Communication: an Integral Component of the Undergraduate Experience

Dr. Adam Oliver Brown
Google Images: Scientist Stereotype
Scientists’ Public Communications

synergy
We need to have
maximize
utilization of multitasking
and don’t overlook the
custom price
point
interface
and not be the

Jargon
Science and Society

- Science is important
  - Learning and discovery
- For the general public
  - Environment
  - Health
  - Technology
  - Cut down on the pseudoscientific bullshit on the Internet
Climate Change Denial

NO SCIENTIFIC PROOF

The REAL STORY

FDA PROPOSES NEW
Belief as False Knowledge

Your Profile Here...

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Your profile gives you access to personal messages, connections, and Group invitations.

Set up your Profile now >>

Do you believe humans are responsible for climate change?

- Yes: 11.9% (837 votes)
- No: 88.1% (6061 votes)

Every Trading Day
Biotechnology and GMOs

Séralini et al., 2012
Golden Rice and Vit A Deficiency
Vaccines and Public Health

Wakefield et al., 1998
Measles—United States, 1950-2001

Cases (thousands)

Vaccine Licensed

Centre for Disease Control
Homeopathy and Magical Potions

Homeopathy
It may seem prettier, but it's still just water.
Responsible Citizenry and Informed Decision-making

- Important to know about
  - Effect of GH gases on climate (Environmental Impact)
  - Technology on Fuel and Energy efficiency (Economic Impact)
  - Which politicians support evidence-based policies and not ideology (Political Impact)
  - Being supportive of research and exploration (Academic Impact)
Communication and Academia

- Intra-disciplinary communication
- Inter-disciplinary communication
- Pedagogy
- Communication to the Public
Communicating Science

a) among specialists

- Introduction and context
- Materials and methods
- Results
- Discussion and importance
Communicating Science b) to non-specialists

- Bottom line take-home message, why am I here?
- So what?
- Background information and context
Communication 101

- Know your audience
- Speak to your audience
Who are ‘The Public’?

- Made up of many different special interest groups, demographics, societal sectors
Framing for a Diversity of Audiences
Framing for a Diversity of Audiences
Framing for a Diversity of Audiences
Framing for a Diversity of Audiences
## Lose the Jargon

<table>
<thead>
<tr>
<th>Scientific Term</th>
<th>What the public hears</th>
<th>Better Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>Hunch, speculation</td>
<td>Scientific understanding</td>
</tr>
<tr>
<td>Positive trend</td>
<td>Good trend</td>
<td>Upward trend</td>
</tr>
<tr>
<td>Values</td>
<td>Ethics, monetary value</td>
<td>Numbers, quantity</td>
</tr>
<tr>
<td>Manipulation</td>
<td>Illicit tampering, cheating</td>
<td>Data processing</td>
</tr>
<tr>
<td>Positive feedback</td>
<td>Good response, praise</td>
<td>Self-reinforcing cycle</td>
</tr>
</tbody>
</table>
The Power of the Metaphor
The Power of the Metaphor
Biological Metaphors

Photosystem II

Photosystem I

ATP

NADPH

Mill makes ATP
Exams as Communication

- Students view them as ‘Point Scoring’
- We evaluate their ability to convey material
- Must be able to explain content to uninitiated
Presentations as ‘Scientists’ to different audiences

- Town Hall Meeting
- Business Group
- Government Agency
- High School Auditorium
## Public Communication of Science

### SCI3101  The Public Communication of Science

(3,1.5,0) 3 cr.

A multi-disciplinary approach to communicating Science towards non-specialist audiences by exploring the principles and practices of communication, public speaking and media relations. Theoretical topics include framing issues for various audience-types, use of metaphor and appropriate terminology in story-telling.

Prerequisites: 21 course credits offered by the Faculty of Science at the 2000, 3000 or 4000 level. This course cannot count as a Science optional course, but may be used as an elective. Limited enrolment.

### SCI3501  La communication scientifique au grand public

(3,1.5,0) 3 cr.

Une approche multidisciplinaire de la communication scientifique pour des auditoires non spécialisés afin d’explorer les principes et pratiques de la communication, les discours publics et les relations avec les médias. Les sujets théoriques abordés incluent l’encadrement des enjeux scientifiques pour divers auditoires, les métaphores et la terminologie appropriée.

Préalables: 21 crédits de cours offerts par la Faculté des sciences au niveau 2000, 3000 ou 4000. Ce cours ne peut pas être utilisé comme cours optionnel en sciences, mais il peut être utilisé comme cours au choix. Cours contingenté.
Public Communication of Science
We’ve Got Our Work Cut Out

I DON’T ACCEPT FUNDAMENTAL TENETS OF SCIENCE
AND I VOTE
Activities

- Think-pair-share brief communication on your work
  - Involve flipping structure, framing for audience type, lose the jargon
- The Um game
- Improv while staying on message
  - Using random slides