



# The perfect explainer: toolbox for science communication

## Improving communication skills in scientific research (PhD)

Graziano Ciocca - G.Eco



**IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System**  
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Mission 4 "Education and Research" - Component 2: "From research to business" - Investment  
3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures"



# What is “Public Engagement”?

Several initiatives aimed at sharing results and processes of research and nurturing the mutual exchange of knowledge, skills and views with the various social actors.

# Tool n. 1:

## Planning

The first thing to do is to set the goal of your science activity

In pedagogy, the “goal” (or “objective”) is something that the audience will learn/will be able to do after participating in your activity.

# Tool n. 2:

## Fitting the constraints

### 1. Fit the space

Place the seats in a circle, don't make the audience clutter

Use the whole stage

Try to remove barriers

Prepare clear slides

### 2. Stay on time

Test your activity to check if you will respect the given time

Prepare "Shortcuts"

Tip: Usually 1 slide = 1 minute

# Tool n. 3

## Being essential

You should say/show something if it is useful to deal with the topic or engage the audience.

Avoid information overload and scientific jargon.

# Tool n. 4

## Ice breaking

The audience can participate in your activity for three main reasons:

- They want to
- They were obliged to
- They are random encounters

In each case, you have to find a link with these people and engage them.

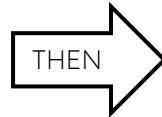
Tip: start with an “ice-breaking” question and use metaphors.

# Tool n. 5

## Amazing the audience

We learn better if:

Different parts of the brain are involved



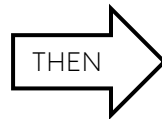
Use different languages and activities

The new knowledge is built upon something that we are already familiar with



Check the knowledge of the audience or assume that they haven't any

Informations are linked to emotions



Amaze with experiments and experiences, storytelling and the setting

# Tool n. 6

## Repeating the message

Redundancy: reinforce the message, avoiding repetition.

Use different media to reinforce the message.

Introduce the topic, explain the topic and close with a “take home message”.

## **Finding balance between speaker and medium**

We should show on the medium everything that SUPPORTS our speech and not REPLACE it.

In a presentation, show key words instead of sentences and show them progressively

Each slide should have less than 5 elements.

Pictures (and slides in general) should be auto-explicative.

# Tool n. 8

## Making it beautiful

Show only things that you want to show and make them visually appealing.

Your presentation should be recognizable even in a single slide (“smashable”)

Don't use too much fonts, gifs and colors. Respect the alignments.

Choose coherent graphics (i.e. don't mix pictures with icons)

# Useful links

Shared and easy graphic creator: [canva.com](https://canva.com)

Free vectors and icons: [freepik.com](https://freepik.com)

Free silhouettes and more: [creazilla.com](https://creazilla.com)

Free pictures: [unsplash.com](https://unsplash.com); [pixabay.com](https://pixabay.com)

Gifs: [giphy.com](https://giphy.com); per crearle, convertirle (es. da .webp) e modificarle: [ezgif.com](https://ezgif.com)

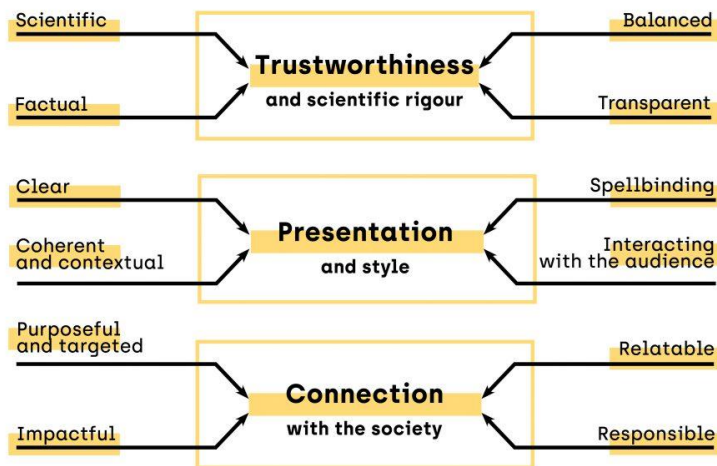
Online polls: [slido](https://slido.com); [kahoot](https://kahoot.com); [mentimeter](https://mentimeter.com); [ahaslides](https://ahaslides.com)

Website to produce memes: <https://imgflip.com/memegenerator>

Generate in 30 seconds free images with AI: <https://creator.nightcafe.studio>

# To read more about:

<https://questproject.eu/wp2-measuring-and-assessing-science-communication-quality/>



## 12 QUALITY INDICATORS for SCIENCE COMMUNICATION

# To read more about:

<https://app.us.lifeology.io/viewer/lifeology/scicomm/how-to-practice-culturally-relevant-scicomm-en-US>

## How to Practice Culturally Relevant SciComm



Mónica Feliú Mójer



Mya Pagán



### Culturally Relevant SciComm

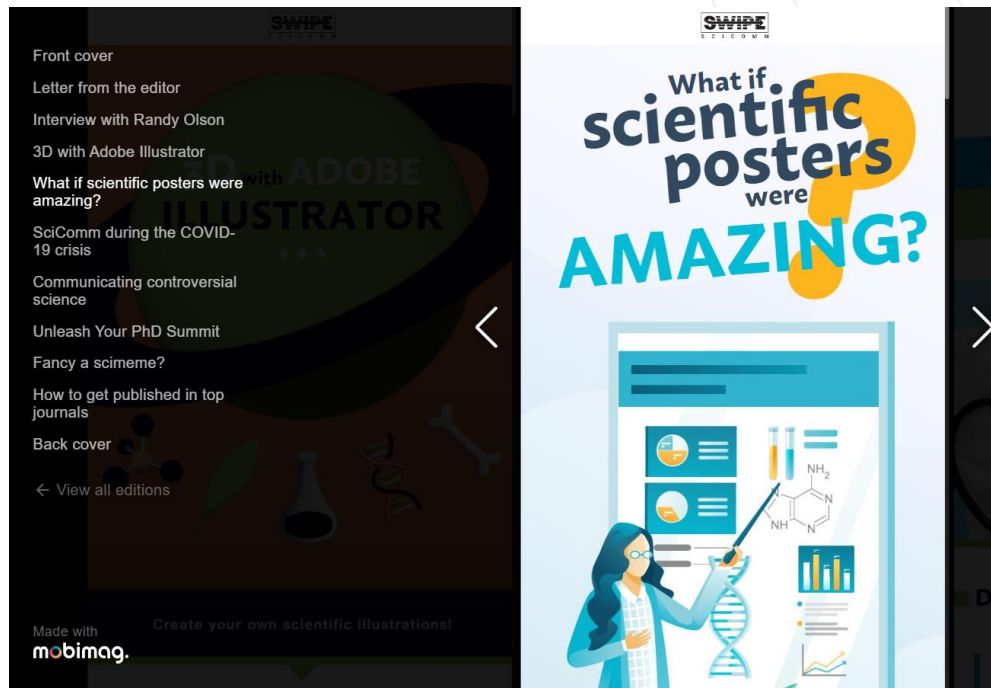
¡Hola! In this course, learn principles and strategies for culturally relevant science communication, to help you connect science with your audience's lives.

43 CARDS



# To read more about:

<https://mobimag.co/swipescicomm/i1/5>



# To read more about:

*Principles on how to design a great hands-on activity: Read from point 4.1 to 4.5*



The screenshot shows the top navigation bar of the JCOM website. The logo 'JCOM JOURNAL OF SCIENCE COMMUNICATION' is on the left. On the right, there are social media icons for Facebook, Twitter, and RSS, a 'Login' link, and a search icon. Below the navigation bar is a horizontal menu with links for 'About JCOM', 'Editorial team', 'News and highlights', 'Call for papers', 'Browse JCOM', 'Submit', and 'Contact'. The main content area features the article title 'Hands-on climate engagement: principles for effective hands-on activities and demonstrations' in blue, with a 'Practice Insight' badge in an orange box to the right. Below the title, the authors 'Angus Croak, Graham J. Walker' are listed with an email icon. The article text follows, discussing the challenges of climate communication and the principles derived from a COVID-19 project.

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**Hands-on climate engagement: principles for effective hands-on activities and demonstrations** Practice Insight

Angus Croak, Graham J. Walker ✉

Communicating climate change to foster engagement and action is a challenge for science communication requiring novel, creative and diverse methods. In this practice reflection, we explore the potential of climate change related hands-on activities and demonstrations. Following a rapidly implemented COVID-19 project creating climate activities and workshops in the Pacific, we reflect on the underlying qualities of such activities to generate principles to guide design and facilitation of hands-on climate engagement. Through a fusing of theory, literature and practice, five principles are generated: personal and collective relevance, balancing risks/impacts with solutions, deliberative discussion and collaborative/participatory critical thinking, intrinsic motivation and positive emotional engagement, and opportunities for agency and action — with inclusive approaches providing foundation. We then describe applying the principles to refine content and create new activities.

# To watch more about:



Hot to avoid death by  
PowerPoint

YouTube channel:  
TedX Talks

# THANKS!

Graziano Ciocca



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**Contatti**

f Instagram G.Eco  
✉ info@gecologia.it  
☎ 392 1924792

**www.gecologia.it**

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