



California

**Department of  
Conservation**

California Geological Survey

# Communicating about earthquakes in crisis and calm

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Communication intended to foster resilience requires more than just delivering information. **It needs to lead to meaningful action.**



# What is Science Communication?



Advocating for **science-based policies**  
and decision-making

Teaching and training individuals to  
understand and **apply scientific**

The p  
inform

***Science Communication is the social  
conversation around science***  
~*Bucchi and Trench, 2021*

on  
ral  
rds

**Creating dialogues** between scientists and the public

The planned approach to **manage the  
dissemination** of scientific information

**Engaging the public** in the scientific  
process

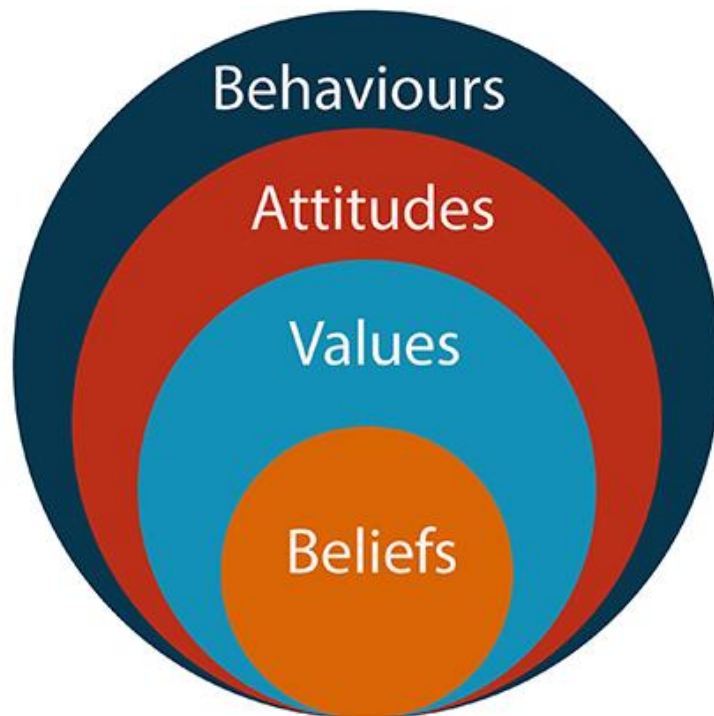
# The Deficit Model



Catherine na Nollag

@cafernblue

i still think my favourite thing that's ever happened to me on the internet is the time a guy said "people change their minds when you show them facts" and I said "actually studies show that's not true" and linked TWO sources and he said "yeah well I still think it works"



The Open University

Behaviour is the way in which someone acts and is thought to be based on their beliefs, values and attitudes.

Attitudes are made up of three components

**Cognitive**- what we believe

**Affective** - Our feelings

**Behavioural** - learned associations

Values serve as guiding principles in peoples lives and may include:

**Freedom**

**Honesty**

**Equality**

**Wisdom**

**Passion**

**Compassion**

They are assumptions about the world and how we live in it.

Beliefs are ideas we hold as 'true'. Assumptions about the world and how we live in it, Beliefs may be based on all or some of the following:

**Religion/Spirituality**

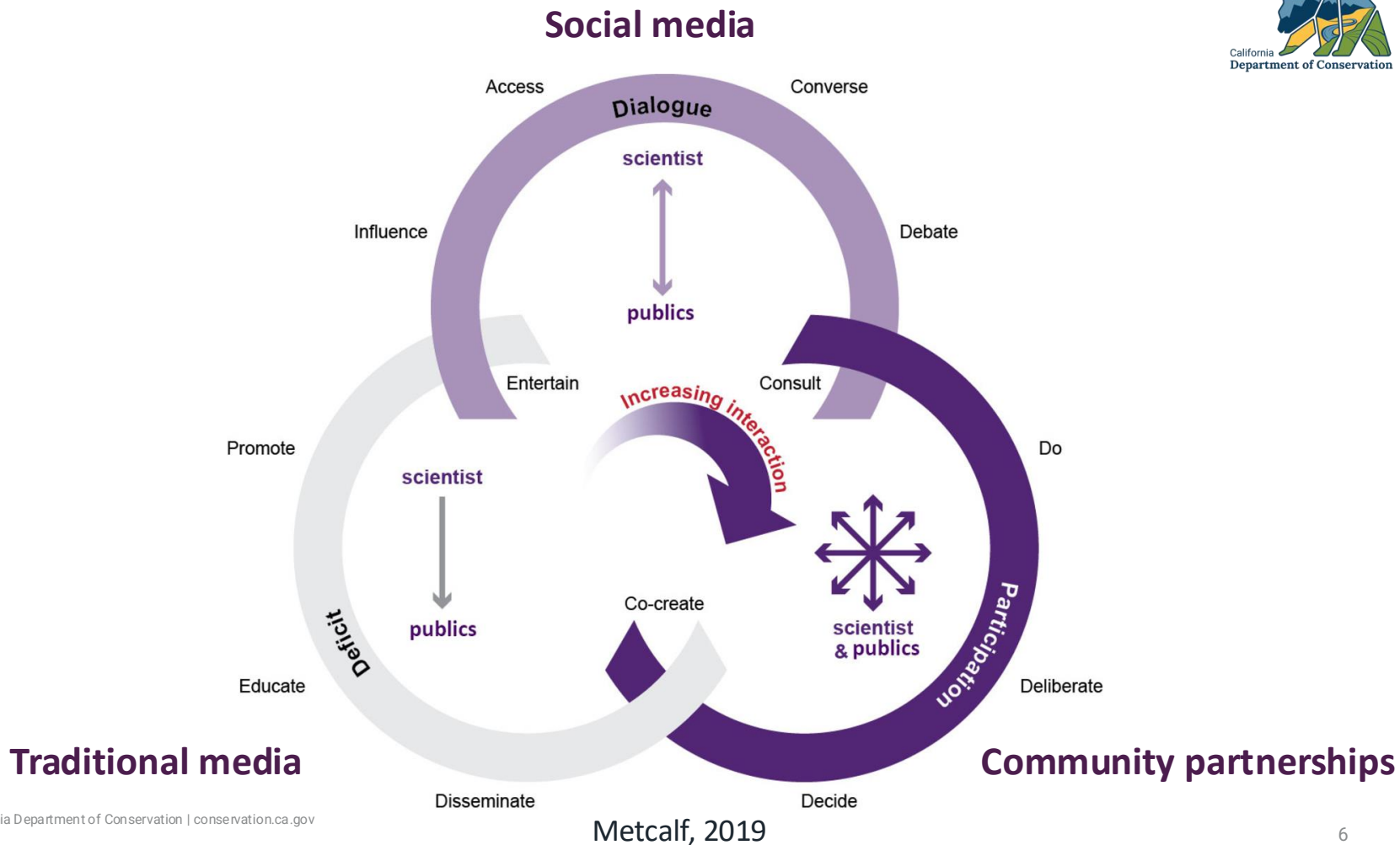
**Morality**

**Politics**

**Economics**

**Social**

**Intellectual**







# Blue Sk



BBC Radio 4 Today  
@BBCr4today

"My concern is that we just keep making this up as we go along...the govt needs to get a grip on our scientists...how can the science change from one day to the next?"

Huw Merriman, senior backbench Conservative MP, who opposes masks in schools [#R4Today](#)



Face masks U-turn for England's secondary schools  
Pupils must wear masks in corridors in local lockdown areas after the government reversed its guidance.

[bbc.co.uk](https://bbc.co.uk)

nes should be  
ipatory.

1

Scaffold info ab  
earthquake  
science,  
preparation &  
resilience.

3

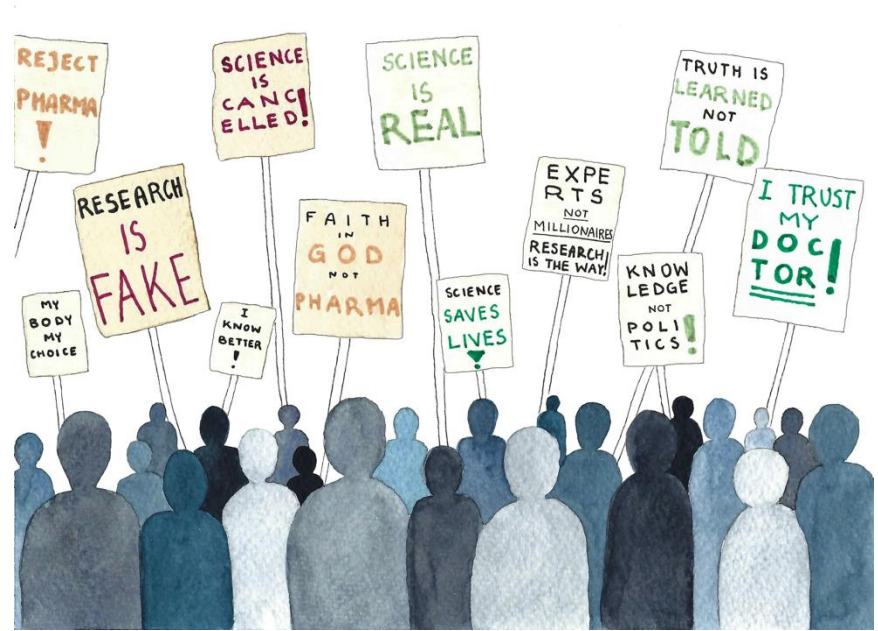
Work to build trust.



# Trust

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Trust of the messengers and messages is key to ensuring audiences will take information into account when forming opinions, making decisions, and taking action.



# Crisis

Crisis communication needs to be rapid, frequent, informative, empathetic, and actionable.

1

Provide fast, factual information.

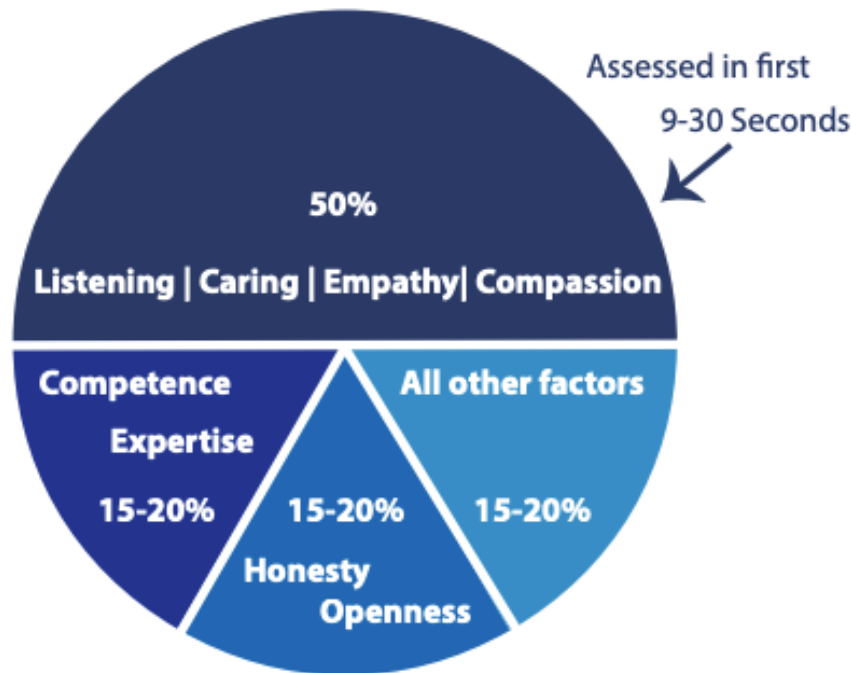
2

Emphasize what we know, share what we don't know, and explain what we're doing.

3

Give clear instructions to reduce mental paralysis and provide agency.

## Trust Factors in High-Stress Situations



# Recovery

Recovery communication should be calm, informational, and empathetic.

1

Continue to provide updates.

2

Create opportunities for discussion.

3

Progress back to blue sky comms.

**CRISIS**

The word "CRISIS" is rendered in large, bold, red 3D block letters. The letters are positioned on a white, flat surface that has cracked and broken apart. A prominent crack runs horizontally across the middle of the scene, with a jagged gap where the surface has split. The lighting creates soft shadows, giving the letters and the cracked surface a three-dimensional appearance. The background is a light gray with faint, wavy, topographic-like lines.

# People process information differently during times of crisis.



Simplify messages



Hold on to current beliefs



Believe the first message they hear



They look for additional info & opinions

# Messaging

Clear / Simple / Direct

Consistent

Timely / Frequent

Empathetic

Respectful

Humble



# Clear / Simple / Direct

- Avoid jargon.
- Simplify the message.
- Explain the science as we understand it without downplaying it.


# Timely / Frequent

- Respond as quickly as possible.
- People believe the first message they hear.
- Lack of timely information creates an information gap where misinformation can proliferate and spread.
- Provide frequent updates, even if there is no new information.

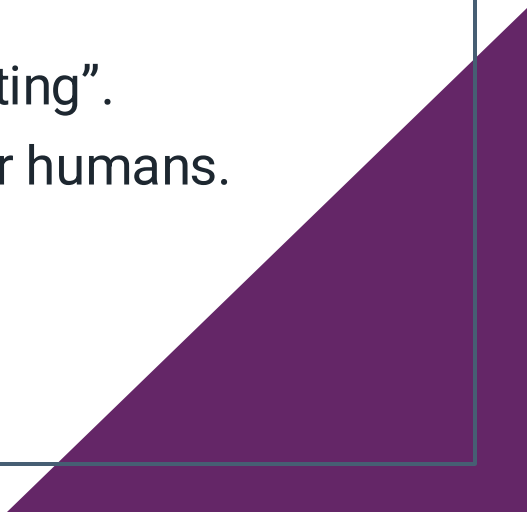
# Transparent

- Frequent updates lend a sense of transparency.
- Make information open and accessible, for example by sharing data publicly and showing what work is being done behind the scenes.


# Consistent

- Strive for internal and external consistency.
  - Coordinate messaging across organizations to avoid confusion.
  - Support and amplify good sources.
- 


# Empathetic

- Use personal pronouns like “we” and “our”.
  - Avoid using words like “fascinating”, “interesting”.
  - Be relatable – we are humans talking to other humans.
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# Respectful

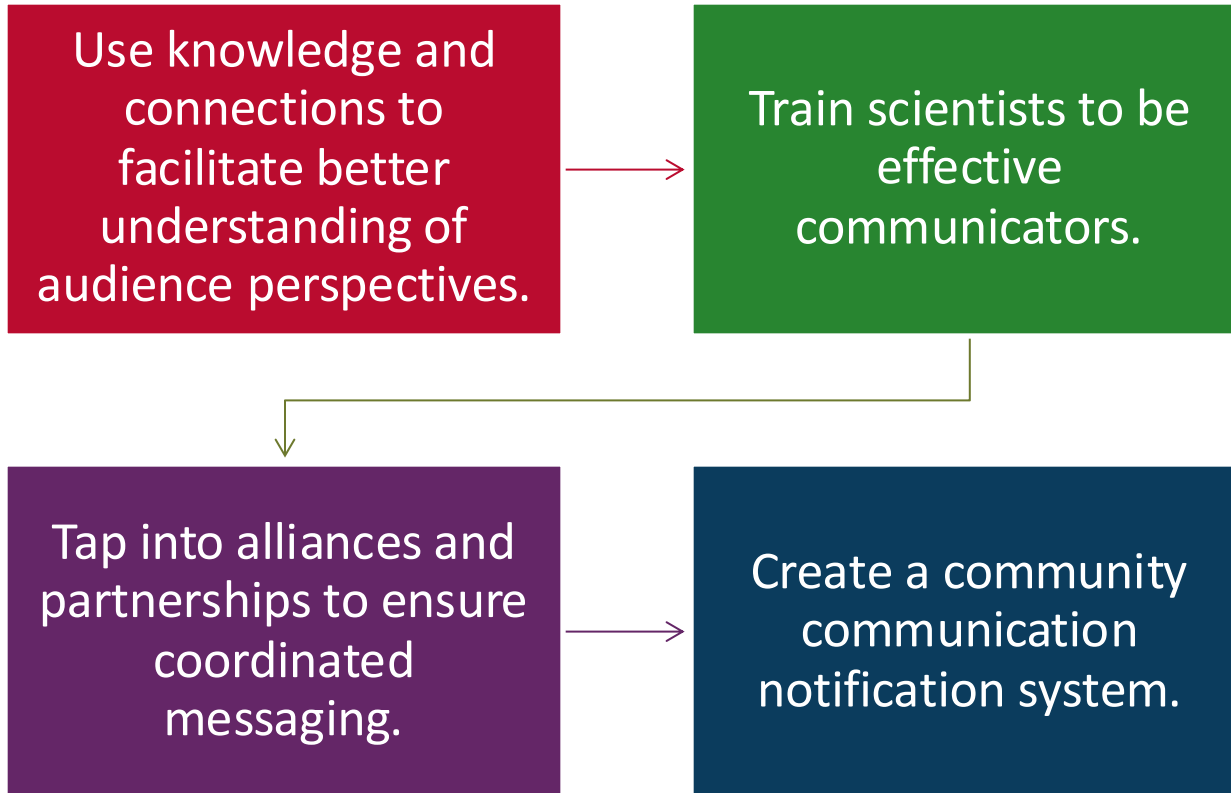
- Answer questions in earnest, assuming that questioners are asking in earnest.
  - Remember we are representing ourselves, our institutions, and our field(s).
- 

# Humble

- Communicating with humility can make us more relatable and accessible and allow room for error.
  - Listen to your audience; use or create opportunities for dialogue.
  - Learn about and respond to audience knowledge and needs.
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# How can the SCEC community improve earthquake communication?



# Key Points

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- The hazard comms cycle consists of different phases that require different strategies.
- Trust is critical.
- Communication intended to foster resilience means more than simply delivering information
- Working together we can better understand our diverse audiences, train our scientists to be more effective communicators, and create and disseminate messaging that can be used during crisis and calm.



Photo by Tim Dawson, CGS

California Department of Conservation | conservation.ca.gov

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@DrWendyRocks



@DrWendyRocksIt

# Geohazards Communication

## Blue Sky

- Focuses on education, preparation, building trust
- Must be interesting, understandable, consistent
- This is when trust is built!

## Crisis

- Focuses on information and action
- Must be rapid, frequent, informative, actionable, empathetic and from a trusted source
- Trust is critical!

## Recovery

- Focuses on “sensemaking”, information, rebuilding
- Must be calm, informational, empathetic
- Gradually progress back to Blue Sky Communications



# Social Media – ch-ch-ch-changes!

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**Social media has changed the public expectation of hazard and response information dissemination.**

- Timescale over which information is expected to be disseminated
- Role of the traditional media as information gatekeepers
- “Experts” who are communicating with the public.





# Time

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## Before:

- ~30 min
- Media seeks experts

## Now:

- Immediate release of information
- Real-time updates
- Most agencies are not able to issue statements within this time frame
  - Creates frustration
  - Information void







# Media Role

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## Before:

- Traditional media were information gatekeepers
- All info and reporting from media

## Now:

- Anyone can report information on social media
- Media get much of their information FROM social media



From Forbes

### What's The Damage?

Judging by the [images](#) and testimonies being [shared on social media](#), infrastructural damage is widespread. It's not clear how severe or





# Expertise

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## Before:

- Experts were largely predetermined by the media
- Agencies responsible for dissemination were media focus

## Now:

- Anyone can report information on social media
- Expertise is difficult for the public to determine
  - Leads to spread of misinformation, speculation and bad advice



dutchsinse @dutchsinse · Nov 24

11/24/2018 -- Seismic Silence? Be ready for large activity -- Potential for major unrest



11/24/2018 -- Seismic Silence? Be ready for large a...

Support the operation with a Dutchsinse T-shirt , Hoodie or Coffee Mug --

<https://teespring.com/stores/dutchsinseofficial> \_\_\_\_\_  
youtube.com

14

60

127



# Equation for Communication Disaster



(Time expectation = information “void”)



(Traditional media role change = confusion about experts)



*Propagation of damaging misinformation*

# What can we do?



1. Counter the spread of misinformation by dispelling myths and providing updated, accurate information.
2. Use narratives and storytelling to appeal to emotions, values and beliefs
3. Inoculation or “prebunking” – explicitly expose misleading arguments which leads to a resistance to misinformation

# Finding Connection

**Active listening** –  
Concentrate,  
understand, respond  
and remember what  
was said.

**Reflective listening** –  
repeat back what was  
said to confirm  
understanding

**Empathic listening** –  
outlet for feelings to  
encourage more  
honest conversation

- *Avoid misunderstanding*
- *Resolve conflict*
- *Create cooperation*
- *Built trust*

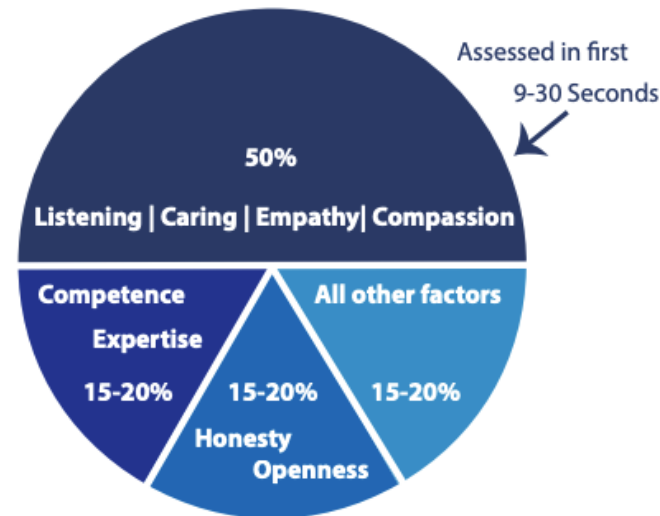
“ One of the  
most sincere  
forms of respect  
is actually  
listening to  
what another  
has to say. ”

Bryant H. McGill  
8 Feb 2014 4:33 am

# Trust of the messengers and message is key to ensuring audiences will take information into account when forming opinions, making decisions, and taking action.

- Fiske and Dupree (2014) trust has two components: **warmth and competence**
- Definitions of trust centered around the themes of **reliability, transparency, intentions, accuracy, and competence** (Bartel and Bohon, 2019)
- Hovland et al. (1953) – credibility is based on **expertise, trustworthiness, and goodwill** or good intentions.
- Petty and Wegner (1998) describe communicator credibility as dependent on **perceived expertise and trust** (inferred motivation to be truthful).

## Trust Factors in High-Stress Situations



## The inverted pyramid

