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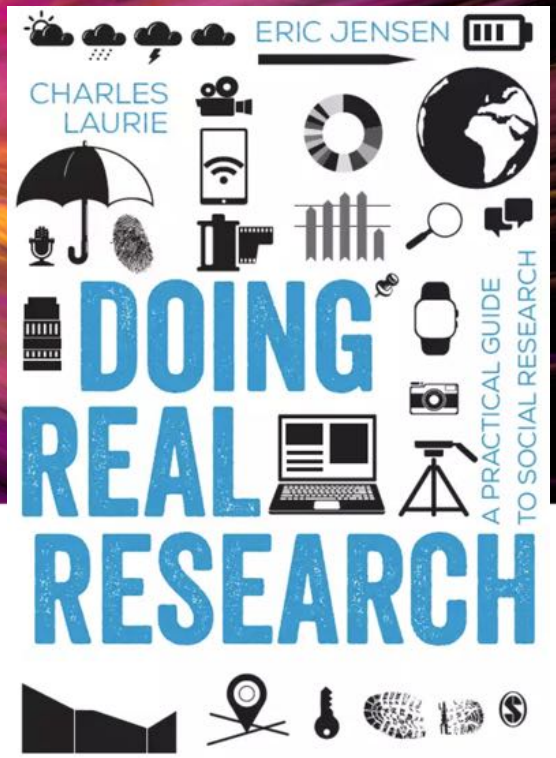


Future of Science Communication

Dr Eric A. Jensen (e. jensen@warwick.ac.uk)

@JensenWarwick

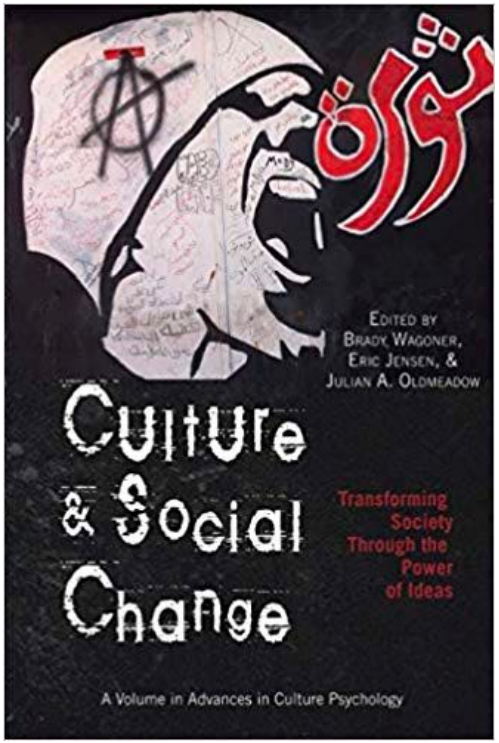
Background

- Academic background:

-Communication (US)
-Psychology (US)
-Sociology (UK)

- PhD, Sociology

UNIVERSITY OF CAMBRIDGE



Forthcoming book in Public Communication of Science & Technology (PCST) series:
'***Science Communication: A knowledge base***'

Background

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Current main roles:

1) Sociology professor, University of Warwick
   - Teaching social research methods
   - media audiences and social change
   - founded MSc in Science, Media & Public Policy (*no longer live*)
2) Senior Research Fellow, ICoRSA (icorsa.org)
   - European Commission-funded projects relating to responsible research and innovation

   (**RRING.eu; GRRIP.eu**)

100+ Engagement & Impact-related Publications

Experience

Ireland-specific:
-Space Week
-SFI Science Week 2018
-Probe (Dublin); Cork Discovers (UCC)
-Supporting TCD, SGD, UCC in European Commission-funded evaluation and research projects
-Abbott Fund
-Abbvie Foundation

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Qualia Analytics
Valuable insights with
Technology - enhanced research solutions

qualiaanalytics.org

TeRRIFICA.eu; eu-project-o.eu

Experience

NATURAL HISTORY MUSEUM

UNIVERSITY OF CAMBRIDGE

UNIVERSITY OF CAMBRIDGE
Science Festival

national museum wales

CHESTER ZOO

THE TIMES
CHELTENHAM FESTIVALS
SCIENCE

CAMBRIDGE FESTIVAL OF IDEAS

THE NATIONAL GALLERY

IWM
IMPERIAL WAR MUSEUMS

UNIVERSITY OF CAMBRIDGE

UNIVERSITY OF CAMBRIDGE
MUSEUMS
& BOTANIC GARDEN

OXFORD UNIVERSITY
MUSEUM OF
NATURAL
HISTORY

University of Glasgow

Trinity College Dublin
The University of Dublin

UNIVERSITY OF OXFORD

SCIENCE GALLERY

SCIENCE MUSEUM GROUP

DUBLIN MAKER

ZOO COPENHAGEN

MANCHESTER SCIENCE FESTIVAL
Supported by Siemens

ZOO
HELSINKIZOO.FI

exploratorium

Experience

esa

European Space Agency

COST Action on Science Communication

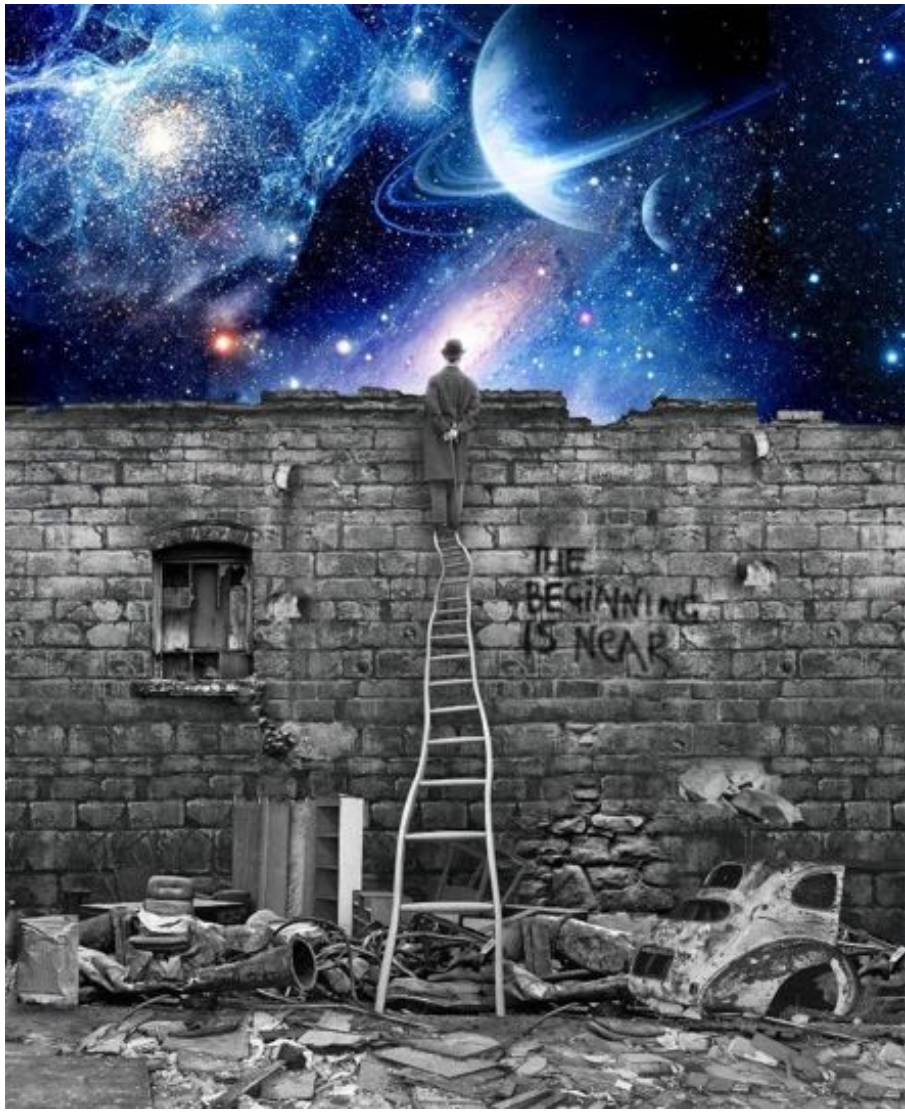
How to address the increasing challenge of science communication in a diverse European landscape?

COST Action on Science Communication

Working Groups	Deliverables
WG 1 on high-quality, interdisciplinary and evidence-based science communication (in line with Objectives 1+2)	• D1.1 Rapid Evidence Review: 'What works to develop impact in science communication?' • D1.2 Scoping review on reward and award mechanisms for effective science communication *D1.2.1 Reward – Rapid review paper*: How do institutions / research systems reward researchers? *D1.2.2 Award* – Recommendations paper: Proposal for an 'Impact enabler' award for excellence in science communication support. • D1.3 Scoping Review: Establishing a code of practice for EU science communication. (Involves reviewing existing codes of practices for science communication globally)

Future of Science Communication

Future of Science Communication is **socially responsible**



Future of Science Communication is **socially responsible**

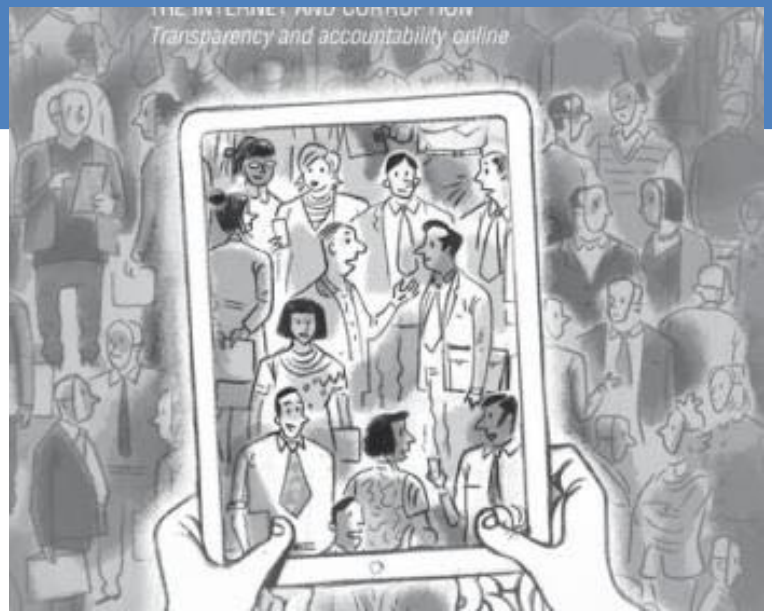
Process dimension of Responsible Research & Innovation	**Key questions for science communicators**
Diverse & inclusive: involve early a wide range of actors and publics in [research] practice, deliberation, and decision-making to yield more useful and higher quality knowledge. 	• How diverse are science communication teams and individuals' personal/professional backgrounds? • Is a diversity of different types of perspectives being brought to bear on decision-making about how to implement science communication?

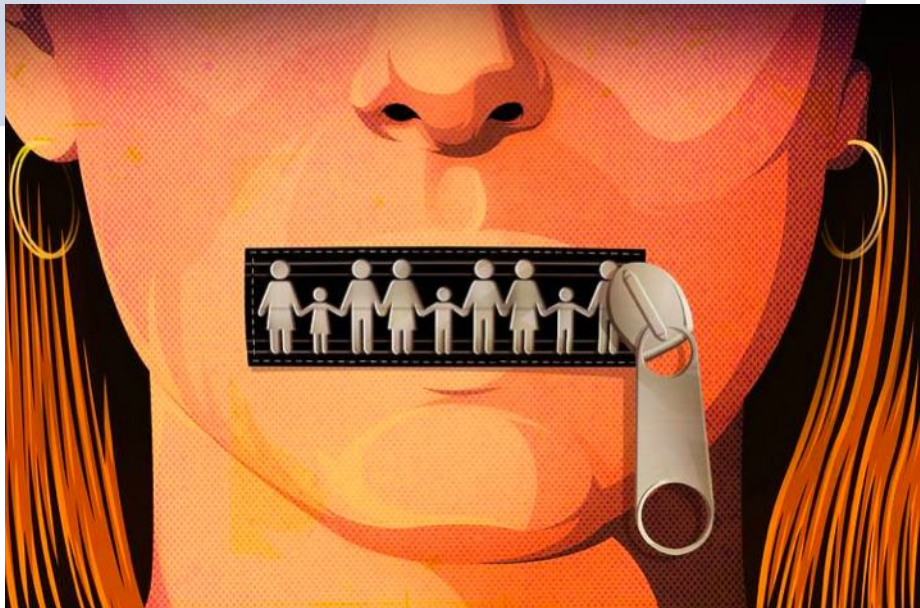
Future of Science Communication is **socially responsible**

Process dimension of Responsible Research and Innovation	**Key questions for science communicators**
Anticipative & reflective: envision impacts and reflect on the underlying assumptions, values, and purposes to better understand how [science communication] shapes the future. 	• How reflective is science communication research about its underpinning assumptions, values, purposes and approaches? • Who benefits from science communication? How can wider benefit be enabled from science communication?

Future of Science Communication is **socially responsible**

Process dimension of responsible research and innovation	Key questions for science communicators
Open & transparent: communicate in a balanced, meaningful way the methods, results, conclusions, and implications to enable public scrutiny and dialogue.	• How can any scrutiny or critical dialogue about how we do science communication take place when much of the rationale / decision-making remains private / hidden?

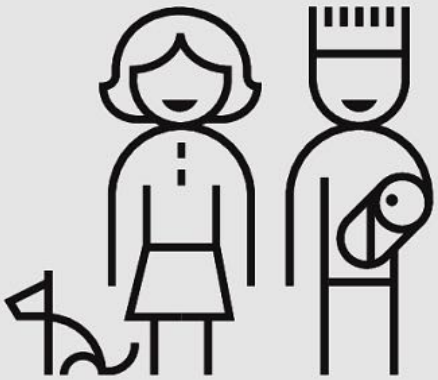




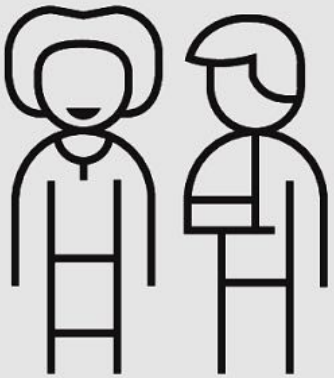
Future of Science Communication is **responsive & adaptive**

Process dimension of responsible research & innovation

Responsive & adaptive to change: be able to modify modes of thought and behaviour, overarching organizational structures, in response to changing circumstances, knowledge, and perspectives. This aligns action with the needs expressed by stakeholders and publics.



Family



Friends

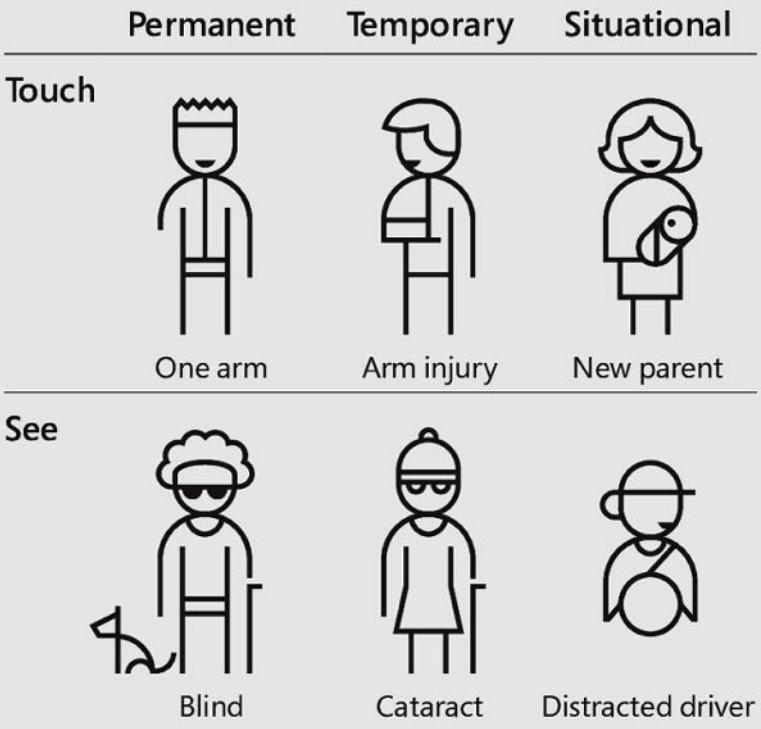
Strangers

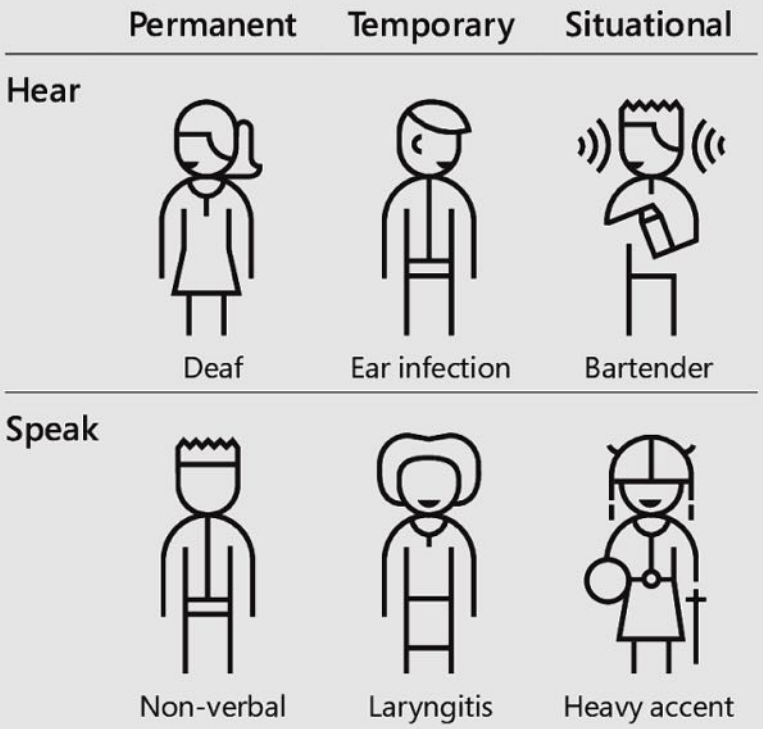
Future of Science Communication is **responsive & adaptive**

Key questions for science communicators

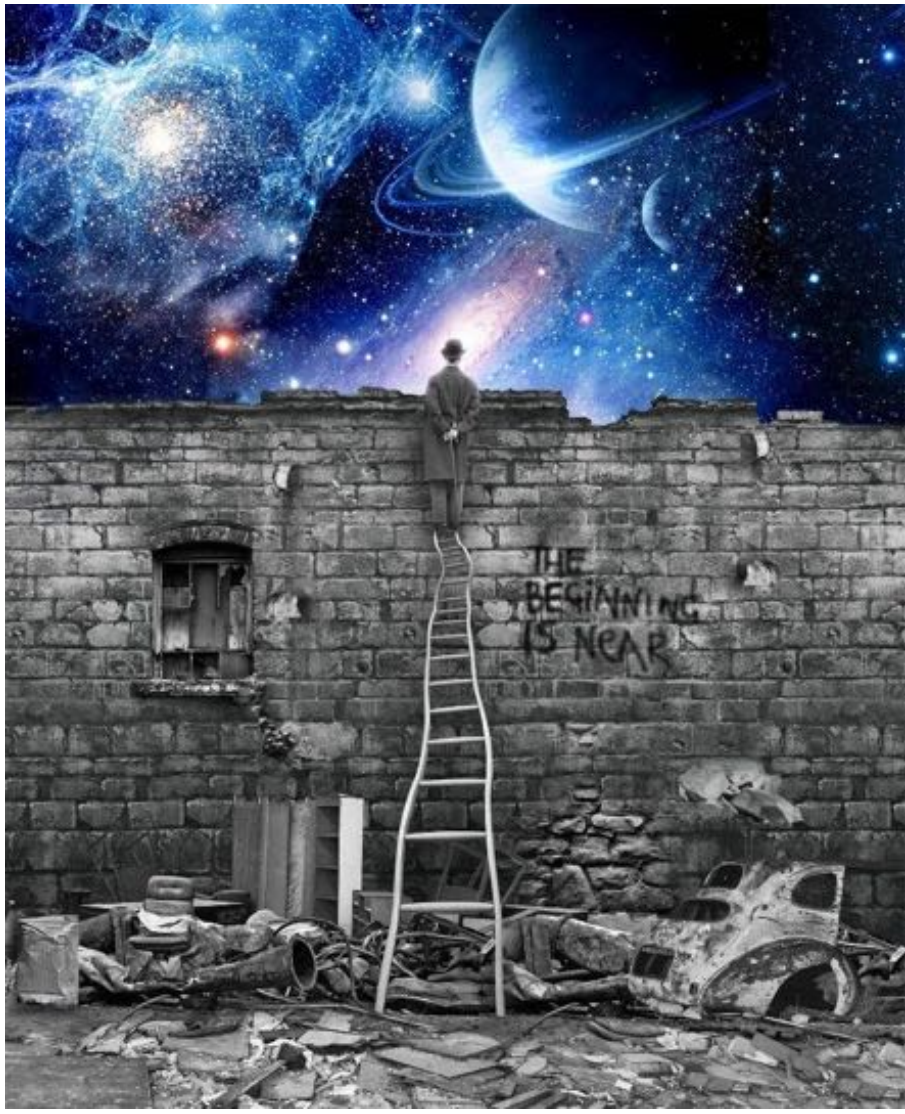
This dimension directly links to science communication practice, raising the question of how responsive it is to **stakeholder and public needs**.

The Persona Spectrum





Future of Science Communication is **evidence based**

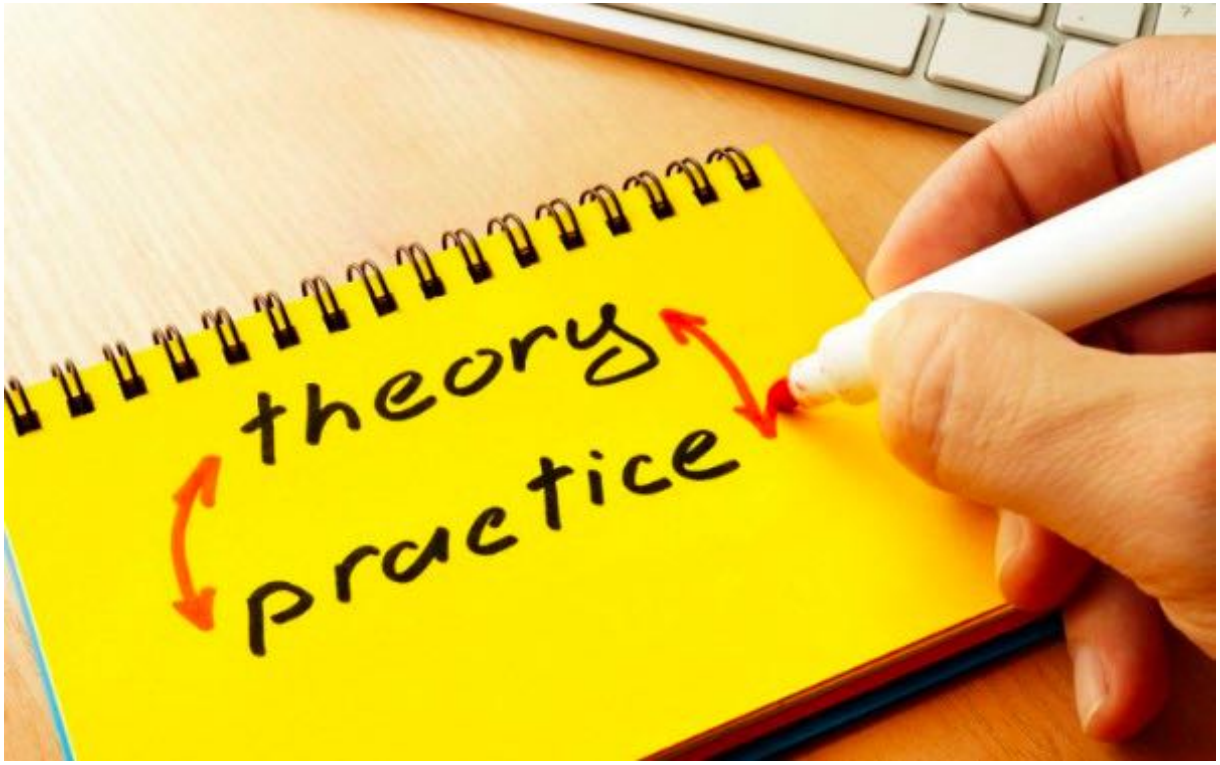


Future of Science Communication is **evidence based**

Using robust social scientific evidence [...] to ensure success should be viewed as a basic necessity across the sector

There are numerous indicators of professional expertise in science communication, including:

- Applying social science research and theory when designing science communication activities to avoid well-known pitfalls and improve the odds of success.



IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Planning, developing, applying objectives in logical way to address needs of specific stakeholders or audiences.

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Following good ethical principles including informed consent for participation and responsible data protection and management.

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Being open and transparent about the nature of the funding, organisations involved and influences on the design of science communication activities.

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Ensuring that appropriate and relevant communication skills are developed and applied for a given science communication challenge.

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Being inclusive and welcoming of those who are often marginalised or excluded, both in the development and delivery of science communication activities.

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There are numerous indicators of professional expertise in science communication, including:

- Willingness and capability to reflect on limitations in one's own communication objectives and strategies despite institutional constraints and agendas, even if this may invalidate previously accepted practices.

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Committing to continually improve practice based on ongoing collection and analysis of evaluation evidence (Jensen 2014; Jensen 2015a).

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Working to make any given science communication activity as resource efficient as possible to ensure that opportunities for positive impact are not squandered.

IMI | Institute for Methods Innovation

There are numerous indicators of professional expertise in science communication, including:

- Applying well-established principles of good communication should be a basic expectation of science communication practice for professionals and their funders.

IMI | Institute for Methods Innovation

Evidence-based science communication must be expected to ‘invalidate previously accepted’ practices and ‘replace them with new ones that are more powerful, more accurate, more efficacious’ (Sackett et al. 1996: 71).

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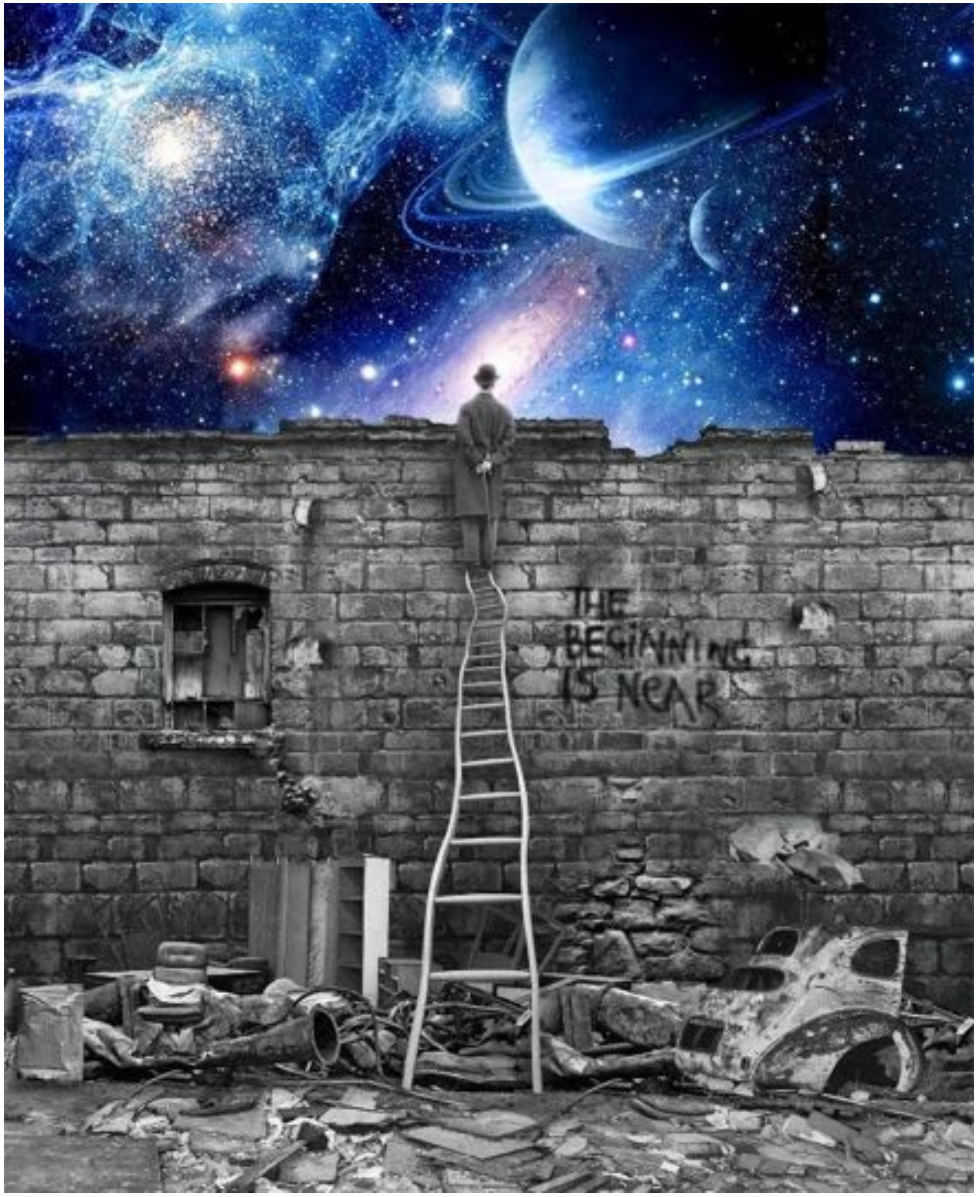
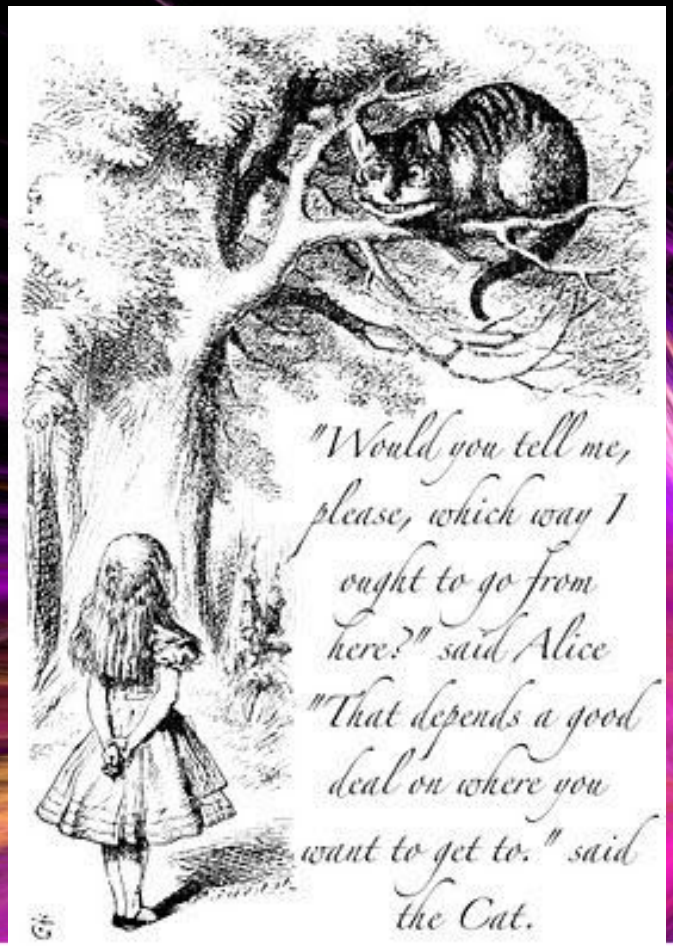
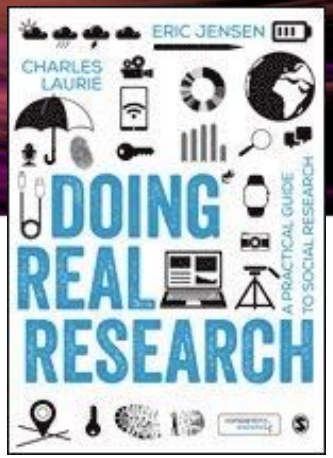
Future of Science Communication is **self-reflective**





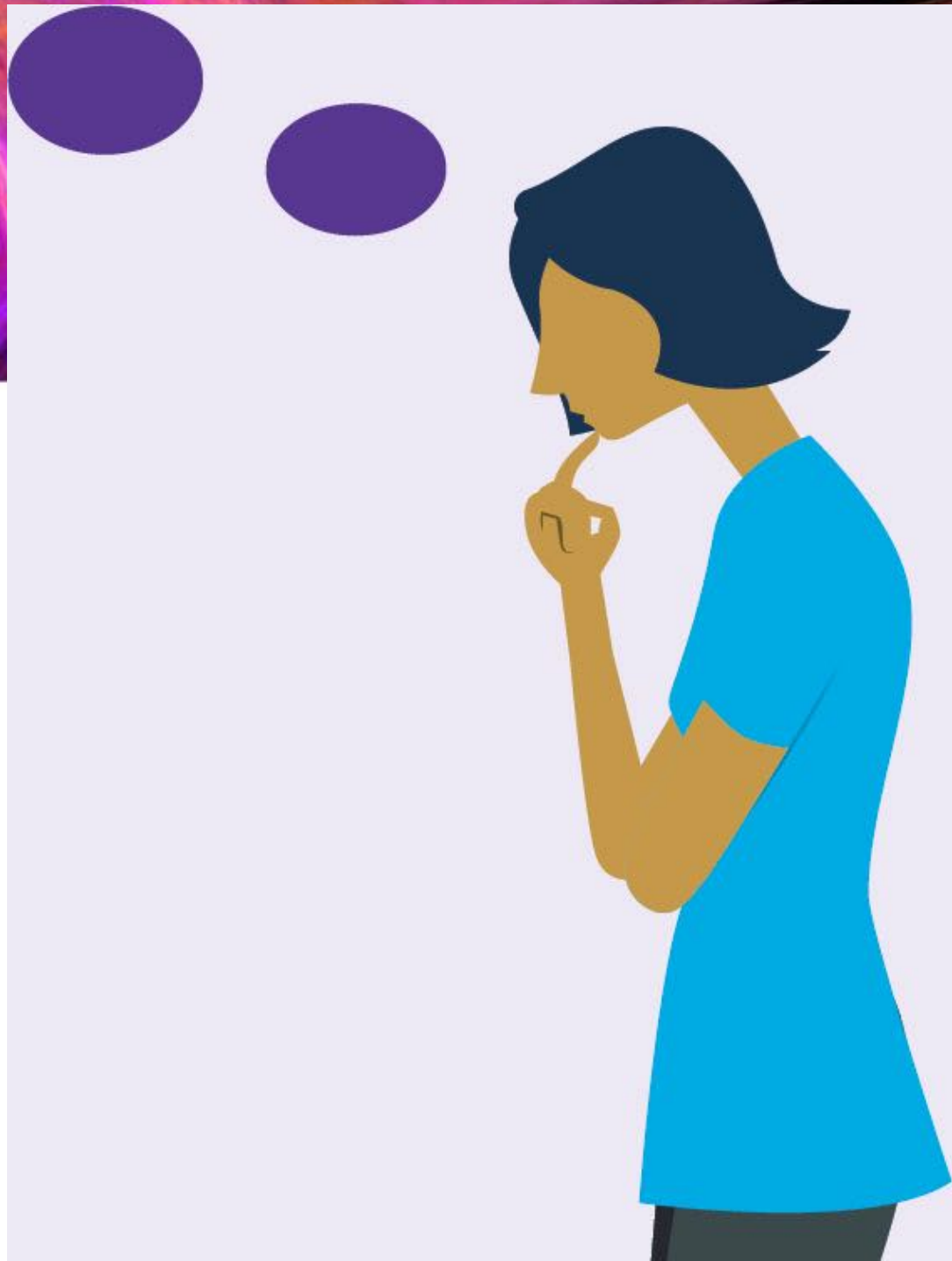


FOUNDATIONS FOR EFFECTIVE SCIENCE COMMUNICATION

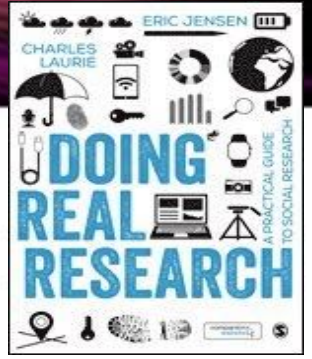
Introduction to reflective practice

Reflective Practice

- *Reflective practice* should be a normal part of engagement practice.

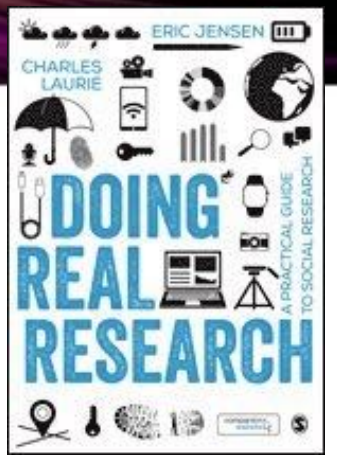


Defining Reflective Practice



- *Reflective practice – 'knowing-in-action'*
  - Mezirow (1994): meaningful learning occurs through self-examination of assumptions, patterns of interactions, and the operating premises of action.
  - Reflection begins with recognition of a challenge and your response. This process of "catching oneself" is essential for highlighting that you have alternative pathways you can choose.

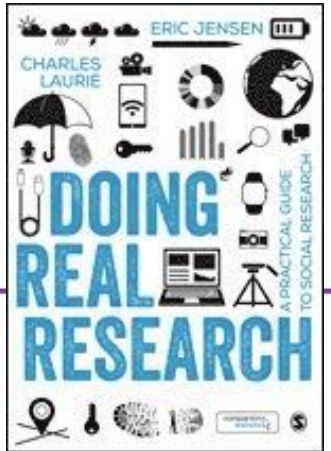
Defining Reflective Practice



- *Reflective practice – 'knowing-in-action'*
  - This self-awareness provides a bridge to critically analysing one's assumptions and beliefs.
  - Developing a reflective process involves asking and answering the fundamental questions of:
    - What do I do?
    - How do I do it?
    - What does this mean for both myself as a professional and those I serve?

Over to you!
(small group discussion)

- Consider and discuss the **assumptions** underpinning the *content* and *delivery methods* selected to address your targeted science communication outcomes.

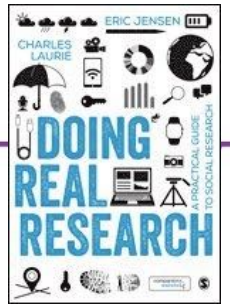


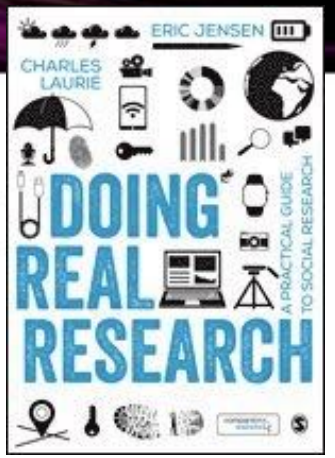
Discuss how you currently go about achieving intended outcomes you identified

1. Why do you use this approach?

2. What assumptions are you making about your audience?

3. What other assumptions are you making? Are these realistic?



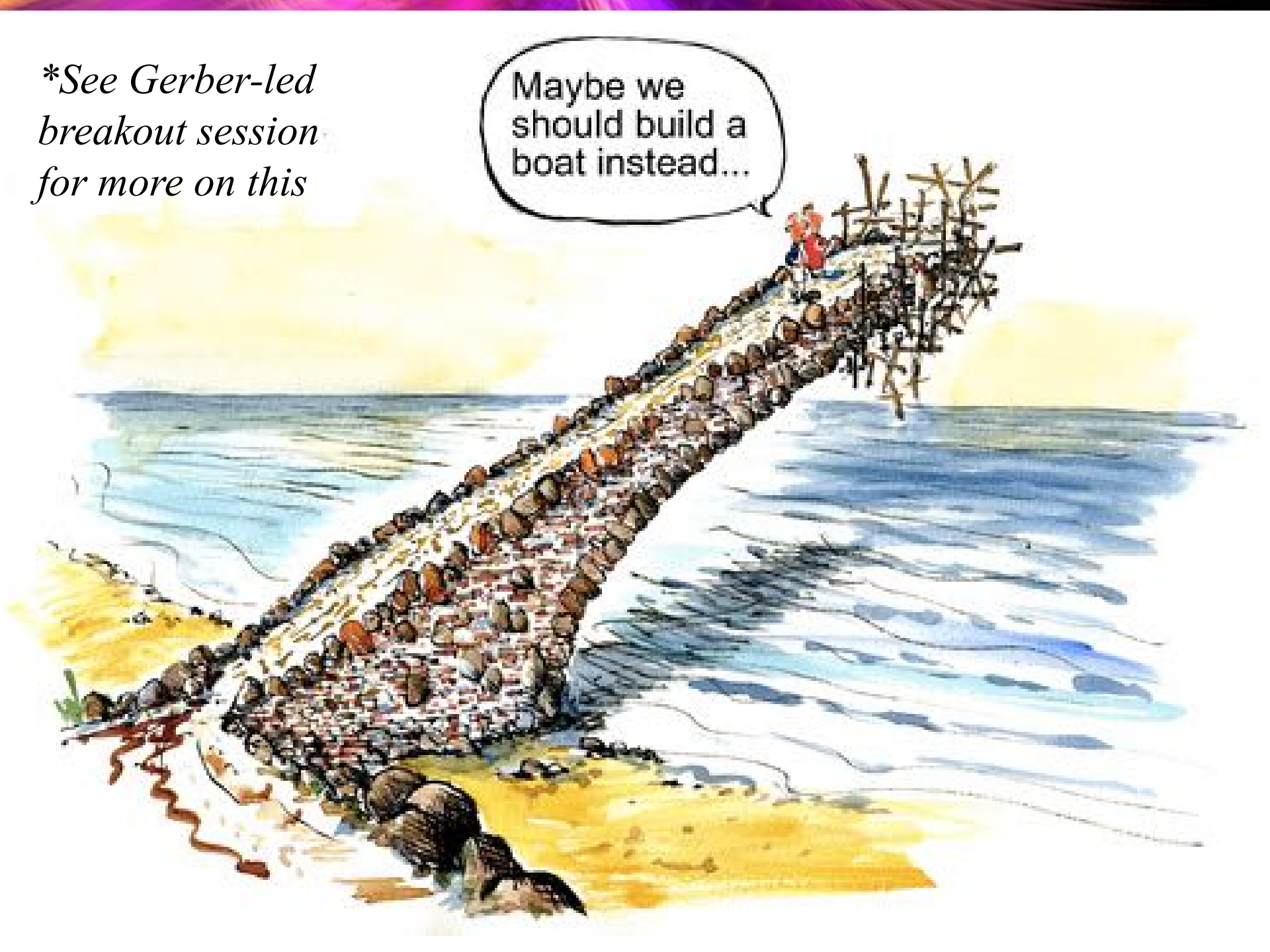


1. Why do you use this approach?

2. What assumptions are you making about your audience?

3. What other assumptions are you making? Are these realistic?

**See Gerber-led breakout session for more on this*

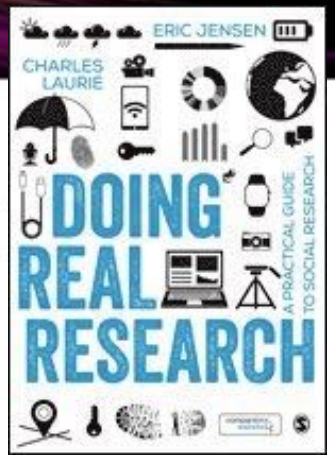


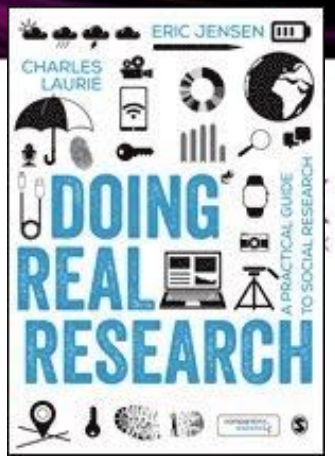
Other issues to explore with reflective practice:

- Delivery of programmes as intended? (e.g. peer observation or video recording presentations / session management, with peer feedback).

- Critical reflection on content / framing.

- Learning new theory / research and applying to practice

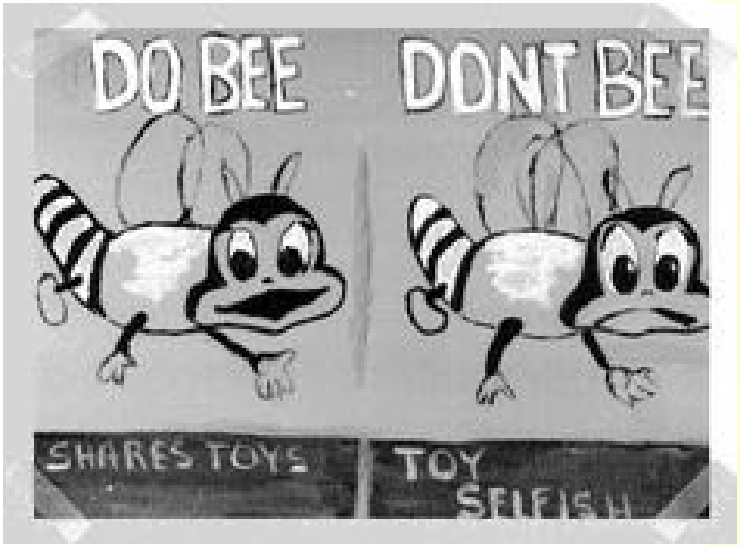




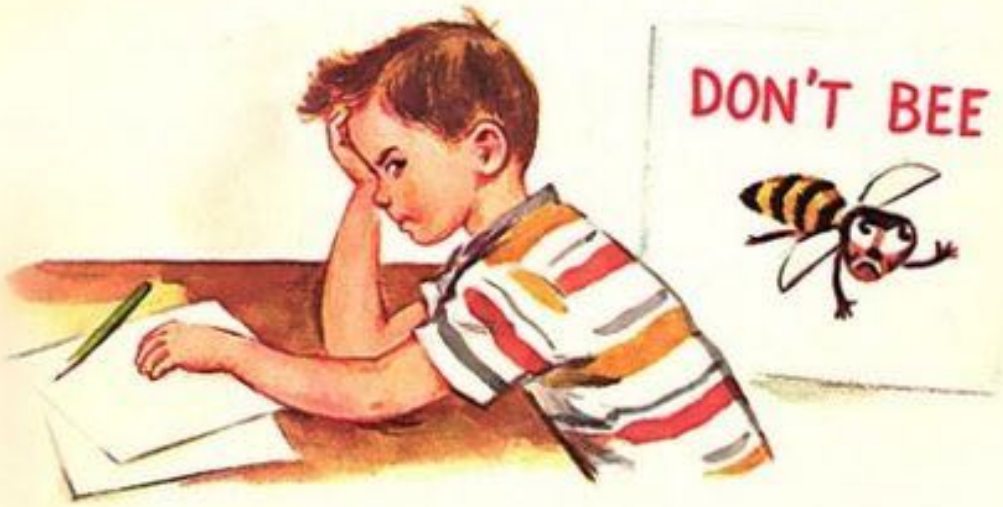
How might your positioning affect your decision-making?

Future of Science Communication is **effective**

Future of Science Communication



This is a Do Bee.
He's a cheerful, smiling fellow.



This is a grouchy old Don't Bee.
He's never very happy.

The unreflective science communicator

Chooses **how** and **what** to communicate based on **personal preference** of the communicator, rather than audience needs

The unreflective science communicator

Never needs to evaluate because the communicators know in their ‘guts’ that what they do is fantastically effective and brilliant

Unreflective science communicators

Have no clarity about what they are trying to achieve (‘we do this because we have always done it’)

Unreflective science communicators

Choose **how** and **what** to communicate based on **personal preference** of the communicator, rather than audience needs

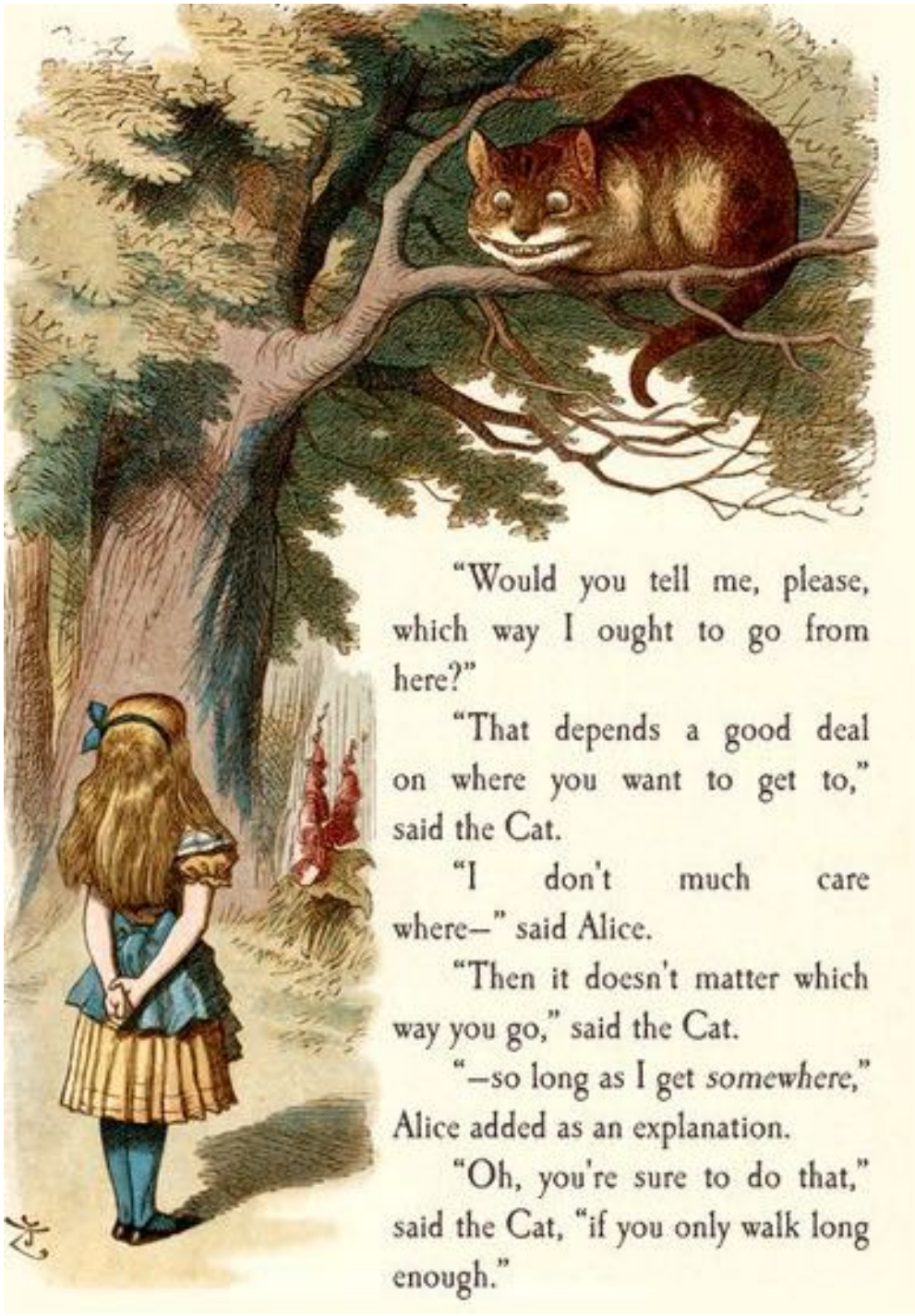
The unreflective science communicator

Does not **disclose** motivations, funders or underpinning rationale

Advocacy versus *Evaluation*

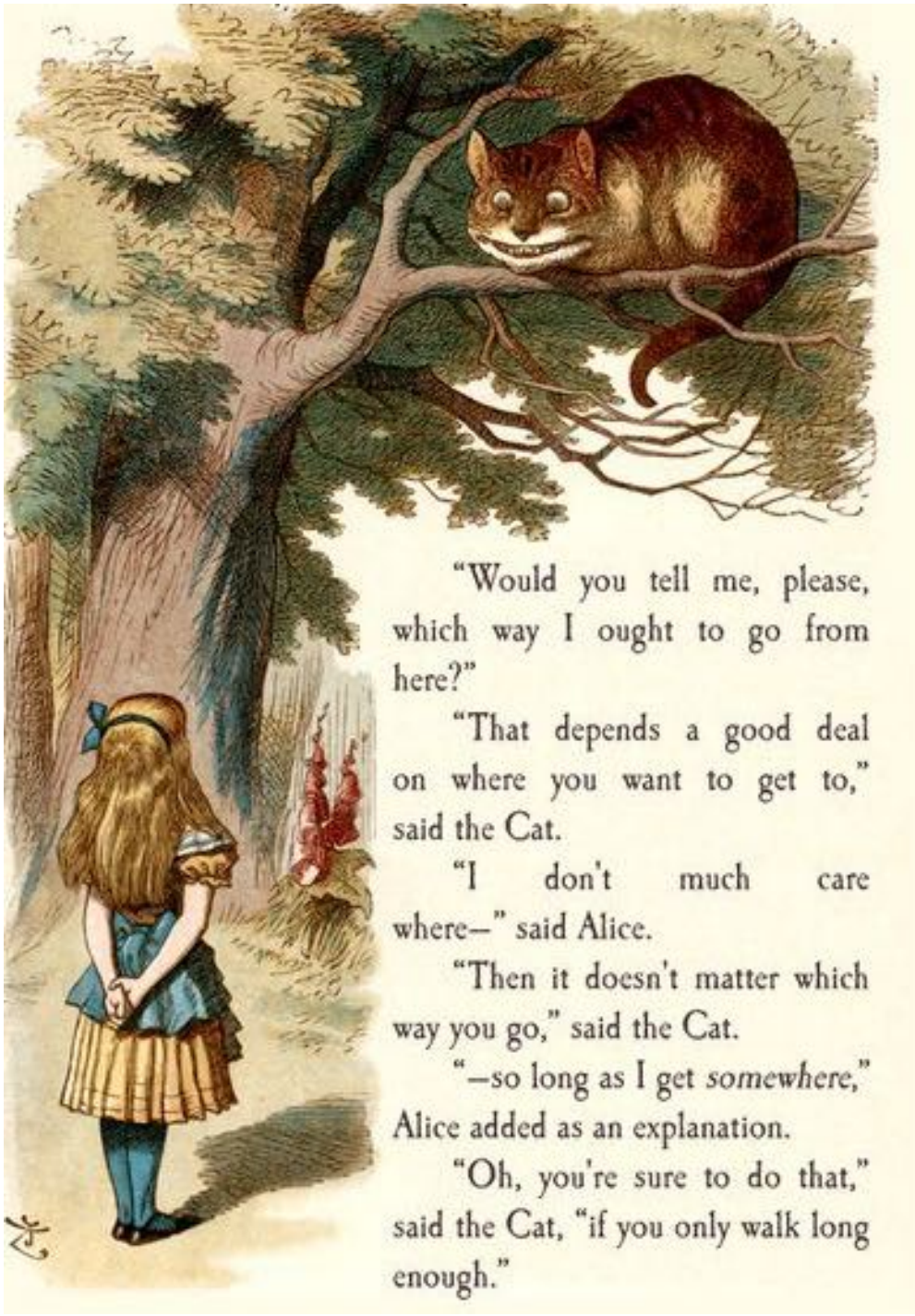
The good science communicator

Be clear about where you are **going**



The good science communicator

Clarify how you know when you have arrived at your **destination** (what does 'success' look like?)



"Would you tell me, please, which way I ought to go from here?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where—" said Alice.

"Then it doesn't matter which way you go," said the Cat.

"—so long as I get *somewhere*," Alice added as an explanation.

"Oh, you're sure to do that," said the Cat, "if you only walk long enough."

The good science communicator

Can articulate why you are taking particular **steps** to deliver the intended outcomes (based on evidence / theory)

The good science communicator

Seek first to **understand**, then to be **understood**

The good science communicator

Is consistently ethical:

- Avoid deception/misleading
- Gain appropriate consents (e.g. GDPR)
- Provide best available information
- Be inclusive - Environmentally sustainable

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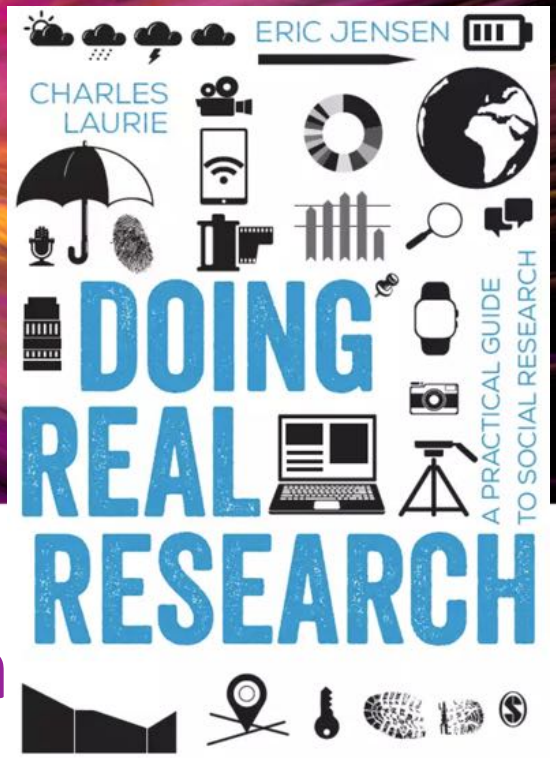

Future of Science Communication

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