How to Effectively Communicate Science and Scientific Research to a Broad Audience

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Discovery Undergraduate Research Internship Program
Interns for Indiana program – September 24, 2009

The 3 rules for effective communication

- Rule 1: Tell the people what you are going to tell them
- Rule 2: Tell them the information
- Rule 3: Tell the people what you told them

Outline/Summary

- To be an effective communicator you must:
  - Become a professional presenter
  - Have a very clear understanding of the area
  - Believe in what you are presenting
  - Define your audience
  - Respect your audience
  - Use effective examples to demonstrate your points
  - Be factual rather than opinionated
  - Monitor the audience response

Be Professional

- If you look sloppy – the audience will feel sloppy
- If you look professional the audience will have an expectation of quality
- Don’t play with toys – keys, etc
- Don’t miss-use the pointer
- Don’t do annoying things!
- Speak clearly
- Be confident

Know your area well

- Be sure you have a clear understanding of the topic area
- Do additional research based on your audience makeup so you are prepared for potentially difficult questions
- If appropriate, bring some support materials with you

Believe in what you are presenting

- Be on time
- Start and finish on time
- Have quality presentation materials
- Be confident in your presentation style
- Speak in a positive and projecting manner
- Smile don't scowl at your audience
- Never say
  - "I have never done this before.." or
  - "I am not really sure what to tell you…" or
  - "I don't really know much about this topic but…"

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Define your Audience or "Meter" the level of the audience

- If you have a technically advanced audience, feel free to use technical terms in moderation
- If you are "talking down" use great care in your word usage to match the knowledge level and experience of your audience:

  e.g.
  - Undergraduate presenting to high school
  - Graduate to an undergraduate
  - Professor to public, etc
- Don't use abbreviations or acronyms unless you are sure the audience understand them;
  - e.g. "The AFLCIO met with the FDA at the OBER convention to deal with SSRI and ANA related to the IABME just before the AIMBE event"

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Ouch…..

- The **A**merican **F**ederation of **L**abor and **C**ongress of **I**ndustrial **O**rganizations, met with the **F**ood and **D**rug **A**dministration at the **O**ffice of **B**iological and **E**nvironmental **R**esearch convention to deal with **S**ecure **S**torage and **R**etrieval of **I**nformation and **A**ctive **N**etwork **A**bstraction related to the **I**nternational **A**ssociation of **B**iomedical **E**ngineers just before the **A**merican **I**nstitute for **M**edical and **B**iological **E**ngineers event”

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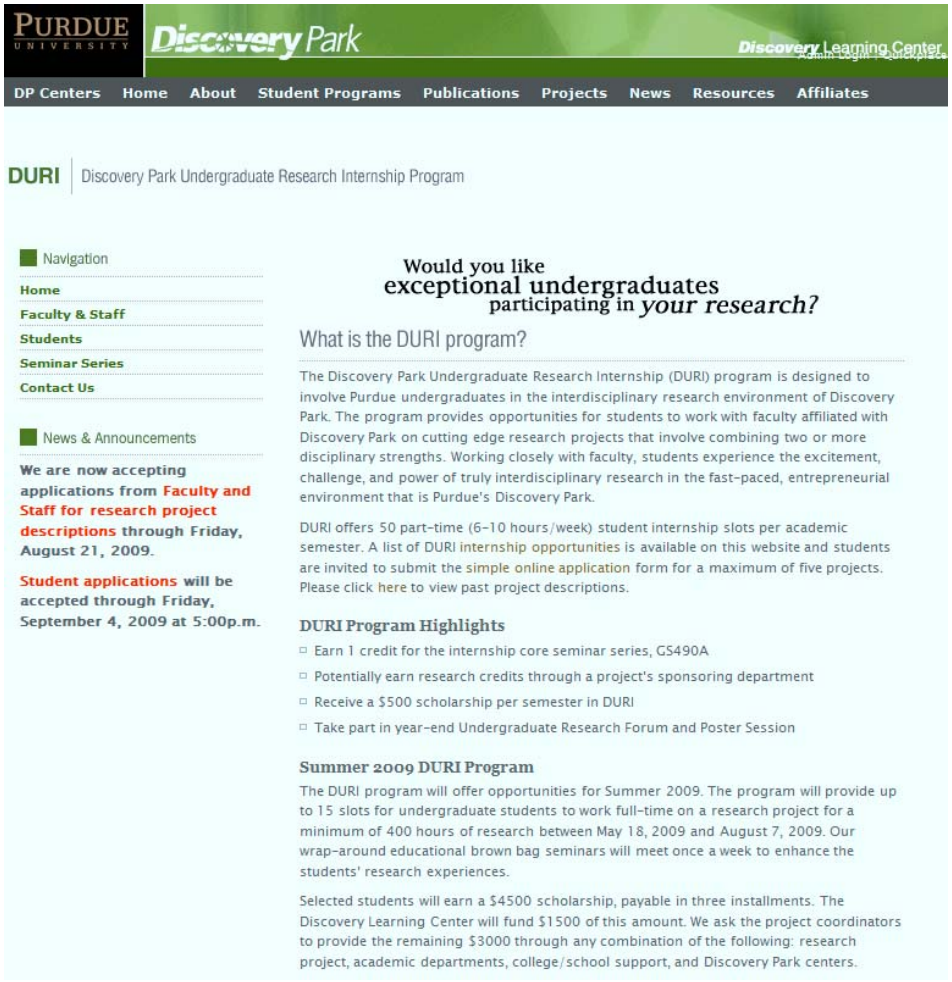
Jargon is often a show stopper for the public

- Even scientists from different fields often struggle with technical terms from one field to another
  - e.g. biology terms compared with those used in physics and chemistry
- If scientists struggle – imagine how hard it is for the general public!

Defining my audience



DURI

- Undergraduates
- interdisciplinary research
- Earn 1 credit
- Research credits
- $500 scholarship
- Research Forum

Interns for Indiana

- Links interns with start-up companies
- participate in a seminar series
- Develop interest and confidence in start-ups

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Respect your audience

- Do not denigrate the audience or use inappropriate jokes
- Be careful about issues of race, sex and religion – they are very complicated areas
- Never argue with your audience
- Never make absolute statements on issues that are not factual

Use good illustrations

- Demonstrate your points by example
- Make sure your illustrations are well suited to your task
- Be succinct when you use illustrations
- Always make sure your illustration is clearly relevant to your point

How to deal with big challenges

- Climbing Mt. Everest is a real challenge!

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Be factual rather than opinionated

- Distinguish ideas from facts.
- Present ideas that are supported by facts
- Try to link your story with the big picture
- Try to excite the listener into defining questions of interest to them
- Encourage them to ask questions

Fact: Students with college degrees earn more money

- **"Earn More Money:** A person who goes to college usually earns more than a person who doesn't. This information is based on the U.S. Census Bureau's 2007 median earnings for full-time workers at least 25 years old. Annual earnings, based on degree, are: high school diploma, $32,500; associate's degree, $42,000; bachelor's degree, $53,000; master's degree, $63,000; and professional degrees, $100,000+. "

Source: http://www.collegeboard.com/student/plan/starting-points/156.html

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Monitor the Audience Response

- Are they paying attention?
- Are you facing blank faces?
- Are people responding – nodding heads, smiling, etc?
- Are they taking notes or “praying” to their Blackberries?

Image source:
http://blog.cleveland.com/nationworld_impact/2009/03/large_Blackberry-hand-Nov21-08.jpg

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Some additional pointers to consider

- Communicating with public audiences is not the same as giving a lecture colleagues or students
- Keep in mind that your audience most likely will not be taking notes or underlining your handouts.
- Think and talk in themes or the big picture not minutiae
- Use active verbs & vivid nouns.

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Responding to Audience Questions

- Repeat the question so that the audience all hear it – this confirms with the questioner that you are answering their questions
- Never argue with a questioner – under any circumstances
- If you disagree with an assertion, never say "*you are wrong*" etc – always answer in a diplomatic way e.g. "*You make a good point, let me give you an alternative perspective*"

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Some supporting materials

- Presentation 101 for Graduate Students
  - http://www.cyto.purdue.edu/Education/index.htm

  This presentation gives a demonstration of how to give an effective seminar – in it there are many good ideas of how to be an effective communicator.
  - American Association for the Advancement of Science (AAAS)
    - http://communicatingscience.aaas.org/Pages/newmain.aspx

Concluding your presentation

- Remember to repeat what you told the audience – (this is your conclusion)
- When you have finished, always acknowledge your colleagues, friends, family or support group that allowed you to be where you are
- Finally thank the audience for their attention. (Never ask for questions) End with “Thank you very much for your attention”

Summary

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Thank you for your attention

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