De-Jargoning Your Talks

Can you tell your story in 6 words?

This seminar is being streamed on YouTube and will be posted.
Sharing Planetary Science

De-Jargoning Your Talk

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Having trouble hearing? Call in to join by phone:
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Meeting ID: 1613 616 093#

This seminar is being streamed on YouTube
Dr. Olivia V. Ambrogio, AGU

Olivia V. Ambrogio is the Assistant Director of the Sharing Science program at the American Geophysical Union (AGU). For 11 years, Olivia has conducted science-communication workshops and webinars and developed online resources to support scientists in building dialogue and trust with others, as well as sharing information about their research.

Steven C. Smith, NASA Johnson Space Center

Steven C. Smith is the Education Specialist for NASA’s Educator Professional Development Collaborative at the Johnson Space Center. Steven helps to develop, package, and deliver professional development and STEM Engagement opportunities.

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Christine manages the LPI education and public engagement staff, leads LPI’s scientist engagement efforts, and has extensive experiences engaging different audiences in astronomy and planetary science.

This seminar is being streamed on YouTube
What is jargon?

► Why do we use it?

► When is it important to avoid using jargon?

► Why is it important to avoid using jargon?
Speaking the same language: *jargon and how to avoid it*

Olivia V. Ambrogio – Assistant Director, AGU Sharing Science

@AGU_SciComm
Things to remember when talking about your science
(Almost) No one knows what you’re talking about

Ph.D. in Marine Bio

Various honors/recognition

Reads btw 175-230 books/year
(Almost) No one knows what you’re talking about
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(Almost) No one knows what you’re talking about
Removing jargon ≠ “dumbing things down”
Speaking the same language

- Use clear, simple terms
- Avoid jargon and acronyms
- Provide context
- Avoid getting bogged down in minor details
Jargon

- Technical terminology
- Undefined/excessive acronyms
- Obscure words
- Unnecessary long words
- Words with multiple meanings
“MODELING”
“MODELING”
When most people hear that word, they don’t think of computer simulations.

AGU SHARING SCIENCE
Helping you share science effectively.
“MEAN”
“MEAN”

When most people hear that word, they don’t think of an arithmetic average.
“FAULT”
“FAULT”
When most people hear that word, they don't think of a fracture along which rocks have moved.
My greatest strength? Well, I've been told I'm highly productive.
Watch your Words!
Science vocabulary with dual meanings

<table>
<thead>
<tr>
<th>WORD</th>
<th>SCIENCE MEANING</th>
<th>PUBLIC MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bear</td>
<td>difference in magnetic polarization</td>
<td>out of phase</td>
</tr>
<tr>
<td>Mode</td>
<td>blue planet in the solar system</td>
<td>important role passed from person to person</td>
</tr>
<tr>
<td>Crest</td>
<td>the highest point of a mountain</td>
<td>edge of a plateau</td>
</tr>
<tr>
<td>Peak</td>
<td>the highest point of a mountain</td>
<td>responsible for accidental mortality</td>
</tr>
<tr>
<td>Step</td>
<td>the smallest unit of step</td>
<td>initial stage of romantic relationship</td>
</tr>
<tr>
<td>Grade</td>
<td>the inclination of a slope</td>
<td>point of departure</td>
</tr>
<tr>
<td>Plastic</td>
<td>substance that is easily moldable</td>
<td>synthetic material</td>
</tr>
<tr>
<td>Matter</td>
<td>physical substance in general</td>
<td>basic unit of mass</td>
</tr>
<tr>
<td>Surf</td>
<td>surface of a liquid in motion</td>
<td>swimming</td>
</tr>
<tr>
<td>Shelf</td>
<td>a ledge-like surface</td>
<td>top of a shelf</td>
</tr>
<tr>
<td>Submarine</td>
<td>a vessel moving under the sea</td>
<td>vessel</td>
</tr>
<tr>
<td>Current</td>
<td>the flow of a liquid in motion</td>
<td>flowing</td>
</tr>
<tr>
<td>Round</td>
<td>a vessel moving in a circle</td>
<td>round</td>
</tr>
<tr>
<td>Forth</td>
<td>to move forward</td>
<td>forward</td>
</tr>
<tr>
<td>Root</td>
<td>the end of a plant</td>
<td>root</td>
</tr>
<tr>
<td>Swirl</td>
<td>the motion of a liquid in motion</td>
<td>twist</td>
</tr>
</tbody>
</table>

**Processes**

- **Model**
  - computer simulation
  - predicted fashion trends
- **Cycling**
  - flow of substances or concepts
  - using bicycle
- **Bending**
  - electromagnetic attraction between atoms
  - making a curve or bend
- **Driver**
  - influential factor
  - someone who drives a vehicle
- **Force**
  - strength of attraction in motion
  - make someone do something against their will
- **Stress**
  - pressure or tension on a material or system
  - mental or emotional stress
- **Sample**
  - to take a sample for analysis
  - a small part of something
- **Productive**
  - involving organic material or a product of mass transfer
  - busy and efficient
- **Code**
  - software computer language
  - encrypted message

**Space**

- **Jet**
  - gas stream ejected from a nozzle or deflagrating substances
  - airliner powered by jet engines
- **Satellite**
  - space object in orbit around a planet
  - source of data about the universe
- **Swarm**
  - a large group of plants or animals
  - a large group of bees

**Units**

- **Charge**
  - the amount of electric charge in a material
  - charged particle for elemental and ionized substances
- **Hertz**
  - unit of frequency
  - unit of radio frequency
- **Scale**
  - system of measurement
  - order of magnitude
- **Bar**
  - unit of pressure
  - the amount of resistance to pressure
- **Pressure**
  - force applied to a surface
  - the amount of force per unit area
- **Mole**
  - unit of amount of a substance
  - mole of anything

What are three words/phrases you use regularly in your work that might be inaccessible or misinterpreted by those outside your field?

What are some alternatives you could use?

If you really need to use it, what’s a clear and memorable way to explain or define it?

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IS IT JARGON? PLAY THE GAME AND FIND OUT!

- **Do you only use it when talking about your science?**
- **Does it have a different meaning in day-to-day conversation?**
- **Are friends/neighbors/relatives in a different profession unable to explain or define it?**
- **When you defend using it, do you say things like “Everyone SHOULD know what it means”?**
- **Is it serving as a barrier to communication instead of a bridge?**

If you checked a box for any of these questions, it’s probably jargon!

www.agu.org/sharingscience
...but pitfalls abound!
Silicate chemistry is second nature to us geochemists, so it's easy to forget that the average person probably only knows the formulas for olivine and one or two feldspars.

And quartz, of course.

Of course.

Even when they're trying to compensate for it, experts in anything wildly overestimate the average person's familiarity with their field.
The Up-Goer Five

US SPACE TEAM'S
UP GOER FIVE
THE ONLY FLYING SPACE CAR THAT'S TAKEN ANYONE TO ANOTHER WORLD
(EXPLAINED USING ONLY THE TEN HUNDRED WORDS PEOPLE USE THE MOST OFTEN)

THING TO HELP PEOPLE ESCAPE REALLY FAST IF THERE'S A PROBLEM AND EVERYTHING IS ON FIRE SO THEY DECIDE NOT TO GO TO SPACE

STUFF TO BURN TO MAKE THE BOX WITH THE PEOPLE IN IT ESCAPE REALLY FAST

THING TO CONTROL WHICH DIRECTION THE ESCAPING PEOPLE GO

PLACE WHERE FIRE COMES OUT TO HELP THEM ESCAPE

DOOR

PEOPLE BOX

PART THAT FLIES AROUND THE OTHER WORLD AND COMES BACK HOME WITH THE PEOPLE IN IT AND FALLS IN THE WATER

COLD AIR FOR BURNING (AND BREATHING) THIS PART HAD A REALLY BIG PROBLEM ONCE

CHAIRS

PART THAT GOES ALONG TO GIVE PEOPLE AIR AND WATER AND OXYGEN INSIDE THE BOX, SO ONE COULD LIVE THERE.
THE UP-GOER FIVE TEXT EDITOR

CAN YOU EXPLAIN A HARD IDEA USING ONLY THE TEN HUNDRED MOST USED WORDS? IT'S NOT VERY EASY. TYPE IN THE BOX TO TRY IT OUT.

http://splasho.com/upgoer5/
The Up-Goer Five Challenge

Sharing Science @AGU_SciComm · Dec 12, 2019
Wonder boxes and tree feet!
#Upgoerfive challenge session happening now in Moscone South 216!
#AGU19

Sharing Science @AGU_SciComm · Dec 12, 2019
Carbon dioxide = "world-change air" at the #AGU19 #UpGoerFive challenge session.

Dr. Jessica Ball 🎓 @Tuff_Cookie · Dec 12, 2019
Already guffawing in the Up-Goer Five session. Come to Moscone South 216 right now for some funny talks! #AGU19 #upgoerfive
Plain language summaries: a good first step

“These upper atmospheric changes are interpreted as due to warming and expansion of the Martian thermosphere due to radiative heating of the dust aerosols in the lower atmosphere. Furthermore, the observations suggest that radiative cooling of the Martian thermosphere, due to collisions between [oxygen] and [carbon dioxide], is more effective in the morning hours than in the evening.”

Rao et al. 2020
DOI 10.1029/2020JE006430

“We found several craters that had been marked as very young on older geological maps of the Moon but are very smooth and lack rocks; we believe that they were misclassified. We also found one moderately old, but extremely rocky crater. In zoomed-in images we found very fresh, unusual landslides on its slopes; we suggest that these landslides were caused by strong, geologically recent moonquakes.”

Wang et al. 2020
DOI 10.1029/2019JE006091

“We mapped the shape of the ocean floor beneath the Getz Ice Shelf, which controls water circulation under the ice shelf. We found the ice shelf has three separate portions each with deep troughs that provide pathways for warm water to the edge of the ice sheet.”

Cochran et al. 2020
DOI 10.1029/2019JE005493

#SciSummary
Plain language summaries: a good first step
Sometimes it’s not the jargon that’s the problem
Sometimes it’s not the jargon that’s the problem

Context!

Implications!
Sometimes it’s not the jargon that’s the problem

Greetings, pathetic masses! Fear not, for I have brought you SCIENCE!
Sometimes it’s not the jargon that’s the problem

Social Identities, including:

- Age
- Race
- Gender
- Ethnicity
- Physical abilities
- Sexual orientation
- Citizenship
- Learning style
- Education
- Family status
- Religion
- Economic class
- Native language
- (etc.)
Thank you

@AGU_SciComm
https://linktr.ee/sharingscience

oambrogio@agu.org  @Squidfan  @BaggageCla
Describing Your Research

- How can you describe your work simply, without using jargon?
- Can you do it in 30 seconds?

Any volunteers?

- Please enter your own short description of your research in the chat.
Steven C. Smith
NASA STEM Education Specialist
CULTURALLY RELEVANT PEDAGOGY
&
CULTURALLY RESPONSIVE TEACHING

The Importance of Story
A story can go where quantitative analysis is denied admission: our hearts.

Data can persuade people, but it doesn’t inspire them to act; to do that, you need to wrap your vision in a story that fires the imagination and stirs the soul.

-- Harrison Monarath

The Irresistible Power of Storytelling as a Strategic Business Tool
What is your aim?

If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.

Antoine de Saint-Exupery
What is Culture?
“If you ask me, “What is culture?” I would say it is all the things we do as a nation or group or inhabitants of a city or region, yet no longer pay attention to. It’s the things we take for granted. I’m a New Yorker, and so, for example I no longer notice when I walk past a seventy-story building. Yes every tourist who comes to New York City from any place in the world is continually looking up. So I ask myself, What do people elsewhere take for granted in their own culture?”
Ladson-Billings (1995) defined *culturally relevant pedagogy* as:

“a pedagogy that empowers students intellectually, socially, emotionally, and politically by using *cultural referents* to impart knowledge, skills, and attitudes.”
Culturally Responsive Teaching

Gay (2002) defined culturally responsive teaching as:

“using the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching them more effectively.”
Importance of “other”.

So basically…

A student’s personal experiences, cultural perspectives, interests and passions should be the **starting point** of all education, including learning in Science, Technology, Engineering and Mathematics
To this I want to add…

The importance of Other

I. A Black History Month presentation…
Potential Pitfalls and Dangers

1. Stereotypes and Prejudices
2. I don’t see color…

Potential Pitfalls and Dangers
Potential Pitfalls and Dangers

3. Verbal Blackface
Teacher Insider Tips – How to carry out CRT in the Classroom & Meet Science Standards!

Smith’s Five Step Path to In Situ Engagement:

1: Ask the question.
2: Listen and follow up.
3: Elicit stories 😊
4: Share your story.
5: Make connections.
Research on Jargon

► Jargon disrupts our ability to fluently process scientific information (even when definitions are provided).

► The use of jargon affects audience’s identification with the science community, scientific interest, and perceived understanding.

► It may undermine our goals in engaging audiences.

► “Scientists and experts should use easy-to-understand language and clear communication when seeking to engage the intended audience with greater dialogue, participation, and inclusiveness.”

For further information, see “The Effects of Jargon on Processing Fluency, Self-Perceptions, and Scientific Engagement,” https://journals.sagepub.com/doi/full/10.1177/0261927X20902177 and

Is it jargon?

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AGU “Watch Your Words”

Planetary Jargon Examples

- silicates and phyllosilicates
- mafic
- felsic
- statigraphy / stratigraphic
- morphology/ geomorphology
- geochemistry
- sulfates
- fluvial
- aolian
- volatiles
- geological periods (Amazonian, Cenozoic, etc.)
- GA, GYA, MA, MYA
- AU
- NEO/ NEAs
- hummocky
- clay

- habitability
- conglomerate
- topographic
- microfossils
- rift
- tectonism/ tectonics
- ices
- lithosphere, aesthenosphere
- in-situ
- traverse
- obliquity
Your Audience’s Knowledge

► Many children (ages 6-10) know the names of the planets. They may be unfamiliar with terms and concepts related to composition, density, and gravity.

► Older children (ages 11-16) have learned some characteristics of planets, the structure of the Earth, and plate tectonics. They will not be familiar with geological periods or planetary features beyond craters and volcanoes.

► Young adults and older adults may not recall anything further about planetary science or solar system exploration.

How does this affect your presentations?
How can you find out more about a specific audience’s knowledge?
Resources

AGU’s Watch Your Words

De-Jargonizer
scienceandpublic.com/Home/About?whatIsIt

LPI: General Understanding of Planetary Science
www.lpi.usra.edu/education/scientist-engagement/resources_DeJargoning_Your_Talk.pdf
Thanks!

We have a short poll and an optional survey; we appreciate your feedback!

Past seminar recordings and presentations are available at [www.lpi.usra.edu/education/scientist-engagement](http://www.lpi.usra.edu/education/scientist-engagement).

Contact us with your thoughts and questions!

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