The injection myth: communicating science

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Contentious environment issues are the ultimate ‘wicked problem’ (Hind, 2010). Social media fan protests (Hanna, 2016), causing delays and distractions to projects (Franks, et al., 2014), while cynicism about democratic systems (Hind, 2010) fuels a ‘polluted public square’ of polarised and combative debate where extremes define the issues (Hoggan, 2016) and no one wins the argument.

When it comes to impacts on people, a cynical and distrustful public expects developers to earn their social and not just regulatory, or legal, approvals (Preston, 2014).

Community acceptance is challenged, however, by the encroachment of projects on lives and livelihoods. Aboriginal people are demanding control over development on their lands (O’Faircheallaigh, 2009; Morrison, 2017) and highlighting the often contested land uses and values of mining and Aboriginal people (Lewis & Scambary, 2016). There are calls for cumulative impact assessments (Noble & Gunn, 2016); debates about the equitable distribution of costs and benefits (Preston, 2014) and expectations that impact assessment will deliver social sustainability and adaptive management of emerging issues (Vanclay et al., 2015).

Abstract and intangible ‘dread’ issues such as ‘fracking’, radiation and contamination, are particularly ‘wicked’ (Sandman, 2013).

While people expect better communication (Hawke, 2014), the response to community alarm is rarely found in ‘facts’ (Sandman, 2013) for two key reasons. Unlike plants and animals, humans are complex, emotional and unpredictable. They worry about issues, not science. And, while people are demanding earlier and better input to decisions, they are not particularly amenable to factual, quantitative, evidence-based arguments (National Academy of Sciences, Engineering and Medicine, 2017).

In fact, seeking to ‘educate’ may completely miss the point of what people are worried about, their ‘lived experience’ of impacts (Vanclay et al., 2015; Parkins & Mitchell, 2016), their aspirations and fears (O’Faircheallaigh, 2009), perceptions grounded in deeply held values (Sandman, 2013) and different worldviews and epistemologies (Lewis & Scambary, 2016).

‘Education’ assumes people process information in a rational and logical way, whereas empathy understands that attitudes and beliefs are influenced by emotional reactions, the degree of ‘dread’ (Sandman, 1993), heuristic processing of information (Kahneman, 2011), the credibility of information sources (Sandman, 2013) and whether various publics are even paying attention (Grunig & Repper, 1992).
As Sandman contends, pointing the finger at 'activists' is self-defeating. Communities know that activists sometimes exaggerate. But they also think companies exaggerate the benefits and downplay the consequences of projects (Sandman, 2013; Franks, 2015). So communities apply the precautionary principle, placing greater trust in their environmental ‘watchdogs’ (Sandman, 2013).

For communities to accept the benefits of contentious projects, they must feel safe and in control; have confidence that their social and ecological environments will be protected; trust Government’s regulatory regime; and believe that industry is honest, transparent and technically competent (Sandman, 2013).

This is serious context for communicating science if it is to achieve goals such as changing behaviour, contributing solutions to societal problems and providing trusted information on issues that matter. As the National Academy of Sciences (NAS) suggests (2017) effective communication of science is a complex task and an acquired skill.

TEN KEY CHALLENGES:

1. ‘WICKED PROBLEMS’
Social media campaigns, cashed up environmental groups, heightened public awareness of legacy issues and demands for input to decision-making highlight the importance of early and meaningful engagement based on identification of issues and stakeholders, proactively reaching out to marginalised and disadvantaged groups and giving people the time and resources to have influence. Engagement has missed the bus once people are angry.

2. PROTESTING CAN BE REWARDING
Protests may be a slow-burning fuse, sparked by growing awareness and fuelled by fear, self-interest, misinformation or perhaps a negative incident. Once the wave of protest gathers speed, it is hard to turn the tide. Groups of like-minded people will resist information disconfirming their beliefs.

3. RISK COMMUNICATION
Our brains are wired to react quickly to emotion and fear. People are more antagonistic to imposed risks than those they expose themselves to (Sandman, 2012). The best time to communicate on dread issues is before people are alarmed, when it may be possible to ‘inoculate’ against misinformation by addressing myths and fallacies to which people might later be exposed (Cook, 2017)

4. THE INJECTION MYTH
McKay describes the ‘injection myth’ as a presumption that we just need to pump people full of information to change their attitudes and behaviours. Similarly, a ‘deficits’ model regards non-scientists as the ‘not yet informed’ (NAS, 2017). But it’s the receiver not the sender who shapes messages. Spam filters include being busy, distracted, angry or holding different values and beliefs.

5. PROFESSIONAL MISCOMMUNICATION
Communication is a social process that builds on relationships whereas scientists may be seen as ‘gifted experts’ offering abstract, technical, highly qualified statements that assume
all people are rational, attentive, open-minded and persuaded by facts (Hoggan, 2016). People communicate in narratives, not statistics, and heed information from friends, relatives or trusted opinion leaders (Rogers, 1995).

6. ARE THEY EVEN LISTENING?
‘Active’ publics seek information. ‘Passive’ publics have other things on their mind. It can take imagination to get their attention and explain the implications of a project. But watch for emerging ‘latent’ publics (Grunig & Repper, 1992).

7. POLARISED DEBATE
When people argue, they have wax in their ears. Debate polarises, whereas dialogue and deliberation bring people together to share information and collaborate on solutions (Parkins & Mitchell, 2005).

8. THE TRUST DEFICIT
Trust is the foundation of communication and a key barrier, given that research shows a lack of public trust in companies, governments and regulators (Boughen et al., 2010). Trust is earned through performance, transparency, accountability and procedural fairness.

9. COGNITIVE LIMITS
When confronted with complexity people reduce mental effort with heuristics or mental shortcuts to make quick, often sub-conscious decisions. We dream of winning TattsLotto, think one plane crash makes travel dangerous and that good-looking people are smarter. We have an exaggerated faith in what can be learnt from small samples or salient events (Kahneman, 2011; NAS, 2017). Even scientists misjudge their own blind spots. A barrier to communication is confirmation bias, or seeking to confirm what we already know. Attacking beliefs just thickens the ‘bars’ of people’s cognitive cages (McKay, 1994).

10. ROLE OF THE MEDIA
Media are criticised for sensationalism and ‘setting the agenda’ of what is topical through selective and adversarial coverage. However, the media knows the winning formula. To get attention requires drama, narrative, human interest and good visuals.
Bibliography


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Facts – fall on rocky ground

**Facts are information**

**People need objective, factual information to make informed decisions**

**But information is not communication**

**Facts alone do not change behaviour and attitudes**
1. Wicked problems: fairness and justice
2. The trust deficit
3. The psychology of protest
4. Polarised debate
Polarised debate
5. Dread issues

facts

education

Intuitive toxicology
6. The injection myth*

* Based on Hugh McKay
7. Are they even listening?
8. The culture of communication
9. Our cognitive limits
10. Sensationalism sells
Emotions
Fighting facts with facts

Get the Facts on Fracking

What is 'fracking'? (Fracking is the fancy name for the high pressure water (and sometimes acid) injection used to crack rock so as to release gas or oil.)

Fighting facts with facts: fracking is a method of increasing the pressure in a well by injecting water under high pressure. The purpose is to shatter the rock around the well orifice, allowing the gas to be released from the reservoirs. This technique is used in many parts of the world for oil and gas extraction. However, it has also been adopted for the extraction of natural gas from shale deposits in the United States.
Narrative vs statistics

Resource Rent Tax (2010):

Government fought on facts, Minerals Council fought with the Whyalla street sweeper worried about his superannuation.
Social licence to operate

Based on speech by The Hon Justice Brian J Preston SC of the NSW Land Court 2014
Relationships, values and trust
Tell me, I forget
Show me, I remember
Involve me, I understand

Chinese proverb
“Effective communication of science is a complex task and an acquired skill” (National Academy of Sciences)

listening and empathy

shared understanding

draws on the lessons of natural science and the insights of social science

= a boundary spanning role of teamwork across professional cultures
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Thank you