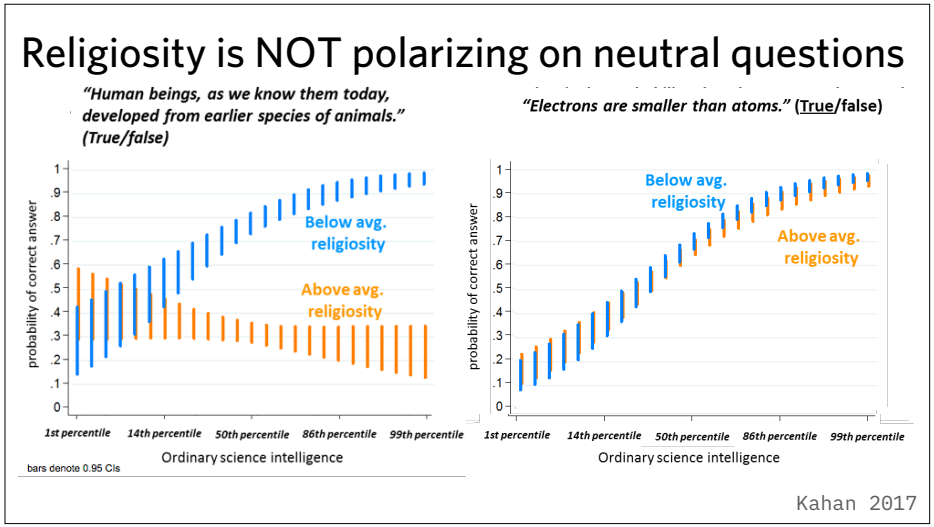
33


"Human beings, as we know them today, developed from earlier species of animals." (True/false)
probability of correct answer
1st percentile
14th percentile
50th percentile
86th percentile
99th percentile
Ordinary science intelligence
bars denote 0.95 CIs
Kahan 2017

34


"Human beings, as we know them today, developed from earlier species of animals." (True/false)
probability of correct answer
Below avg. religiosity
Above avg. religiosity
1st percentile
14th percentile
50th percentile
86th percentile
99th percentile
Ordinary science intelligence
bars denote 0.95 CIs
Kahan 2017

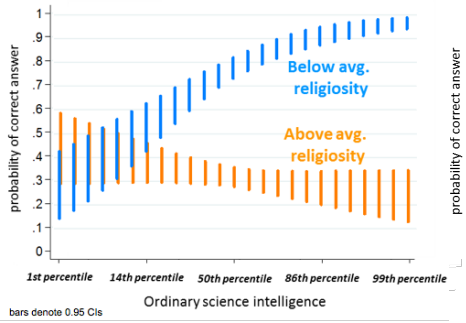
35


Religiosity is NOT polarizing on neutral questions
"Human beings, as we know them today, developed from earlier species of animals." (True/false)
"Electrons are smaller than atoms." (True/false)
probability of correct answer
Below avg. religiosity
Above avg. religiosity
1st percentile
14th percentile
50th percentile
86th percentile
99th percentile
Ordinary science intelligence
bars denote 0.95 CIs
Kahan 2017

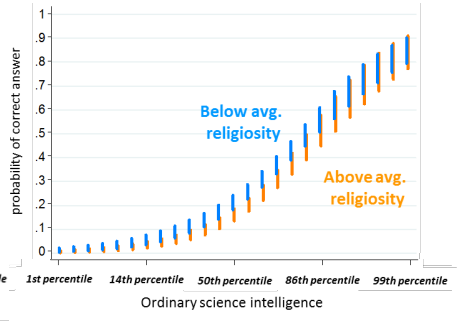
36

Religiosity is NOT polarizing on neutral questions

"Human beings, as we know them today, developed from earlier species of animals." (True/false)



"Which gas makes up most of the Earth's atmosphere?" [Hydrogen, Nitrogen, Carbon Dioxide, Oxygen]

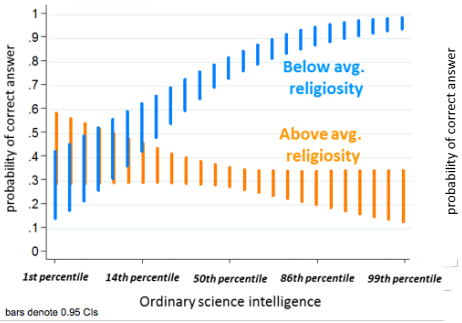


Kahan 2017

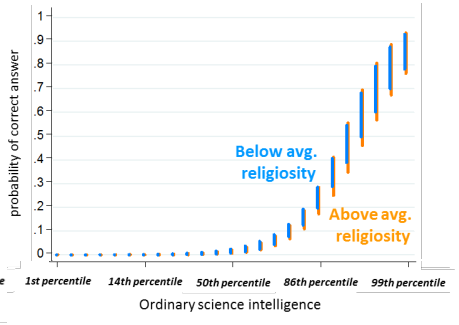
37

Religiosity is NOT polarizing on neutral questions

"Human beings, as we know them today, developed from earlier species of animals." (True/false)



What is the probability that the woman who tested positive in a routine mammography has cancer? [conditional probability]

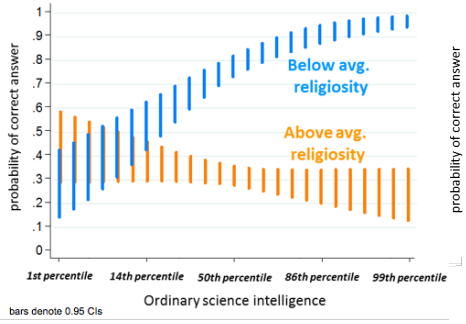


Kahan 2017

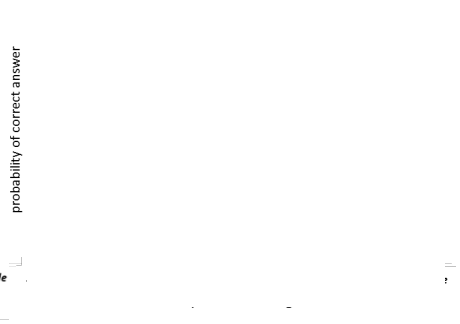
38

Religiosity is NOT polarizing on neutral questions

"Human beings, as we know them today, developed from earlier species of animals." (True/false)



"According to the theory of evolution, human beings, as we know them today, developed from earlier species of animals." (True/false)

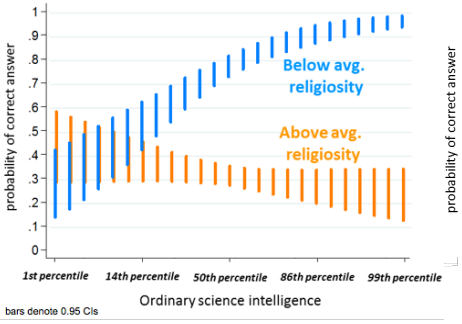


Kahan 2017

39

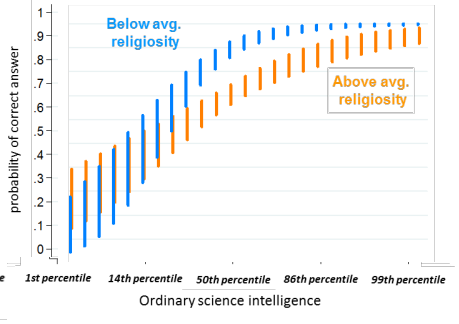
We've been measuring this all wrong

"Human beings, as we know them today, developed from earlier species of animals." (True/false)



Who we are

"According to the theory of evolution, human beings, as we know them today, developed from earlier species of animals." (True/false)

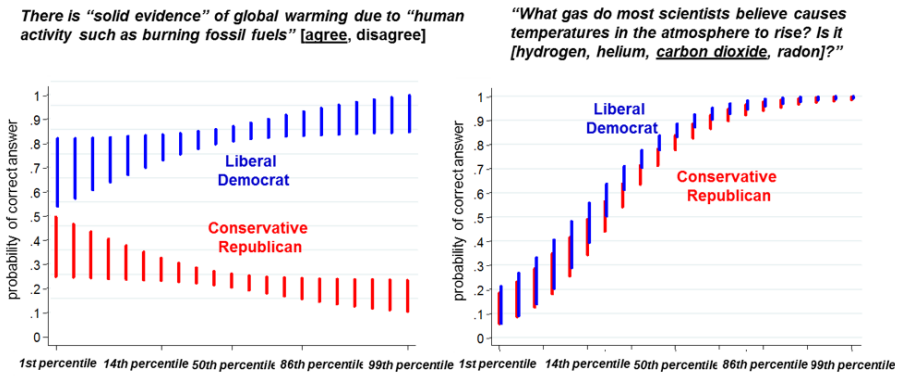


What we know

Kahan 2017

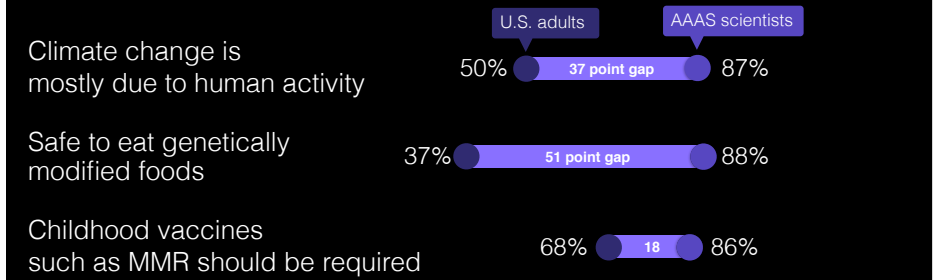
40

We've been measuring this all wrong



41

What is this measuring, exactly?



Not **what** people know
but **who** they are

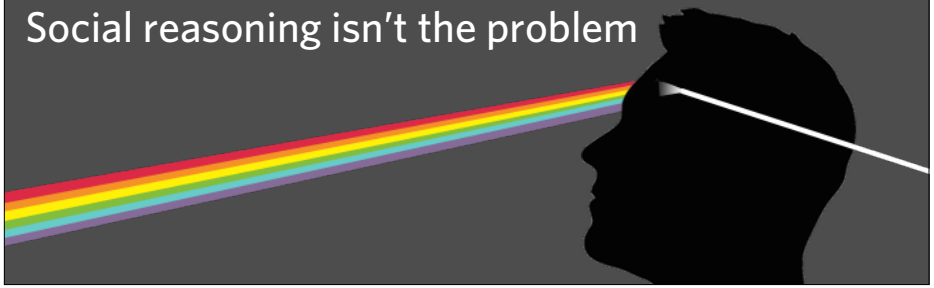
42

Navigating social factors

Trusting science isn't the problem

Science literacy isn't the problem

Social reasoning isn't the problem



43

We filter new information

Confirmatory thinking:

We selectively look for arguments we agree with

Disconfirmatory thinking:

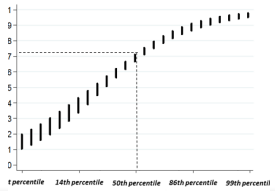
We apply a harsher standard to arguments we don't like

44

We **ALL** filter new information

regardless of our
level of education

or **political affiliation**



45

Why do we filter new information?!

it's not dishonesty
it's not (quite) irrationality

46

Motivated reasoning
makes sense
given
social & emotional factors

47

We form our beliefs based on what our social circle believes

There's a high cost to going against our social circle

48

We form our beliefs based on
how we see ourselves

There's a high cost to
rethinking our entire value system

49

We form our beliefs based on
the consequences of those beliefs

There's a high cost to
living with fear

50

We (subconsciously) do
motivated reasoning to:

align with our social circle

protect our values

protect ourselves from
perceived consequences

51

Bias is individually rational

Positions can entangle with social meaning → badges of loyalty

So while individual beliefs can't affect climate change,

they *can* ostracize you

But collectively irrational

52

Bias is individually rational

Individuals need opinions
to express their identity

Societies need opinions
to be accurate

But collectively irrational

53

54

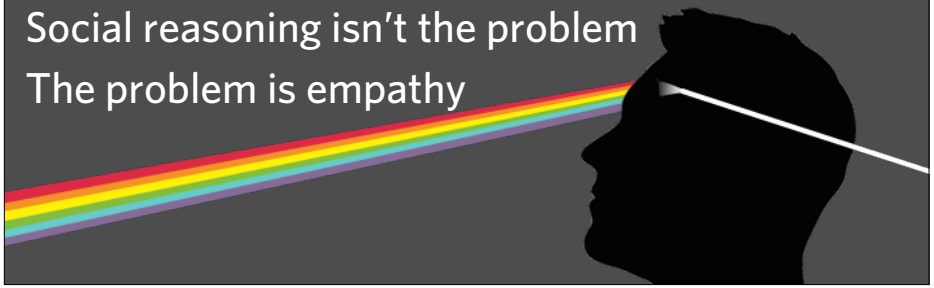
Navigating social factors

Trusting science isn't the problem

Science literacy isn't the problem

Social reasoning isn't the problem

The problem is empathy



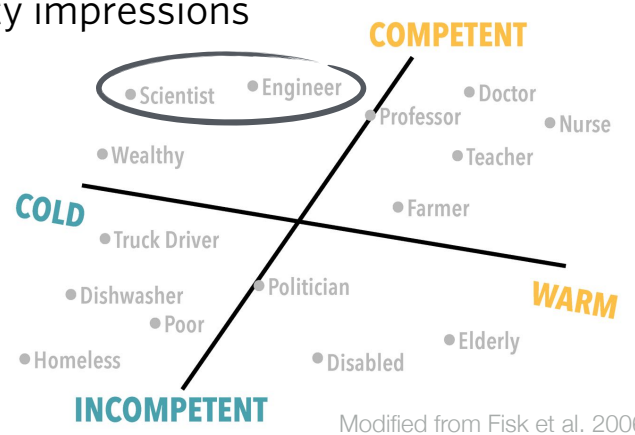
55

You can't fight a feeling
with a fact

Liz Neeley

56

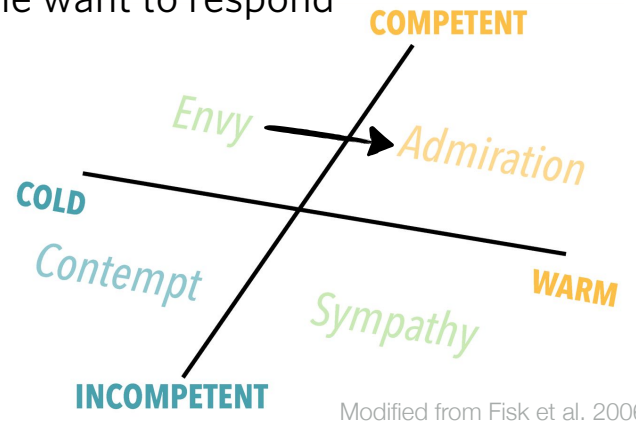
Warmth dramatically alters personality impressions



Modified from Fisk et al. 2006-2014

57

Warmth dramatically alters how people want to respond



Modified from Fisk et al. 2006-2014

58

You're already competent; now be warm*

- Tell stories of experiments with characters
- Describe the process of discovery
- Show your excitement and passion
- View challenges as requests for more information
- Model thinking like a scientist: wonder, curiosity, being wrong

59

You're already competent; now be warm*

* Social construction restrictions apply

Joanna Wolfe

Director of the Global Communication Center, Teaching Professor of English

Contact

60

Women face additional burdens

Our society expects women
to be more warm than men

And punishes too much warmth with
lowered perception of competence

61

Women face additional burdens

"Find ways to show warmth that doesn't detract from competence – **advocate for other people**, show what your research has to do for patients who are suffering, foreground societal areas and impacted individuals."

"I casually drop technical terms. On camera, **I make an active effort not to nod**, because that could get edited to make me look like I'm agreeing to something."

62

Part 2: Be Compelling

Art of the sound bite

Navigating social factors

Fielding challenging questions

Workshopping answers

63

A bridge transitions from a naïve question to an informed response

The Light Side:

Inform, add expert knowledge to the conversation, correct misconception

The Dark Side:

Avoid accountability, evade, lie

Frameworks Institute 2008: Framing Public Issues

64

A bridge transitions from a naïve question to an informed response

"How do self-driving cars make ethical decisions?"

✗ "There's a complex algorithm that takes into account…

This literal answer reinforces the message you wanted to correct

A bridge transitions from a naïve question to an informed response

"How do self-driving cars make ethical decisions?"

✗ **"While ethics is important,** self-driving cars are actually much safer than human drivers"

This answer repeats the frame. You're starting 0 for 2.

A bridge transitions from a naïve question to an informed response

"How do self-driving cars make ethical decisions?"

✓ "That's a great question. **You've hit on an important point:** human drivers kill millions of Americans each year…"

A bridge transitions from a naïve question to an informed response

"How do self-driving cars make ethical decisions?"

✓ **"The question you raise is really about safety.** Self-driving cars are 10x safer than human drivers…"

A bridge transitions from a naïve question to an informed response

"How do self-driving cars make ethical decisions?"

✓ "Ethics has gotten a lot of attention, but **the biggest threat to pedestrians hasn't gotten the attention it deserves.**

The big story about safety is that humans are lousy drivers…"

Frameworks Institute 2008: Framing Public Issues

69

A bridge transitions from a naïve question to an informed response

"My computer crashes. How can a machine driver be safe?"

✓ "If a foreign nation killed as many Americans as human drivers, we would invade them.

We've always known that driving is hard…"

Frameworks Institute 2008: Framing Public Issues

70

71

Challenging questions share common themes

Difficult social implications	Will this take away jobs?
Distraction (out of left field)	Could you solve this with a blockchain?
Personal mistrust or attack	Weren't you funded by Google?
Fallacious inference	So you're saying this is going to lay the groundwork for a world government?
I don't believe you	How could Facebook have known that if not by spying on my conversation?

72

For each person in your group:

- 30-second media-friendly research summary
- 2 minutes to generate challenging questions
  - Difficult social implications
  - Distraction (out of left field)
  - Personal mistrust or attack
  - Fallacious inference
  - I don't believe you

Fire away!
(Fail early. Fail here.)

73

74

Part 2: Be Compelling

- Art of the sound bite
- Navigating social factors
- Fielding challenging questions
- Workshopping answers

75

Media Literacy

School of Computer Science
Carnegie Mellon University

Ardon Shorr
Jesse Dunietz

76