

# Mythbusting Science Communication

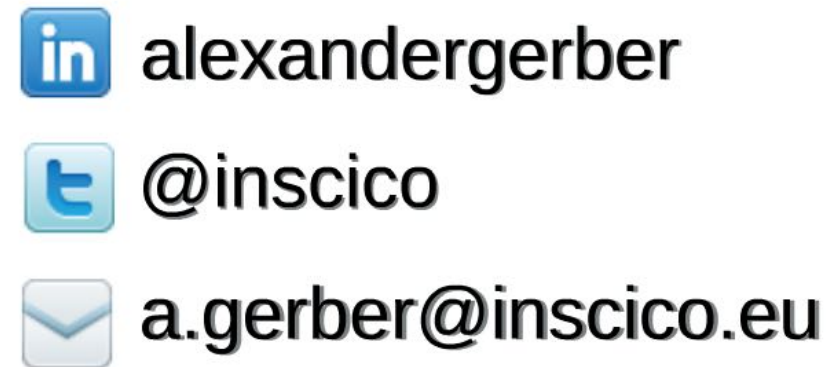
Dubin  
1 Dec 2019

[bit.ly/SciCom-2019](https://bit.ly/SciCom-2019)

Evidence-based Science Communication as a Vision for the Future

**Prof. Alexander Gerber**

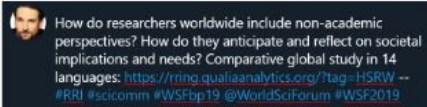
Research Director, Institute for Science & Innovation Communication  
Chair of Science Communication, Rhine-Waal University





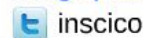
## Exercise Time ;-)

- 1 Everyone who considers themselves primarily a **scicomm practitioner** (i.e. less in policy or scicomm reserach), please stand up!
- 2 Everyone who has recently (i.e. 2019) read a **refereed paper** from the field of SciComm research, please remain standing.
- 3 Everyone who thinks that SciComm research has the potential to make practice more **effective and efficient**, please remain standing.



## Global RRI Survey

[ring.qualiaanalytics.org/?tag=HSRW](http://ring.qualiaanalytics.org/?tag=HSRW)



## Question Time ;-)

To which extent do you agree or disagree with the following statement?

If we really want to tackle the grand challenges, we must **increase** science communication further, e.g. by incentivising **more researchers** to engage, and possibly even by strengthening public engagement as a **career factor**.

Those who agreed: How do you claim to know...

- ...that more is necessarily **better**?
- ...what the 'more' is meant to **achieve**? (e.g. "Social Responsibility")
- ...which is the best approach to **achieve** this? (e.g. AIRR dimensions)

*Strongly Agree; Agree; Somewhat Agree;  
Neutral; "Wish not to tell";*

*Somewhat Disagree; Disagree; Strongly Disagree*

## Glimpses of evidence how to communicate evidence



Courtesy of: The Sackler Colloquia on the Science of Science Communication, USA

- 1

- **Motivated Reasoning & Confirmation Bias**
  - **Negativity dominance**  
("Bad is stronger than good")  
John Gottman: long-term success of a relationship depends much more on avoiding the negative than on seeking the positive.  
Good interactions need to outnumber the bad ones but at least 5 : 1.
  - **Impact on trust being built or destroyed**
  - **Cognitive Ease & Availability Bias**  
Familiarity & factual truth difficult to distinguish cognitively:  
repetition breeds liking ("Mere Exposure Effect")
  - **Framing / Priming / Anchoring**

2

- **Risk Aversion & Spiral of Silence**  
Reference points matter, i.e. whether intended behavioural change is perceived as a loss or gain (the former looms larger than the latter)
  - **Inoculation Theory:**  
Prebunking instead of debunking fake news
  - **...and much more:**  
Political Sciences (e.g. Deliberation), Sociology (e.g. Diffusion of Innovation), Economics / Philosophy / History of Science, etc.

## Evidence for Practice

- ① The EBSC Principle      ② Pathways to EBSC

**Practise what we preach: use the evidence to understand better:**

- ...how **information** is processed and sought
- ...how **attitudes** and opinions form;
- ...how **decisions** are made;
- ...which role **trust** plays?

(micro | meso | macro-level:  
i.e. individual citizens | institutions | societies at large)

- ### ③ EBSC Manifesto

1. Evidence-based practice
2. Evidence-based research
3. Assessing impact
4. **Bridging the chasm** between research and practice in science communication along the entire *Knowledge Cascade*.
5. **Mutual appreciation** of researchers and practitioners about their needs, experiences and expertise
6. Transferability
7. **Recognising applicability**: Where research results and theory can be tested in real world situations, both research and practice need incentives to engage and collaborate. More applied, or at least practice-relevant, research also requires more systematic analysis of the needs for research from the

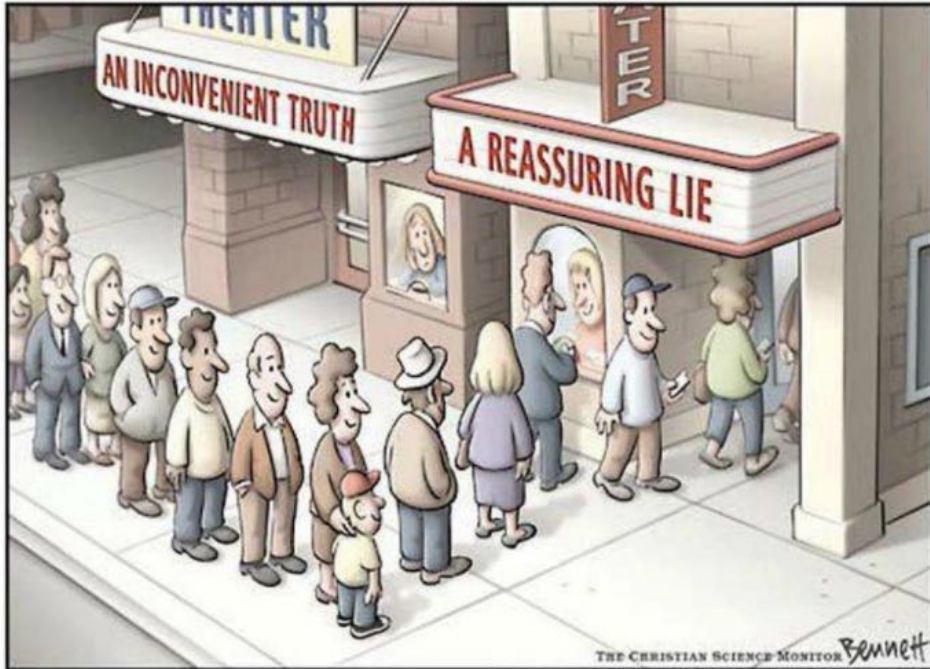
**Forthcoming journal paper** on "Evidence-based Science Communication" (Jensen & Gerber 2019) proposes a **four-stage Knowledge Cascade** for approaching evidence in Science Communication:

Determining the **relevance** of evidence  
*Once acknowledged:*  
 Making relevant evidence **accessible**  
*Once accessed:*  
 Enhancing the **transferability** of accessible evidence  
*Once transferred:*  
 Relying on **quality-assured** transferable knowledge

8. **Collaboration** to investigate and optimise science communication from within, using real-world data to develop both research and practice without compromising quality standards on either side.
9. **Revisit the *raison d'être*** for science communication: Promote important societal values such as social inclusion, good ethical practices and democratic participation through the design of science communication initiatives.
10. **Systematic reviews**
  11. **Systemic change:** Encourage informed decision-making in the selection of science communication approaches for particular settings and circumstances, backed up by funding review processes that insist on evidence-informed approaches.
  12. **Certification:** Encourage the next generation of leaders in evidence-based science communication through certification



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My personal "*I Have a Dream*" slide...

# Future Vision of SciComm

Imagine...

...the **social change** we could achieve by boosting the **effectiveness** of our work due to an increased understanding of what works!

...how **trust** could be cultivated by improving the **accountability** of programmes and funders, governments and institutions!

...the **predictive power** of making informed decisions about how to allocate resources more **efficiently**!

...**mutual learning** in a more '**reflective practice**' as an integral step in all engagement: awareness of options, openness to change

Inspired by Jensen&Gerber (2019); Gertler et al. (2016)

My personal "*How Dare You*" slide...

# Request for Reflexivity

Let's reconsider...

...the assumption that **more** scicomm is necessarily **better**!

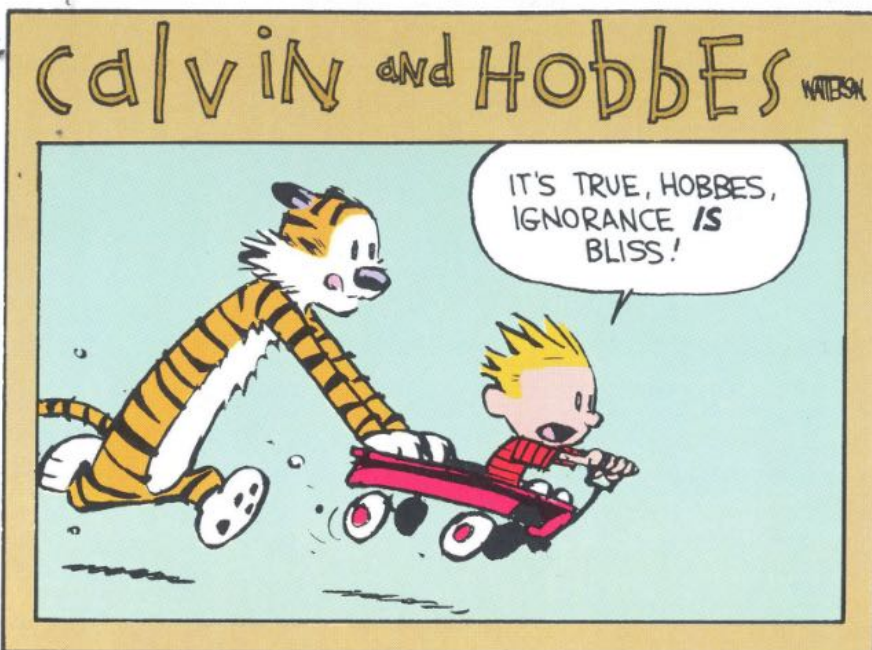
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...our obligation to **anticipate and contextualise** R&I regarding their **societal implications**

...impact **e**valuation as an obligation that is **unethical** to ignore

...similar reflexivity in **SciComm research** about its **value-systems** and approaches

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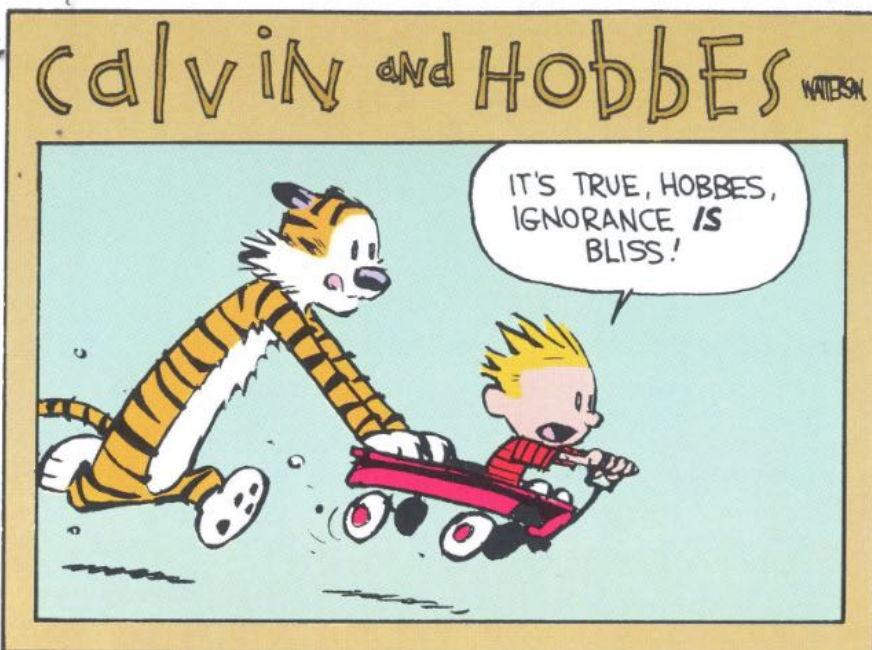
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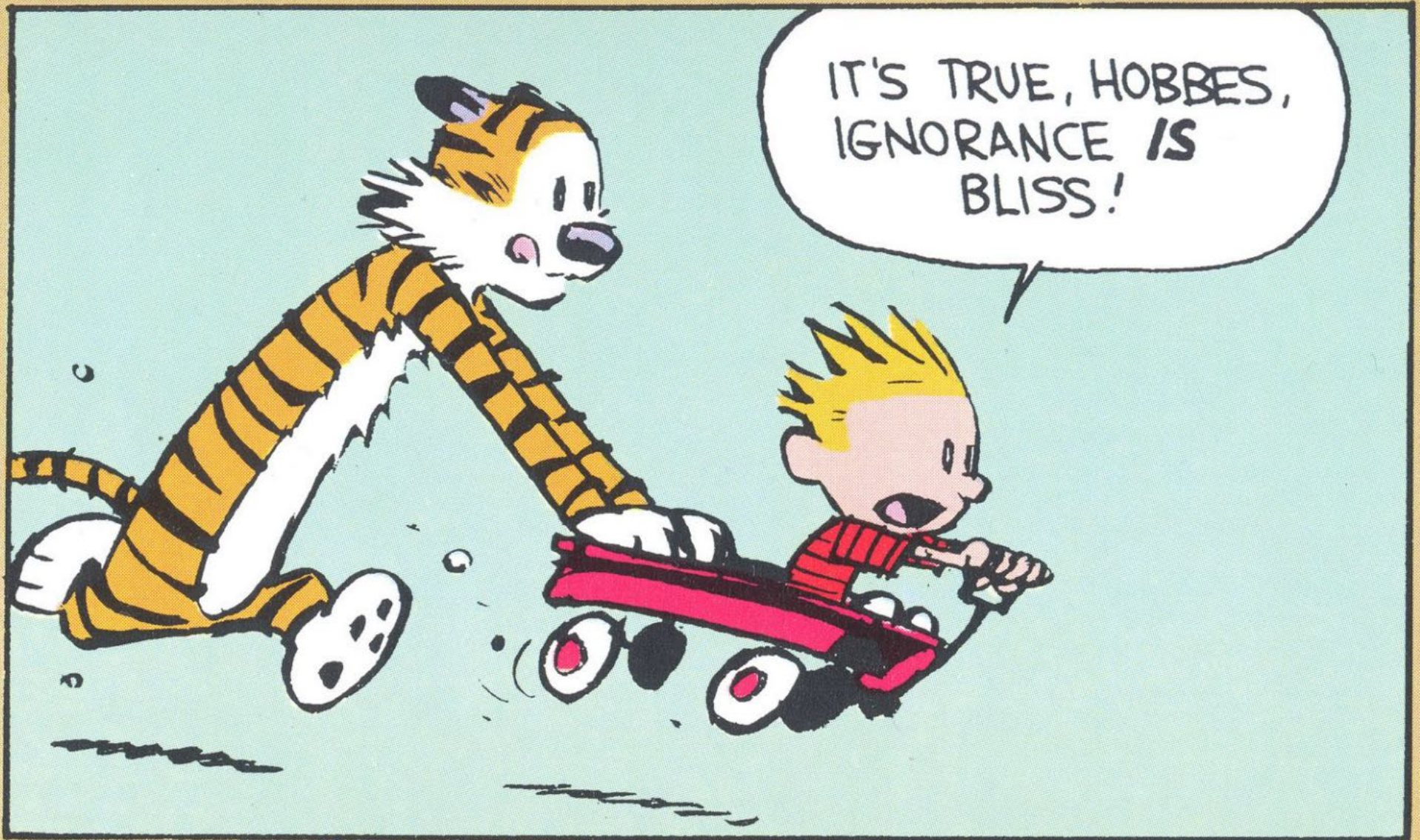
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# Calvin and Hobbes

WATSON





ONCE YOU KNOW THINGS,  
YOU START SEEING  
PROBLEMS EVERYWHERE...

..AND ONCE YOU SEE  
PROBLEMS, YOU FEEL  
LIKE YOU OUGHT TO  
TRY TO FIX THEM...

..AND FIXING  
PROBLEMS ALWAYS  
SEEMS TO  
REQUIRE  
PERSONAL CHANGE..

...AND CHANGE  
MEANS DOING  
THINGS THAT  
AREN'T FUN!  
I SAY PHOOEY  
TO THAT!



BUT IF YOU'RE  
WILLFULLY STUPID,  
YOU DON'T KNOW ANY  
BETTER, SO YOU CAN  
KEEP DOING WHATEVER



THE SECRET TO  
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