# Best Practices for giving a Technical Talk

### that doesn't suck.

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## S COMING YOUR WAY ...



# So Be Prepared

# Adorable Title



For your technical talk

## With smiley faces :-)

And Animation!

And super cute pictures of your Lab Rats! Awww...

## Don't. Just Don't.

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## **Critical Need for Science Communication**



Better science communication is critical, The New Yorker's Michael Specter argues

Vivian Lam on December 2, 2016

<sup>4</sup> When a young mother is worried about giving her child a vaccine... she will sometimes get an answer that there is a risk... But what they don't say is whether it's a 1 in 11 chance, or 1 in 11 million chance.

Science helps solve humanity's biggest problems.







Source: http://scopeblog.stanford.edu/2016/12/02/better-science-communication-is-critical-the-new-yorkers-michael-specter-argues/ Accessed 1/11/2018

## **Communicating Science Effectively**



## **Best Practices for Technical Talks**

**Technical Talks** 

- Effective way to communicate research results
- Commonly used in Academia and Research

Typically presented at:

- Conferences
- Symposiums
- Job Interviews
- Business, R&D
- Poster Sessions

Practically a requirement for succeeding as a scientist.



#### ROADMAP for the Audience

## Outline

•	Title	1 slide
•	What is the problem	1 slide
•	What is the solution/contribution	1 slide
•	Motivation/Importance	1 slide
•	Outline / Roadmap	1 slide
•	Background/Model/Definitions/Previous Work	1-3 slide
•	Your innovation and contribution	1-3 slide
•	Experimental results/Proofs	3-5 slide
•	Conclusions	1 slide
•	Future Work	1 slide
•	Optional - Acknowledgements	1 slide

#### Rule of Thumb: 1 slide per minute



"Clearly this is not the only way."

Ask others who have presented before at the event what outline they recommend.

## Background & Previous Work

Literature Review

- Frame your research
- Note latest results
- Explain how your research will build off the current scientific body of knowledge

Simplify here to set the stage



An Example of a 25 slide Presentation that lost the audience, because: (NOTE: this is a completely fictitious subject authorship and presentation, but there have been attempted Presentatic like this at the IEE Holm Conference)

1) Too many slides: 25



From Left to Right:

http://www.ieee-holm.org/h2017/Bad\_Presentation\_Example.pdf https://www.bwfund.org/career-tools/communicating-science-giving-talks http://www.comm.toronto.edu/~frank/guide/guide.pdf

## One important point (to whole presentation)

"If you have an important point to make, don't try to be subtle or clever. Use a pile driver. Hit the point once. Then come back and hit it again. Then hit it a third time." —Winston Churchill's Advice to the Prince of Wales, future king Edward VIII 1919

*Advertising adage:* A person must hear something seven times before they will remember it.

You WANT the audience to remember the point.



Methodology

State the method that you used to conduct the experiment

- Why did you use that method?
- Is it the same or different than others working in this field?

Discipline-dependant

**Statistical Analysis** 

State Assumptions



Great for life....

Possibly not so great for research.

If I have seen further it

is by standing on the

shoulders of giants.

Isaac Newton 1675

## The One Point of your Talk



How much will your audience remember?

In 10 minutes... Remembered 50% of what was said

The next day... Remembered 25%

After one week... Remembered 10%

Source: AAAS &

http://jackmalcolm.com/2012/08/how-much-of-your-presentation-will-they-remember/

## Talk & Slides Etiquette

#### Do:

- Be Prepared
- Follow guidelines
- Test out presentation on equipment, if possible
- Be prepared for common problems AV, etc.
- Dress in professional attire
- Speak loudly, clearly and slowly
- If you get flustered, pause and regroup Do not:
  - Be late (be there at the start of a session)
  - Go Over Allotted Time (Practice helps)
  - Rush

For your presentation method (Slides):

- Page numbers on slides
- No Animation (or very very little)
- Clean background
- Font size

Slide 11: Your innovation and contribution (1-3 slides)

## All text slides are easy

...but possibly not best way to tell story

All text is hard to read.

All text is hard to follow.Challenge yourself to communicate your points visually.

• If you must have text only, try bullet points. Sometimes even bulletpoints can't save a slide. In that case, try jokes. (<sup>1</sup>Newsgroups: rec.humor)

- Our speaker needs no introduction. What he needs is a conclusion.
- Our speaker will not bore you with a long speech... he can do it with a short one.
- Recently our speaker had to discontinue several of his long talks on account of his throat. Several people threatened to cut it.
- You have heard it said before that this speaker needs no introduction. Well, I have heard him and he needs all the introduction he can get.
- You haven't heard nothing until you've heard our speaker of the evening. Then you've heard nothing.



#### "For the love of God, font size people!"

That quote was actually in the background literature.

- Don't make your slides an eye chart.
- Please.
- Small fonts are hard to read.
- Really, really hard to read.



## Graph & Figure Etiquette

#### TELL what the graph SHOWS.

"The graph shows..."; don't make the audience try to figure out what your data means.

Execution

Unreadable figures are often a stumbling block for the audience.



## Graph & Figure Etiquette

Hmmm... a figure without notation.

- 1. Why is this figure here?
- 2. Please tell me the answer.
- 3. Don't make me read the slide and figure it out myself.
- 4. Just tell me what you're trying to tell me!

What could we do to improve this slide?





## Visualize processes

- Flow Charts
- "Smart" art
- Before / After
- First / Second / Third
- Photos in Series









This is the data section

## Posters are mini-presentations

Still have a single point to convey.

Know audience and environment

- Loud
- Anyone walking by has about 3 seconds to decide if they want to stop
- Will chat with you for about 2 minutes; have your 2 minute presentation memorized!

#### Resources:

MAKING AN ACADEMIC POSTER PRESENTATION, NAU <u>https://nau.edu/undergraduate-research/poster-presentation</u> <u>-tips/</u>



Rebecca Norton presents her 2012 Hooper Undergraduate Research Award project

## Question Etiquette

Do:

- Listen, Repeat, and then Answer
- Include the whole group in your answer
- Have some questions ready
  - "A question I am often asked..."
- I don't know the answer
  - But I'll get back to you
- It's okay to plant a question

Do not:

- Get into a long discussion
- Get argumentative
  - "Thank you for that point."

Discussion:

Why do people ask questions?

Source: 10 Tips to Master Questions During Your Presentation with Authority, George Tarok, <a href="http://www.torok.com/articles/presentation/10TipstoMasterQuestions.html">http://www.torok.com/articles/presentation/10TipstoMasterQuestions.html</a> Accessed 1/11/2018

## Conclusion

"If you have an important point to make, don't try to be subtle or clever. Use a pile driver. Hit the point once. Then come back and hit it again. Then hit it a third time." —Winston Churchill's Advice to the Prince of Wales, future king Edward VIII 1919

Answer:

What does the result mean?

Is that Good or Bad?

You want the audience to remember the point.



## Future Work: Communication is in Transition



Not another PowerPoint!

Source: BishopBlog, Communicating science in the age of the internet <u>http://deevybee.blogspot.com/2012/07/communicating-science-in-age-of.html</u> Had "© <u>www.CartoonStock.com</u>" under the image.

My most eye-opening day in graduate school: The day I figured out that not everything in the literature is correct.

- How is scientific dissemination changing with the rise of social media?
- What does that do to source citing, fact checking, etc.?
- Will my next talk be on "How to give a technical talk on

YouTube?"



## Acknowledgements

Financial support funded by NSF Grant #x (if applicable)

Acknowledge People who contributed to work

Advisor

Group

Team

## Questions

Say, "Here is my contact information; this concludes my talk."

People will applaud (probably).

Then the moderator will ask for questions. If there is no moderator, wait for clapping to end, and say something like, "Any Questions?" St. Petersburg College

https://go.spcollege.edu/SPClogos/

YOUR CONTACT INFORMATION Large enough to be copied from the back of the room Back-up Slides

For slides you just can't let go of...

## Additional Slides





#### COMMUNICATING SCIENCE: GIVING TALKS

#### HIGHLY RECOMMENDED:

#### Communicating Science: GIVING TALKS Second Edition From the Burroughs Wellcome Fund

*Communicating Science: Giving Talks* is the first in a series career development guides published by the Burroughs Wellcome Fund. *Communicating Science* provides advice from scientific speakers, tips on putting together talks, insights into how to use technology to your benefit, horror stories about speeches gone wrong, and pointers to inexpensive, approachable resources available in most communities to polish speaking skills and gain confidence.

#### Email news [at] bwfund.org for a free print copy.

#### Site:

https://www.bwfund.org/career-tools/communicating-science-giving-talks

#### PDF Download:

https://www.bwfund.org/sites/default/files/media/files/giving%20talks.pdf



To play, simply print out this bingo sheet and attend a departmental seminar.

Mark over each square that occurs throughout the course of the lecture.

The first one to form a straight line (or all four corners) must yell out BINGO!! to win! Zunho 2

B		Ν	G	Ο
Speaker bashes previous work	Repeated use of "um…"	Speaker sucks up to host professor	Host Professor falls asleep	Speaker wastes 5 minutes explaining outline
Laptop malfunction	Work ties in to Cancer/HIV or War on Terror	"et al."	You're the only one in your lab that bothered to show up	Blatant typo
Entire slide filled with equations	"The data <i>clearly</i> shows"	FREE Speaker runs out of time	Use of Powerpoint template with blue background	References Advisor (past or present)
There's a Grad Student wearing same clothes as yesterday	Bitter Post-doc asks question	"That's an interesting question"	"Beyond the scope of this work"	Master's student bobs head fighting sleep
Speaker forgets to thank collaborators	Cell phone goes off	You've no idea what's going on	"Future work will"	Results conveniently show improvement