

Communicating and Collaborating Across Disciplines:

Use simple words



CLIMB

Collaborative Learning and
Integrated Mentoring in the Biosciences

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Our CLIMB curriculum of workshops on communication in scientific research:

1) Delivering scientific presentations and posters for impact:

Make it stick with SUCCESs

2) Crafting the introduction to a scientific presentation:

Create a mystery box

3) Communicating and collaborating across disciplines:

Use simple words

4) Displaying visual evidence in scientific presentations:

Help viewers make valid scientific decisions

Let's consider some buzz words in scientific research

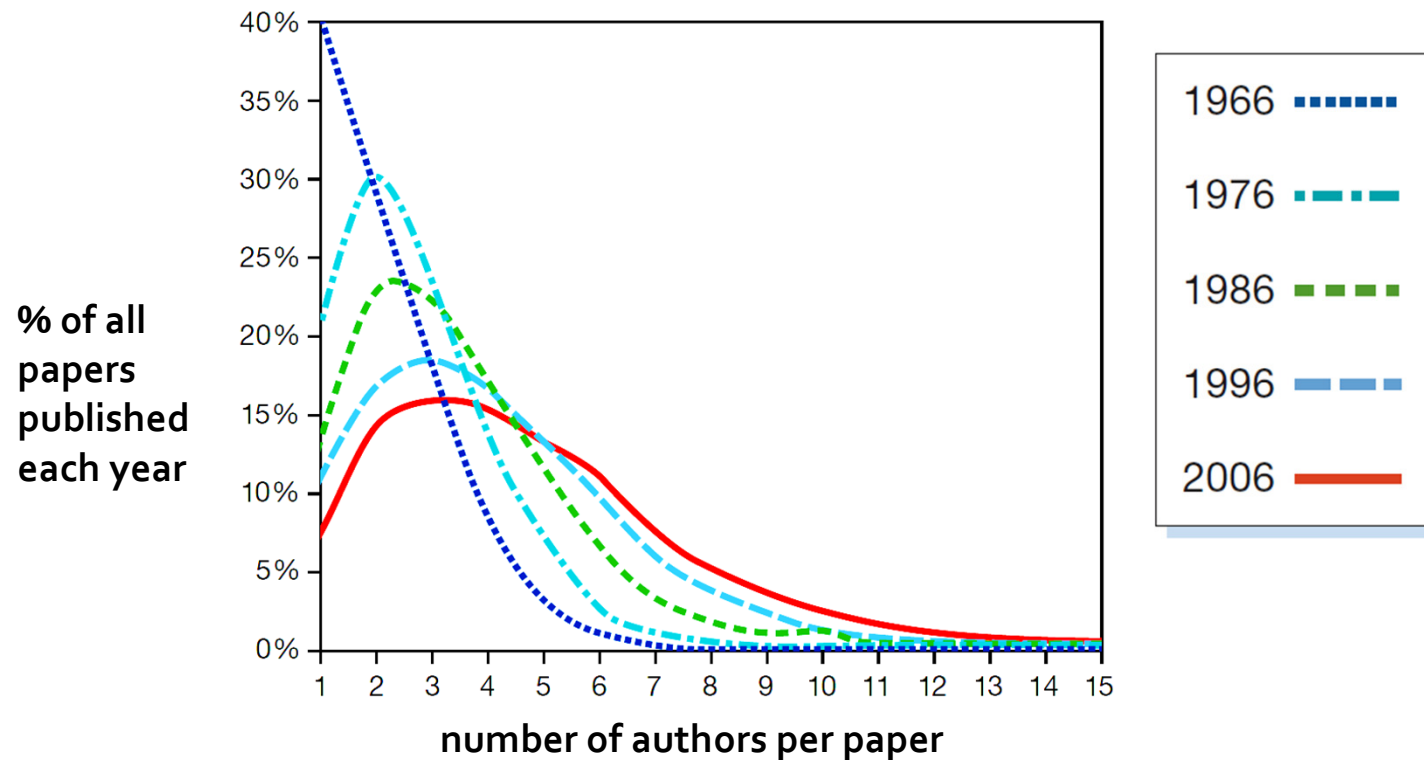
- IBiS – **Interdepartmental** Biological Sciences
- IGP – **Integrated** Graduate Program in Life Sciences
- NUIN – NU **Interdepartmental** Neuroscience
- CLIMB – **Collaborative** Learning and **Integrated** Mentoring in the Biosciences

But what do these buzz words actually mean?

Do we actually discuss how to collaborate with others?

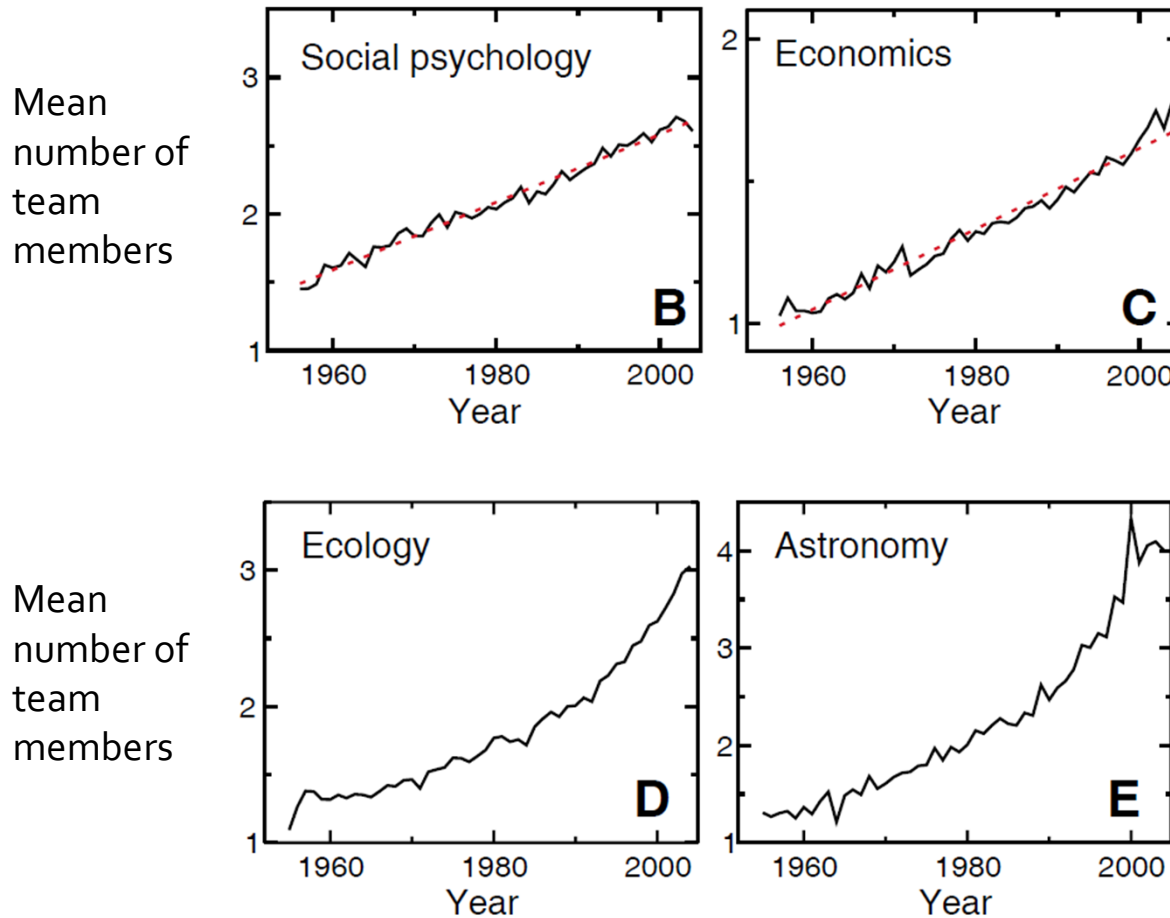
Why do we need to address collaborating across disciplines?

Because the frequency of collaborations is increasing



Dellavalle, et al, *European Mol. Bio. Org. Reports*, 2007, 8, 988.

The number of authors in other fields is also increasing



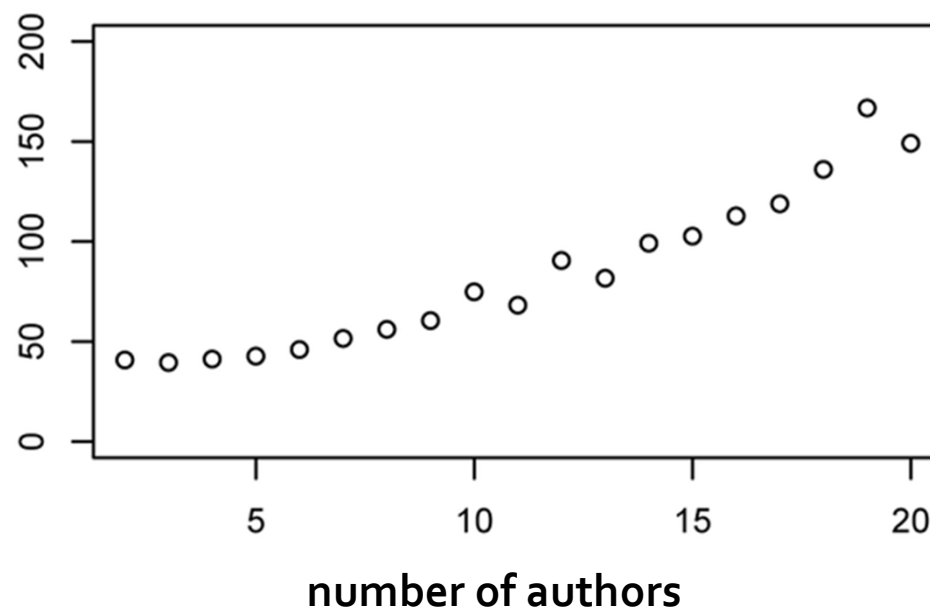
Luis Amaral, et al; *Science*, 2005, 308, 697.

Why should we seek collaborations?

because having more collaborations may increase impact

K. Lee, et al;
Plos ONE, 2010,
e14279.

average
number of
citations



Study shows correlation between large numbers of authors and of citations

Take-Home Messages

- **The frequency of collaborations is increasing**
- **Having more collaborations may increase impact**
- **So, what does it mean to collaborate and communicate across disciplines?**
- **And how do we do this?**

What does it mean to collaborate across disciplines?

Seek cognitive diversity



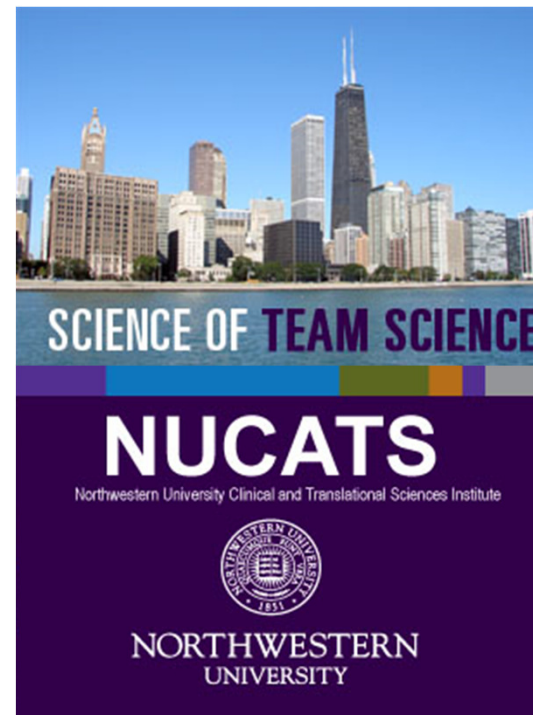
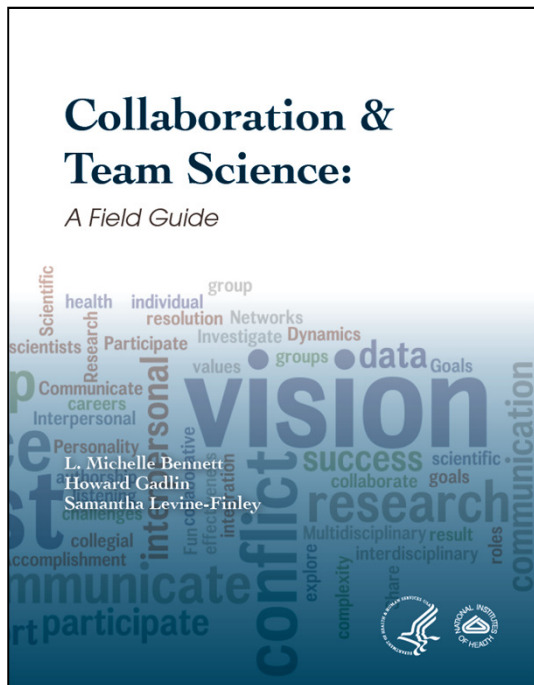
- Scott Page's *The Difference*
 - View his YouTube video on Leveraging Diversity
- Page claims that:
 - Cognitive diversity enable groups to find more and better solutions
 - Cognitive diversity is esp. important when problems are complex
- Examples:
 - Watson and Crick: $1 + 1 = 12$
 - game show *Who Wants to be a Millionaire*
- Analogy of the toolbox



Scholars are studying how scientists collaborate in the field of “team science”

NIH released a field guide on collaborations in 2010

4th Annual Science of Team Science Conference
June 2013



How do we communicate across disciplines?

Make it simple

- The Heath brothers in *Made to Stick* warn us:
 - The Curse of Knowledge inflicts us with *jargonitus*
- The first principle of SUCCESs:
 - Make it simple
- Let's watch a video example
- Let's try an exercise to explain your research simply

Video example of a grad student trying to make it simple

- Video is from the Ready, Set, Go program



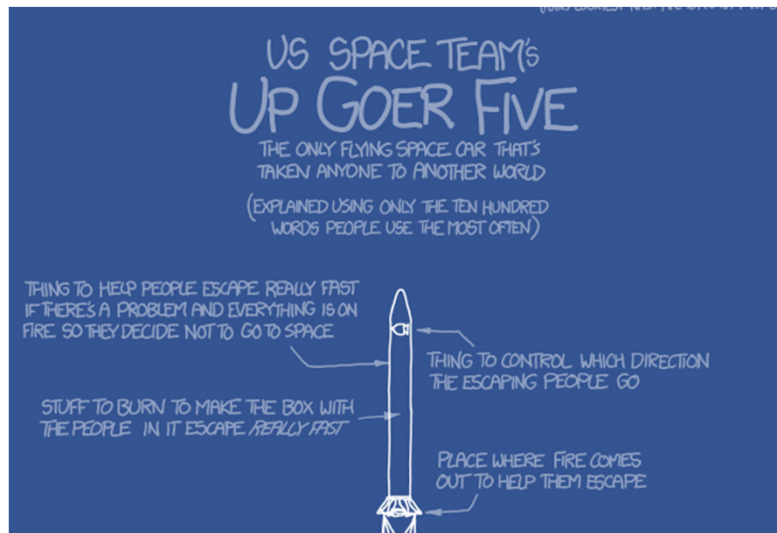
- *Turning great researchers into great communicators*
- rsg.northwestern.edu/
- Gallery: Seven Minutes of Science
 - *Fooling Cancer with Nanoparticles* by Marina Damiano



Let's try explaining our research with simple words

- Inspired by xkcd's explanation of the Saturn V rocket

- <http://xkcd.com/1133/>



- Now, you try explaining your research using only the ten hundred most used words

- <http://splasho.com/upgoer5/>

Take-Home Messages

**To communicate across disciplines,
use simple words.**

(Using simple words is not easy!)

For your 2nd practice session:

- review and revise your intro according to feedback
 - try to simplify your wording
- add your experimental design and methods section
- present both sections
 - don't assume people will remember your intro and go too quickly

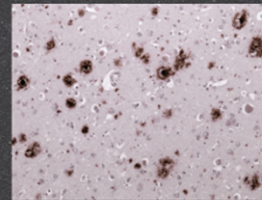
Example of effective slides

Insulin frees bound Amyloid β Oligomers from the surface of hippocampal neurons

Xiao-Wen Yu
Klein Lab Rotation
Fall Quarter 2011

Amyloid β Oligomers are harmful to neurons

- Alzheimer's Disease
- Memory Loss
- Neurodegeneration
- Amyloid β plaques
- Amyloid β Oligomers (A β O's)
- Loss of synaptic connections
- Reorganisation of receptors



Insulin dysfunction co-occurs with Alzheimer's Disease

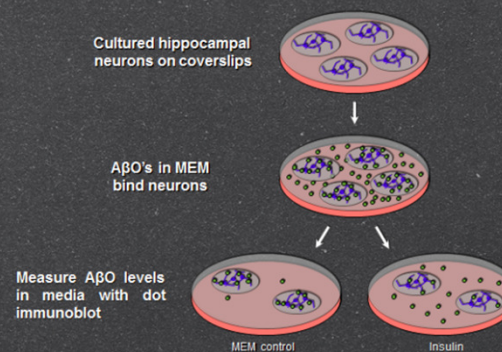


- Early Alzheimer's: \downarrow glucose utilisation by neurons
- Diabetics 2x more likely to develop Alzheimer's
- More than glucose!
- Insulin may liberate A β O's from neurons...

Does Insulin protect neurons against A β O's?

- Hypothesis
 - Insulin specifically liberates A β O's
 - Requires insulin pathway activation

Methods



- good use of message or question titles
- good mix of text and images
- concise explanations