Academic Research and Public Engagement

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Galileo facing the Roman Inquisition (in 1633) painting by Christiano Banti

Galileo was the first “public” scientist.

He was reporting ideas that Copernicus had developed almost a hundred years earlier, but had waited to publish (quietly) at the end of his life.
Galileo thought the public would want to know.

He tried to educate them.
"My dear Kepler, what would you say of the learned here, who, replete with the pertinacity of the asp, have steadfastly refused to cast a glance through the telescope? What shall we make of this? Shall we laugh, or shall we cry?"

--1610 Letter from Galileo Galilei to Johannes Kepler (complaining about the refusal of the Florentines to learn anything about science.)
Apparently, he was wrong.

(In fact, eventually he got into real trouble and had to recant.)
Things have not really changed.

“Climate Expert Says NASA Tried to Silence Him”

And the public resists new information:
• New Pew poll: fewer people than ever don’t trust what they read/see in the media (http://people-press.org/report/543/)
• “Framing”: people tend to select news and information sources that reinforce views they already hold.
  – “Obama is not a US Citizen”
  – 39 percent of Americans believe in evolution (Gallup, 2009)
Educating/informing the public is difficult.
Exercise

Consider a research topic you are working on. In two or three sentences, describe it in a way that is reasonably accurate, but understandable by a high school student (or by your grandmother).
Part II

Now… think about how you might get a general audience (your neighbor, perhaps) interested in this topic…

Does it apply to everyday life in some way?
Does it reflect a larger issue?
Does it show people something strange they don’t know?

In one sentence, say something to capture an audience’s interest in your topic.
Translating research is hard. Why bother?

- Knowledge industry is in crisis
  - Growth spurt post-WWII and in Cold War
  - Public support for government/institutions has been in decline since
  - The public does not understand universities and university research
“The missions of all campuses ought to align with state, regional and system needs … because public universities in North Carolina are largely funded by public dollars, they ought to use those resources to tackle pressing public problems…

It … will be harder for flagship campuses to justify expensive research that's essentially navel-gazing. (Save the bighorn sheep? Not!)

-- Charlotte Observer editorial by Mary Schulken, Jan. 24, 2008
• Research seems silly to most people because it is advanced knowledge and because they don’t know anything about it.

To make matters worse, the old avenues for public education are disappearing:

• Public news system is in transition
  – Traditional “objective information” media is fading
  – News competition between papers, TV, internet
  – “News” is increasingly politicized
  – Fierce competition to “get message out,” “tell our side of the story,” “control the debate”
This is leading to a change in institutional/organizational/corporate PR strategy:

• Public influence increasingly requires that “voices be heard”
• “Grass-roots” campaigns used more frequently in political arena
• Faculty, organizational employees have become gradually more “publicly engaged”

The trend is towards increasing demand for professionals to represent their fields/organizations. This applies to academics too.
What is involved in successful public engagement?

Communication, communication, communication.

The basic elements:
- Visibility/access
- Interest/attention
- Positive tone/image
- Meaningful/relevant information (This is most important, so why is it last?)
Dynamics of public communication

Lessons from media relations

RESEARCH TOPICS GUARANTEED TO BE PICKED UP BY THE NEWS MEDIA

Chocolate! Anything that validates the public’s wishful thinking that chocolate is secretly good for you is news gold.

A chocolate lover reacts to news that her chocolate addiction is making her smarter and saving the environment.

Unrealistic Sci-Fi Gadgets
Everyone is still waiting for their jetpacks, flying cars, and teleporters. Get on it, Science!

Engineers test latest invisibility cloak prototype.

ROBOTS!! Everyone loves robots. In fact, news outlets are required by law to feature a robot story every 7 days.

Robotician demonstrates nose-picking robot, says will soon replace humans.

Experiments That Might Blow Up The World
Nothing gets the crazies riled up like recreating conditions of the Big Bang in the only planet you have. Hope your math is right!

"Oops," say scientists.
A basic communication dynamic…

How information **load (depth)** affects audience **size (reach)**:

- Larger audience
  - Less information
- Smaller audience
  - More information

This relates to public interest:

- More people = **More** Interest
- Fewer people = **Less** Interest
The economics of the information industry---

Why we see what we see in the media:

Movies, celebrities, sports  News  Science/education news

Larger audience  Smaller audience

Less information  More information

More people =  More  Money

Profitable Enterprise  MORE VISIBILITY

Because profitability determines whether media outlets exist or not, high-information-content news is rarely covered in the news.

Fewer people =  Less  Money

Unprofitable Enterprise  LESS VISIBILITY
Another information industry economic dynamic:

• Large news organizations require large audiences to be profitable

But...

• Proliferation of media outlets fragments news market, shrinks audiences further (more on this later…)
How to understand the media

Media types -- their place in the spectrum:

Larger audience

Less information

entertainment infotainment TV/cable news local newspapers general journals

tabloid news local TV news

reality TV

talk radio

Smaller audience

More information

national newspapers discipl. jour.
national magazines

NPR popular sci mags
Why you don’t see a lot of stories about quantum physics on MTV or during primetime…
But...one more part of the dynamic...

Larger audience
Less information
- entertainment infotainment
- TV/cable news
- local newspapers
- general journals
- tabloid news
- local TV news
- national newspapers
- national magazines
- discipl. jrnls
- reality TV
- talk radio

Smaller audience
More information
- NPR
- popular sci mags

Less focused attention
Less credibility

More focused attention
More respect
Information dynamics applies to all public outreach.
The media filter the information and format to fit their target audience.

When YOU are the media, you must:
• Understand what audience you are talking to (their depth and their reach)
• Understand the limits of format (terms, disciplinary jargon, etc.) and complexity
A web of communications decisions

<table>
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<tr>
<th>WHY?</th>
<th>General. public ed</th>
<th>Outreach to amateur groups</th>
<th>Attract students</th>
<th>Build prof. reputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHAT?</td>
<td>Ed/promo in field</td>
<td>Research app. to public issue</td>
<td>accessible research finding</td>
<td>technical finding</td>
</tr>
<tr>
<td>WHO?</td>
<td>broad public</td>
<td>educated public</td>
<td>leaders</td>
<td>enthusiasts</td>
</tr>
<tr>
<td>DEPTH?</td>
<td>Basic/gen. knowledge</td>
<td>Educated lay knowledge</td>
<td>Amateur discipl. Knowledge</td>
<td>Academic/ professional knowledge</td>
</tr>
</tbody>
</table>

Larger audience | Smaller audience
Less information | More information
Now for a brief “sidebar” about “the public”

• What IS the “General Public”?  

It’s…well, EVERYONE out there. What does that mean? The picture isn’t all that pretty.

Consider “Public Knowledge” of basic science:
Dr. Jon D. Miller’s surveys of American scientific literacy

From the New York Times, August 30, 2005:

“Dr. Miller's data reveal some yawning gaps in basic knowledge…

American adults in general do not understand what molecules are (other than that they are really small). Fewer than a third can identify DNA as a key to heredity. Only about 10 percent know what radiation is…

One adult American in five thinks the Sun revolves around the Earth, an idea science had abandoned by the 17th century.”
Why are Americans so poorly informed?

• Education: ~30% of Americans have a college degree (2003 census, ~50% attend some)
  – only 17% of the US population are literate enough to read a science story in the New York Times

Which relates to:

• Exposure to information:
  – Less than 50% of American households read a newspaper regularly
  – Low and steadily decreasing interest in information news
  – In many traditional news outlets, entertainment is replacing news
  – Time/work/entertainment demands: competition for attention.
So...

How easy is it going to be to talk to all these people about your research or even the basics of your field?
It depends, but in many cases, communicating any complex piece of knowledge to the broad “public” (the far end of possible “reach”) is impossible.
Public vs. Publics

• But do you really need to get reach out to everyone?

  NOT NECESSARILY – SMALL GROUPS MATTER.

• Who are the groups that matter?
  – Legislators
  – Community leaders
  – Educated/active people, decision-makers, voters
  – Granting Institutions, influential colleagues, etc.
Smaller, more defined “publics” are easier to communicate with because they have better defined interests, and are often better educated.

How do you reach them? More later.
SO….it’s complicated.

Basic advice for public communication:
• Think about “why” before you do public communication (what are your goals?)
• Think about the audience you want to reach (what do they know, what are their interests?)
• Think about how is the best way to reach them (blog? web page? news interviews?)
Then...

Think about how you need to **craft your messages** so that:

- What you say is appropriate for and understandable by your audience *(Examples?)*

- How you present it is appropriate for your medium *(ex: webpage – polished; blog – less formal)*  AND…
MAKE IT INTERESTING!

BASIC TRUTH:

No matter how well placed or easy-to-read something is, *nobody will read if there is nothing that attracts their interest.*
We need to think about **MARKETING**

I'd like you to stop being so self-critical. From now on, try referring to yourself as a "SCIENCE PROFESSIONAL EXPRESSING HIS ANGER."

**MAD SCIENTIST IN THERAPY**
Q: How is it possible to “market” academic research?

A: Someone got you interested in it, didn’t they?

• Find an “angle” in your research
Where to look for angles:

- Think about what is *fundamental* about your area of study
- Think about what is *important* about your area of study
- Think about what outsiders might consider “*cool*” about your area of study
- **Connect** your research to day-to-day life or to popular culture
Quantum Teleporting, Yes; the Rest Is Movie Magic

BY DENNIS OVERBYE
Published: February 6, 2008

CAMBRIDGE, Mass. — In a battle waged with popcorn, floodlights, chalk and star power, science and art squared off at the Massachusetts Institute of Technology one night last month.

On one side of a vaunted cultural divide were Doug Liman, director of the coming movie “Jumper,” about a young man who discovers he can transport himself anywhere he wants just by thinking about it, and Hayden Christensen, the film’s star.

On the other were a pair of the institute’s physics professors, Edward Farhi and Max Tegmark, experts on the type of physics the movie was purporting to portray, who had been enlisted to view a few scenes from it and talk about science.

In the middle were hundreds of M.I.T. students who had waited for hours to jam into a giant lecture hall known as Room 26-100 and who proved that future scientists and engineers could be just as rowdy and star-struck as the crowds outside the MTV studios in Times Square.

“I guess I wasn’t expecting such a lively group,” Mr. Christensen said.
Examples from your research?
Which angles sell best and why

1. News about dangers
   - studies about communication of risk news vs. benefit news
   (humans are hard-wired to focus on fear – note that this can be a negative too)
2. Gee whiz news; wonderful, weird, cool news.
   (it’s entertainment, distraction from boredom)
3. News that is relevant – “news you can use”
   (it connects to something that people are already engaged with)
What NOT to do

• Never exaggerate results or draw conclusions that are not supported
• Don’t invent findings for the sake of making news (“cold fusion”)
• Don’t talk about things outside your area of expertise

In other words, never make up stuff! (You don’t need THAT kind of attention.)
Now, to return to the issue of ...

• Basic obstacles in reaching/communicating information to the general public... lead us to:

• Challenges in reaching, smaller but more receptive target “publics”
  – Enthusiasts
  – Students
  – Leaders

In the past, “targeted” communications was difficult.
The new possibilities offered by Web 2.0

Traditional media (newspapers, etc.) are dying but new, web-based media are more democratic (more people can use) and *interactive*. They are evolving rapidly.

- Facebook
- Twitter
- Digg
- Flicker
- Youtube
- Google Wave
The example of Twitter

• How it works: following, followers
  – Making friends
  – Sharing information (news feed, self-promotion)

• How it really works:
  – Marketing strategies
    • Having a personality, saying interesting things
    • Following adds followers
    • Re-tweets draws topic-focused followers (more likely to re-tweet again)
  – Network development
    • Building a reputation, joining a self-organizing community
Twitter seems important.

But I could be wrong.

(If not Twitter, it will be something else)
Finally
And again…

Why Should I Waste My Time?
Federal funding drives research, and funding is always a political issue.

In any given year, big cuts are a real possibility:

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**Rolling Back Proposed Budget Increases**

A year ago, the budget proposal included increases for the physical sciences that largely vanished from the final spending bill.

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<th>Fiscal Year 2008</th>
<th>President’s request</th>
<th>House appropriation</th>
<th>Senate appropriation</th>
<th>Final appropriation</th>
</tr>
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<tbody>
<tr>
<td>Change in millions</td>
<td>-$200 0 $200 400 600</td>
<td>-$200 0 $200 400 600</td>
<td>-$200 0 $200 400 600</td>
<td>-$200 0 $200 400 600</td>
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**National Institutes of Health**

**Dept. of Energy**

**Office of Science**

**National Science Foundation**

Fiscal Year 2007 appropriation

Source: American Association for the Advancement of Science
A recent political ad (this could be you!)

"Approach a bear: 'That bear cub over there claims you are his father, and we need to take your DNA.' Approach another bear: 'Two hikers had their food stolen by a bear, and we think it is you. We have to get the DNA.' The DNA doesn't fit, you got to acquit, if I might."

--John McCain on bear DNA study, aimed at accurately determining the population of bears at Yellowstone, a critical ecological issue.
And… (a moral argument)

Because you are in education and a product of education.
You would not be wasting your time getting an advanced education if you thought your field was not worth it.

The same opportunity may not exist for others in the future if no one speaks up.
Back to the Future?
Some links

- TO ACCESS THIS POWERPOINT: http://www.provost.uncc.edu/CommunicatingResearch/

- Advice on communicating science: http://www.aaas.org/communicatingscience


A couple of outlets you can take advantage of:

– AAAS news service (work with university to access): [http://www.eurekalert.org](http://www.eurekalert.org) and some related sites:

Online Twitter application: [http://hootsuite.com](http://hootsuite.com)