

COMMUNICATING SCIENCE

Finding your role and doing it well

Clarissa C. David

U of the Philippines College of Mass Communication

SCIENCE IS OFTEN COMMUNICATED

- To peers in journals and conferences
- To students in classrooms and mentoring relationships
- To funding agencies in proposals
- To other members of the academe
- In all these, effective communication is necessary

WHO ELSE SHOULD SCIENTISTS COMMUNICATE WITH?

- The public
- High-level decision makers in policy and politics
- Industry and other stakeholders on the “application” side
- The civil society networks or NGOs
- To get to everybody, the PRESS



HOW DO WE DO IT?

Well. Try to do it well.

HOW DO I KNOW ABOUT

Students & Educators

CERN values its interaction with students and educators. A number of educational programmes, guided tours and summer schools are available for students and teachers, to help both groups learn more about CERN, particle physics and our place in the universe.

Teachers

- Why not spend your summer participating one of our [teacher programmes](#)?
- You could arrange a visit to [S'Cool LAB](#), where students can do hands-on experiments in particle physics.
- Or [arrange a visit](#) to CERN for you and your class?

Students

- Check out the [About CERN](#) section for general information on [particle physics](#), CERN, its [accelerators](#) and [experiments](#).
- How about spending your university training period in an exciting international and multidisciplinary environment at the forefront of engineering, technology and physics? Try a [CERN Student work placement](#).
- CERN also offers a [summer student programme](#) and further internship opportunities for students. Get in touch to find out more!
- CERN's [high-school student intern](#) programme offers students from 16-18 years to CERN for two weeks, to gain practical experience.
- CERN's [beamline for schools](#) competition allows students to create and perform a scientific experiment.

Kids

- Check out the interactive games and

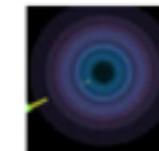
Google

large hadron collider

All Images **News** Videos Maps More

Settings Tools

About 30,500 results (0.59 seconds)



First-Ever Evidence of Strange Bouncing Light Particles Has Been ...
[ScienceAlert](#) - 4 Sep 2017

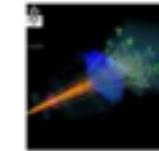
The observation took place in the **Large Hadron Collider**, during a 2015 run in which it was smashing lead nuclei together. This is a much ...



EPFL Physicists Construct New Particle Detector for Large Hadron ...
[HPCwire \(blog\)](#) - 8 Sep 2017

The **Large Hadron Collider** (LHC) at CERN, the European Organization for Nuclear Research, produces hundreds of millions of proton ...

Science Daily



EPFL Building New Particle Detector for Large Hadron Collider
[insideHPC](#) - 6 Sep 2017

The **Large Hadron Collider** (LHC) at CERN, the European Organization for Nuclear Research, produces hundreds of millions of proton ...

CERN unveils its high-power detector that will hunt for "brand new ...
[Alphr](#) - 6 Sep 2017

[View all](#)



Large Hadron Collider finds 'direct evidence' of light interacting with ...
[Daily Mail](#) - 16 Aug 2017

A new experiment at the **Large Hadron Collider** has confirmed one of the oldest predictions in quantum physics. Physicists from the ATLAS ...

Groundbreaking Observation Confirms an Important Prediction of ...
[Gizmodo](#) - 16 Aug 2017

[View all](#)



How supermarkets use particle physics to save thousands of tonnes ...
[The Independent](#) - 11 Sep 2017

Supermarkets are using particle physics developed for the world's largest and most powerful particle accelerator – the **Large Hadron Collider** ...

About CERN Students & Educators Scientists CERN

TOPIC The Large Hadron Collider

This content is archived on the [CERN Document Server](#)

The Large Hadron Collider (LHC) is the world's largest and most powerful [particle accelerator](#). It first started on 10 September 2008, and remains the latest addition to CERN's [accelerator complex](#). The LHC consists of a 27 kilometre ring of superconducting magnets with a number of accelerating structures to boost the energy of particles along the way.

Inside the accelerator, two high-energy particle beams travel at close to the speed of light before they collide. The beams travel in opposite directions in separate beam pipes – two tubes kept at [ultrahigh vacuum](#). They are guided around the accelerator ring by a strong magnetic field maintained by [superconducting](#)

A successful example of public engagement in science

THERE ARE DIFFERENT OBJECTIVES FOR COMMUNICATING SCIENCE WITH NON-SCIENTISTS

- Educating general public about science
- Creating interested publics and audiences, those who will follow because it's interesting
- Advocacy among decisionmakers, elite, stakeholders with special interest

GENERAL EDUCATION

- Best done within the system, to take advantage of scale
- General education for adults. How do you reach them and how do you make them interested?
- Broad objective is difficult to plan around, no specific guidance on messaging

CREATING A “SCIENCE ISSUE PUBLIC”

- Segments of the population that will find interest in the work, spectators
- General interest, not educational
- Build it, no current specific interest but try to attract them by generating interesting, exciting, cool, and weird content

ADVOCATING FOR SCIENCE

- Important decision makers in policy and practice
- They read the newspapers, watch the news, learn about learn about science through media and specialized publications
- You may be advocating for a specific policy, of advocating support for science in general

ENGAGING AND ADVOCATING

Engaging is advocating and
educating is advocating

This is not a one-way
relationship, we are heard if
we listen.



LONG-TERM INVESTMENT IN THE FIELD

- Poor public understanding of science leads to difficulties for the scientific community to influence policy, practice, and people
- Not good to be depicted simply as “experts” on whom people should place blind trust
- Transparency necessary for engagement, show how the work is done, and respecting trepidations if any

PAUSE TO CONSIDER

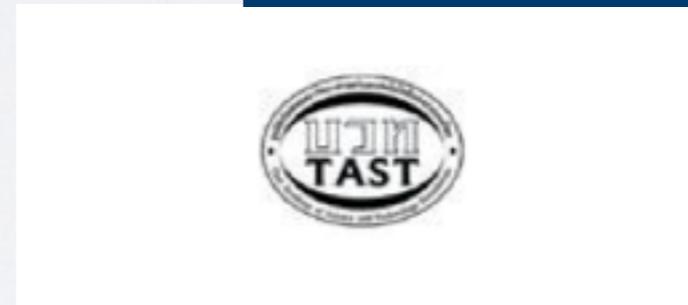
- Whose role is this really?
- Should we expect scientists to do this?
- Should we expect journalists to study science?
- What is the role of professional communicators?
- When scientists do this, it takes up time and focus

YOU DON'T DO ALL OF THIS ALONE

- A high-level policy body. Direct audiences are not the public but the intermediaries
- Educational institutions want to strengthen science instruction
- Issue-interest groups use scientific studies for advocacy or practice
- Media looking for newsworthy stories relevant to hot topics

INSTITUTIONAL SCIENCE COMMUNICATION

- Guided by fundamental values: truthfulness, transparency, willingness of the scientific world to engage in an active dialogue with society, independence, access to scientific sources



- Encouraging scientists to engage with media





UNDERSTANDING AUDIENCES

Communication should always be audience-centered



AUDIENCES ARE NOT HOMOGENOUS

They have no compelling reason to listen to you.
You have to show them why you are interesting

AUDIENCE-ORIENTED

- Is this a dissemination objective? A persuasion objective? A “reach” objective?
- Who are the key audiences for each one?
- Who are they, how can they be reached, media habits, level of natural interest, what kinds of people do they identify with, what kind of appeal would work, what would they find interesting?

SEGMENT THE AUDIENCE

- Treat each audience segment differently in terms of channel and message design
- What does each segment like, where do we find them?
- What do they already know? what are the gains of engaging them?

CHANNELS: CONVENTIONAL AND UNCONVENTIONAL

- News vs entertainment
- Journals and books vs. media and social media
- Conferences vs. media appearances and presenting research to policymakers
- Media-based/indirect
- Websites: news websites, specialized content sites, popular science content-types
- Social media
- Fora, talks

EXAMPLE: ADVOCATING SCIENCE AMONG INFLUENTIAL ELITES

- Legislators, Cabinet-members, international organizations, NGOs/CSOs whose areas of work are related to yours
- Each has different habits, opinions, levels of knowledge, appreciation, and inclination toward science

EDUCATED GUESSES

- Policy elites read the top newspapers, the printed version
- International NGOs follow specialized publications and online channels
- Government agencies monitor media, if it's pertinent to them it will get circulated
- Other scientists are in online groups

MAP THE CHANNEL TERRAIN

- What are these? How do we get on them?
- Is there science content there now?
- What channels can we start on our own and get a substantial audience to make the cost worth the benefit?

STAKEHOLDER ANALYSIS

You have your list of audiences, start prioritizing.

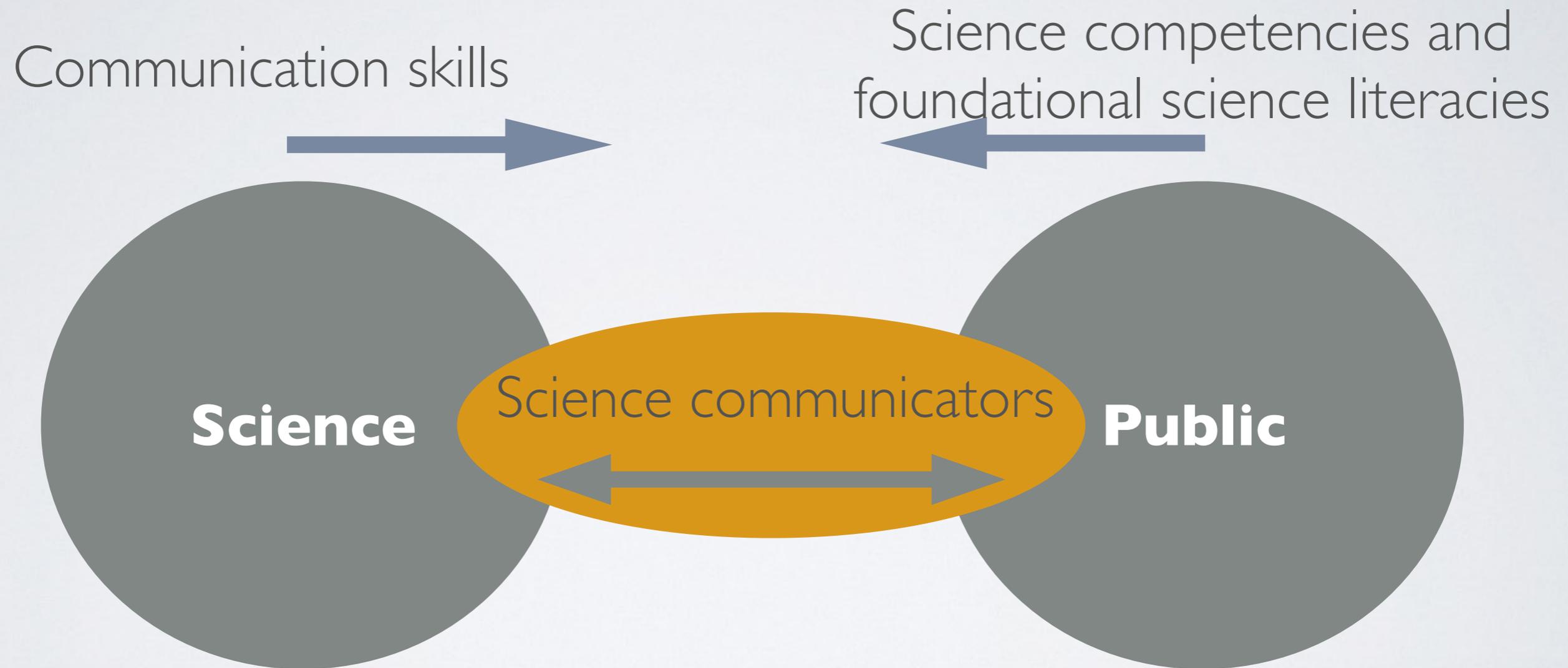
You can't do everything at once. Who are the most important to your goal, start with them



HOW TO MAKE YOUR CONTENT INTERESTING TO NONSCIENTISTS?

- Short pieces, written without jargon
- Don't focus on the scientist, talk about the science
- What is cool/weird about this?
- How can this work improve one's life? How can it lead to products that could change the world?
- Connect with built-in interest publics: climate change, conservation, health, medicine

“GRADIENT” MODEL



WHAT IS THE ROLE OF ACADEMIES OF SCIENCE?

- Eminent senior scientists with the experience and breadth of knowledge to think in terms of systems and pipelines
- Breathing room to devote more time to communicating in lieu of research
- Capacity to speak with those outside the disciplines
- Constituency are scientists in the country

ACADEMIES AND THEIR ENGAGEMENT



News feeds, FB, Twitter, podcasts, science for journalists, experts directory for press



Science teaching, twinning programs between scientists and parliament, thematic public conferences



Science and entertainment exchange, cultural programs, research agenda for science comm, video series for distinctive voices

**DECIDE ON
WHAT YOUR
ROLE IS**

Focus on it and
don't get
distracted



MASSIVE REACH OF ONE GREAT COMMUNICATOR



- Creating individual followings is something highly senior scientists can do if they are interested, but they will need support

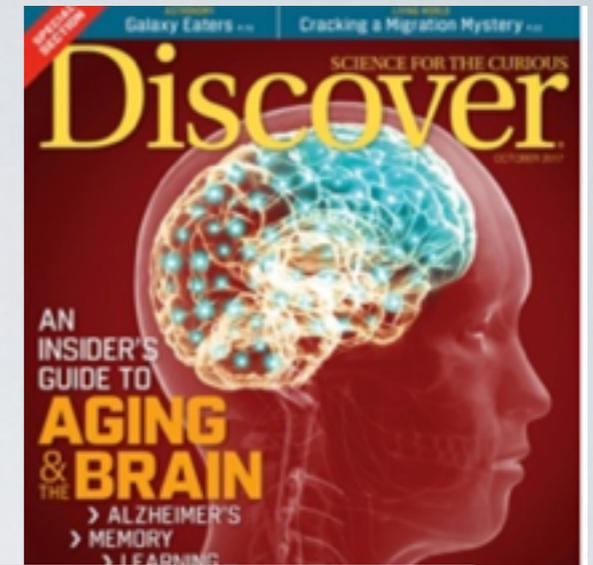
MEDIA-CENTERED ADVOCACY

- Efficient way to bring science stories to public attention
- Honing the skills of journalists that will specialize in science reporting, create the capacity and interest in covering science
- Press conduit to the public but also decision makers

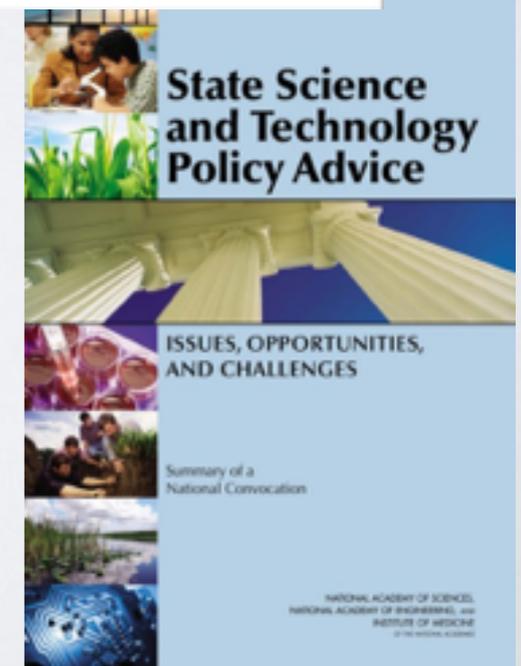
FOCUS ON ENGAGING THE REPORTERS AND EDITORS

- Who are the science journalists and what should they be doing?
- No amount of training of scientists to be good communicators will help get the messages across if the mediators (the press) don't report it accurately

WRITTEN PRODUCTS FOR PUBLIC, POLICYMAKERS, AND PRESS



Not journals or the general public



TAKE IT ISSUE-BY-ISSUE

- Not all science stories and issues can benefit from public engagement
- Which constituencies will have an interest in a specific story?
- Not every piece of research will find an audience



FIND YOUR VOICE AND ROLE

- Do what makes sense for your organization given its particular context
- Listen to the audience
- Public engagement is a long-term investment in the sustainability of scientific research





Communicating Science

It's worth it.

END.

ccdavid2@up.edu.ph