

Confronting Institutional Barriers in Science Communication and Policy

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AAAS 2013, Boston, Special Session “The Beauty and Benefits of Escaping the Ivory Tower” - <http://stanford.io/21XcZQg>

Today's discussion

- Origins of the Ivory Tower and the evolving University landscape
- Obstacles and opportunities in engaging: Experience from Leopold Fellows
- Overcome barriers: Discussion and advice to early-career scientists



What institutional barriers?

- Institutions often fail to value engagement in science and policy
- Pre-tenured faculty may face institutional barriers in making science relevant to society
- Culture is slowly changing within institutions
 - academic success is still largely measured by publications and grants



Origins of the ivory tower

- **Ivory** = noble but impractical building material
- **Tower** = intellectual isolation
- Academics are intentionally disconnected from practical application
- Specialists can't communicate to non-specialists



Escaping the ivory tower



- Historical cultural divide
 - Agencies vs. academia; profession vs. discipline
 - Land grant universities and extension programs
- Envisioning the modern University
 - Incentives and rewards
 - Solution-oriented research

Leopold fellows: Collective experience



- Leopold program trains academics to overcome barriers
- We surveyed fellows on experiences in science policy and outreach (n=42, ~175 fellows)
 - 97% respondents mid-career, tenured academics; 85% at large State Universities
- 100% are committed to making science relevant

What motivates us as scientists?



- Discovering cool new scientific truths
- Advancing society's understanding of nature
- Education and mentoring
- Independence, travel, fun
- Improved decision-making, making the world a better place

But...

- On average, fellows spend only 1 hour/month outside the ivory tower
 - This includes interactions with journalists, NGO's, decision makers, social media and the public
- 63% report that they would engage more if they could

So why not engage?

There is a big psychological “cost” of doing something outside the norm. I feel pretty comfortable engaging, but it takes effort. It forces me to watch my words carefully. I need to read up on the latest news, research, or place-specific data. I may need to straighten up my office, or set up a good photo of the lab. This planning and general departure from the daily norm can make even a short interview very disruptive.

-anonymous Leopold Fellow

What are our common barriers?



- Not enough time (92%)
- Lack institutional support (42%)
- Don't get credit for it (45%)
- Don't feel comfortable (23%)
- Don't know how (16%)

Common Barriers

“Building a professional network takes a lot of time (and a good memory)”

“My actual employer and colleagues do not think that engaging has any value”



“I don't know why I don't care about the bottom of the ocean, but I don't.”

How do we (currently) deal with these barriers?



- Push comfort zone
- Skimp on sleep, research, teaching
- Prioritize and respond promptly
- Promote interaction between physical, biological and social sciences

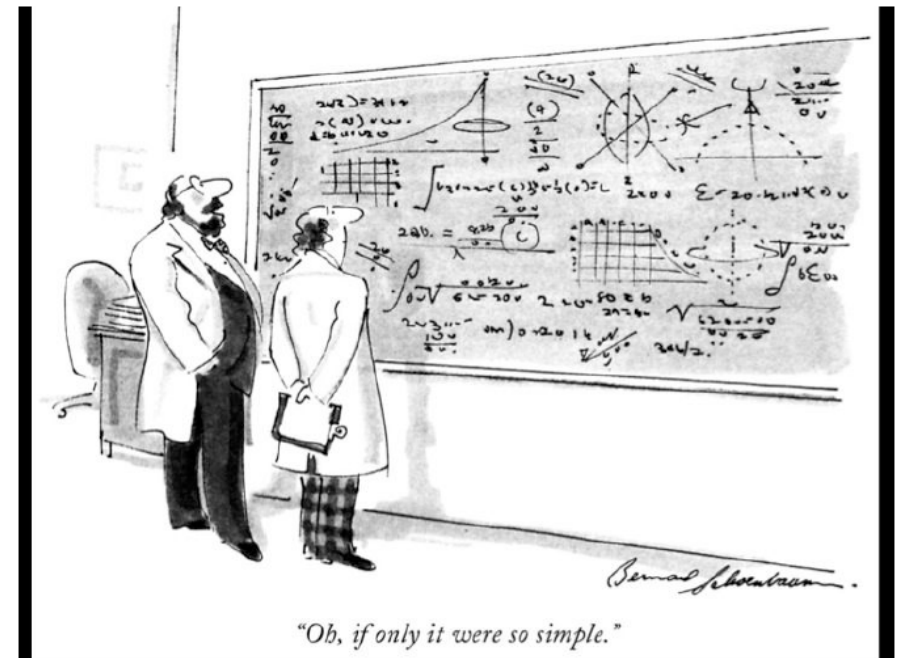
➤ *Overcoming these barriers is a tall order for scientists*

Change must come from Universities

- Reinvent how beans are counted
 - Incentivize science outcomes such that they have equal footing with publications and grant money
- Recognize multiple tracks and incentives
 - Outreach evaluation metrics
- Establish boundary organizations
 - Maintain office of science journalists
 - Develop public and policy versions of papers
- Provide time and training
 - Integrate outreach into teaching and research
 - Provide time to cultivate relationships
 - Training in science communication, new media, leadership

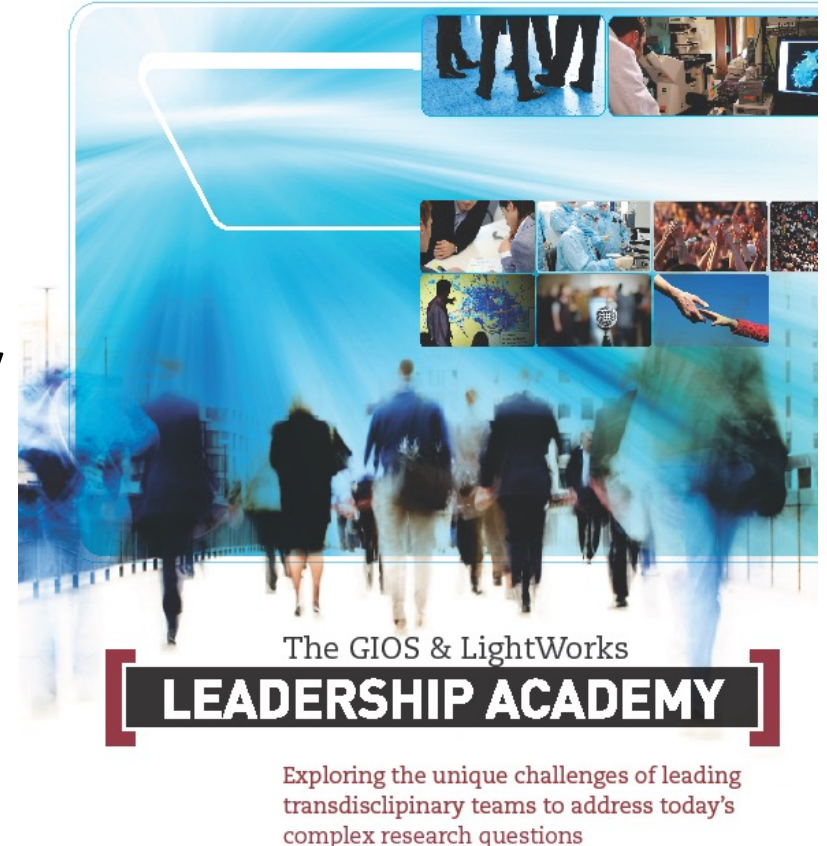
Reinventing how beans are counted

- Recognize efforts to communicate to non-specialists
- Include qualitative narratives in faculty activity reports
- Support multiple tracks
 - outreach as a form of scholarship



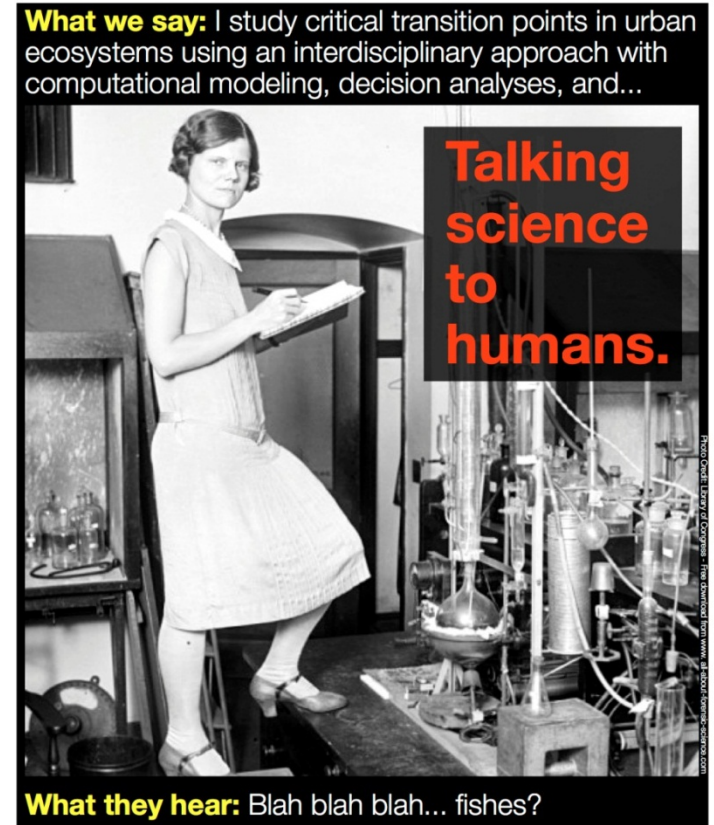
Institutional structure and incentives

- Develop quantitative metric of outreach impact
 - Partner with social scientists
 - Apply methods to evaluate impact of outreach
- Training programs for faculty
 - Cultivate solution-oriented thinking



Training future generations

- Graduate training in science communication, confronting the media, engaging in policy, strategic thinking
- Provide incentives to engage in K-12 outreach, new media, blogging, etc.



Open house showcasing BIO 591 communications projects. May 1, 2012. 10-12:00. COWDN 124.

A ray of hope



45% of Leopold fellows report a change in the University landscape vis-à-vis engaging in communication over last 10 years

Discussion

- What challenges do you face in engaging?
- How do we overcome these barriers?
- What are some mechanisms to cultivate institutional support?
- Relevant metrics of societal impact of our science?



2011 Aldo Leopold Leadership Fellows

Thank you to the Leopold Fellows
for contributing to our survey!

PNAS introduces new magazine section

Inder M. Verma* and David J. Harris*
*Editor-in-Chief and **Senior Recruiting Editor

PNAS is one of the most widely read journals in the basic sciences around the world, and its online edition clicks well over 24 million hits per month. PNAS continues to be a leading player in the dissemination of the best that scientific research can offer. Until now, we've done this primarily through the ~3,500 research papers per year that make up the core of this journal.

Over the years, however, the journal has expanded to include a "front section" that includes profiles of NAS scientists, Q&As with leading researchers around the globe, insightful commentaries, and topic-driven podcasts. We believe that PNAS has a special role in fulfilling the mission of the National Academy of Sciences—not only by contributing to the research enterprise, but also by informing the public about science.

With this issue, we relaunch the front matter of the journal in a magazine format, both in print and online. The new material will allow us to better explain science and to be part of the larger discussion that surrounds the core research published in the journal. We hope that the new content reaches an even broader audience than the scientific papers in the journal. Whether you are a scientist, a policy maker, or a fan of science, we will bring you stories that are engaging and accessible, requiring only an interest in science and an inquisitive mind to read.

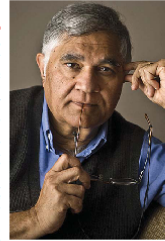
we produce will cover science in its entirety, not only limited to the papers published in PNAS.

Five new sections will be produced in print and available free online with additional Web content including podcasts and video, and a "First look" blog that will introduce you to some of the PNAS papers we find particularly interesting and accessible.

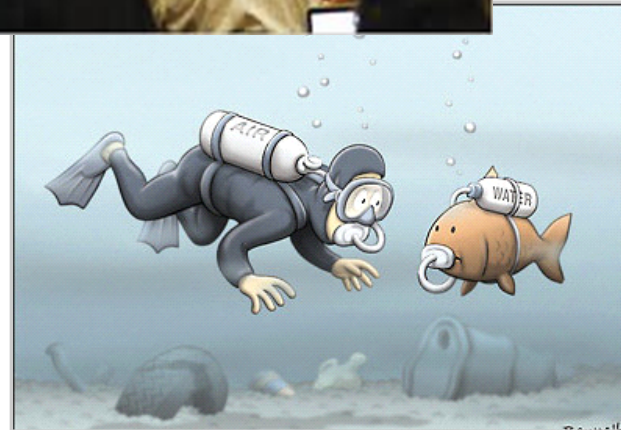
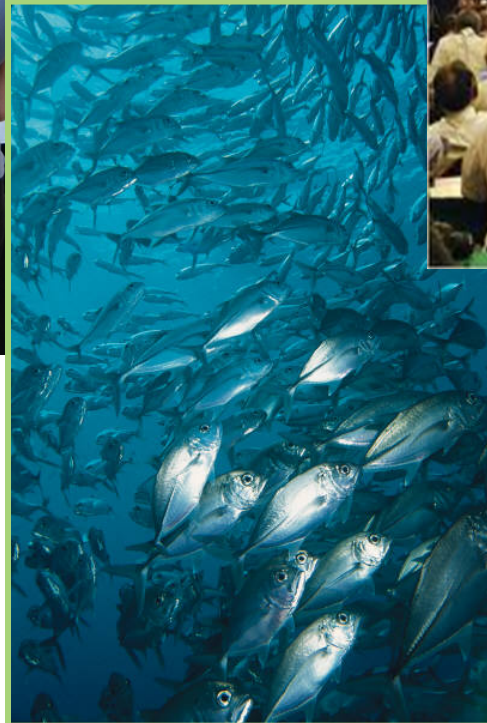
"News features" present topical and trending issues in science ranging from in-depth looks at hot fields in science through discussions of policy implications for science.

"Core concepts" allow readers to gain an understanding of important topics that are central to science but are outside the reader's field of expertise.

"Inner workings" show how scientists go about doing their jobs via a peek behind the scenes at the working lives, materials, and



Inder M. Verma.



Understanding incentives to change

- Do funding agencies determine University priorities?
 - Faculty members make up review panels
 - Agencies vary and most require broader impacts
- The role of scientific societies and journals
 - E.g., *“PNAS has a special role in fulfilling the mission of the National Academy of Sciences not only by contributing to the research enterprise, but also by informing the public about science”* – PNAS 10(7):2427
 - Recognition that solutions to complex problems emerge from applied-basic research nexus
- Other insights?