EFFECTIVE SCIENTIFIC PRESENTATION

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A boring lecturer is one who talks in someone else’s sleep.

EFFECTIVE SCIENTIFIC PRESENTATION

Outline
• Organizing your presentation.
• Choosing audio-visuals.
• Making effective slides.
• Presenting data.
• Handling questions.
• Practical hints.

SCIENTIFIC PRESENTATION
Why is it Important?
• Colleagues infer your scientific ability from the clarity and quality of your presentation.
• In science, something is true only when peers are convinced.
• Presentation skills can be improved by preparation, practice, and observation of good speakers.

Key Elements of a Successful Scientific Presentation
• Explicit statement of hypothesis or study question.
• Good Data
• Good Audiovisuals
• No Technical Problems
• Clear Presentation

SCIENTIFIC PRESENTATION
Typical Format
• Introduce general field and the gaps filled by your work; praise work done by others.
• Pose the specific questions/ hypotheses.
• Present methods and design in sufficient detail to lend credibility to your results.
• Show data, linking each result/experiment to a posed question/hypothesis.
• Summarize and interpret results; consider alternative interpretations.
• Discuss future research plans.
**SCIENTIFIC PRESENTATION**

*Format*
- Introduce topic.
- Pose questions/hypotheses.
- Present methods.
- Show data.
- Summarize and interpret results.
- Discuss future plans.

*Most Common Errors*
- Failure to consider purpose, site and audience.
- Illogical flow of ideas.
- Ineffective slides.
- Mismatch of slide text and spoken words.
- Poor pointer technique.
- Lack of periodic and final summaries.

**SCIENTIFIC PRESENTATION**

*Planning*
- Who’s in the audience?
- How big is the audience/room?
- How much time do I have?
- What 3 things do I want the audience to remember?
  - Make the “final summary” slide first
- What audio-visuals will I use?

*Audio-Visual Aids*
- Chalkboard with cup of coffee.
- Handout
- Transparencies
- Slides
- Computer-generated projection
- Combinations
  Best? Simple slides + detailed handout

**PURPOSES OF SLIDES**
- To teach and convince the audience.
- To help speaker with organization and timing.
- To depict data accurately.
- To help the audience understand and remember the main ideas.

Slides are not intended to amuse, impress, or overwhelm.

**ELEMENTS OF A GOOD SLIDE**
- Brevity (but not too brief).
- Simplicity (but not too simple).
- Informative title.
- Accurate spelling.
- Consistent key words and syntax.
- Enthusiastically explained in sufficient detail.
- Text size proportional to room size.
- Requires no apology.
SLIDEMAKING HINTS

- Don’t use complicated tables or graphics from journals.
- Minimize words.
- Fill screen area with largest text possible.
- Review drafts with colleagues.
- Number slide in lower left corner with marker, not stickers.
- Avoid vertical slides, ALL CAPS, and all italics.

SLIDEMAKING HINTS

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Version 1

TGF-Beta

Good

- TGF-beta is a new signaling peptide.
- Involved in growth, differentiation, cancer, wound repair, inflammation, aging, host response, etc.
- 3 TGF receptors are ubiquitous.
- Located on chromosome 7.
- Mechanism of action is to activate threonine kinases and Phosphoinositols.

Version 2

TGF-Beta

Better

- New signaling peptide
- Growth, wound repair
- Differentiation
- Cancer, aging
- Inflammation
- 3 Receptors
- Ubiquitous
- Chromosome 7
- Mechanism
TGF-Beta
New Family of Signaling Peptides

- Influences growth, differentiation, injury, and repair.
- Interacts with 3 receptors.
- Activates threonine kinase and PI system.

USING COLOR IN SLIDES
- No consensus; a good slide can be any color.
- Black letters on white: Modest, versatile, visible in many lighting situations; essential for international venues.
- White/Yellow letters on blue: Fancier, sensitive to ambient light; attractive.
- Beware the over-decorated multi-colored slide! Some people are color-blind.

LINE AND BAR GRAPHS
Are They Clear?

- Look at axes; is (0,0) suppressed?
- x-axis: Note units (msec or months?)
- y-axis: Note units; Beware of ratios or “normalized” values.
- Is SD or SE depicted? What is n? Is there data drop-out over time?
- Are statis. sig. results evident?

EXPLAINING A GRAPH
Stepwise Approach

- Introduce the slide; e.g., “This slide shows the effect of ( ) on ( )”; link result to hypothesis.
- Identify/explain units of both axes, pointing to each axis.
- Point to the control data. Then point to the experimental data, showing the difference.
- If a result is statistically significant, expected, surprising or controversial, say so.
- Prepare audience for next slide.

TABLES IN PRESENTATIONS

- Avoid if possible.
- Difficult to read and remember.
- Visually dull.
- Perhaps useful to show comparability or to dispense with non-significant data.
- If used, speaker should spend extra time, point carefully, and indicate clearly the ‘take-home message’.

YOUR SLIDES ARE MADE
Now What?

- Rehearse:
  - Develop smooth slide transitions.
  - Work on timing and pauses.
- Develop contingency plans:
  - Be prepared to stop early or to speak longer.
- Know when to stop editing/revising.
HAZARDOUS LECTURE STYLES

- Encouragement of audience participation when audience is large or easily intimidated.
- Two-projector technique.
- Mixed media: e.g., slides plus overheads.
- Use of cartoons, art, your kids, vacation photos, pets, landscapes, etc. as a substitute for logical transitions.

COMMON MISTAKES

- Wave the pointer around wildly.
- Apologize repeatedly for poor quality slides.
- Use slides overloaded with data or text.
- Switch frequently between slides and overheads.
- Use the phrase “And finally...” three or four times.
- Raise and lower room lights frequently.
- Talk fast or read your lecture.
- Long time to first slide or long time to first data slide.

USING HUMOR

- Humor is appropriate if:
  - You have a sense of humor.
  - The topic and audience are predisposed.
  - It is not offensive or embarrassing.
  - The joke or cartoon is brief and requires no lengthy explanation or caption.
- Offbeat or mean-spirited humor will distract audience; self-effacing humor shows confidence, maturity and warmth.

ANSWERING QUESTIONS

- A modest clear talk prompts good and bad questions. Be patient with the questioner.
- Acknowledge flaws in your data before your audience does.
- Don’t present methods or data you can’t explain.
- Say “I don’t know” if you don’t know. It increases the credibility of things you do know.
- Expect the questions:
  - “What are you going to do next?”
  - “What is the mechanism?”

OTHER PRACTICAL HINTS

- Arrive early; examine A-V equipment, pointer, room lights, etc.
- Preload carousel or program; check slide orientation.
- Anticipate A-V problems; bring a pointer and copies of slides, text, or slide list.
- Acknowledge mentors/co-workers and local scientists; thank your hostess or host.
- Prepare opening and closing remarks.
- Wear comfortable clothes and a watch.
- Finish on time, or even better, a little early.

TRAVELING WITH SLIDES

- DON’T:
  - Pack slides and notes in checked luggage.
  - Prepare a complicated mixed media presentation.
- DO:
  - Pack slides carefully in carry-on luggage.
  - Bring a pointer and reliable carousel.
  - Take extra slides and adjust your talk to meet last-minute changes in time or topic.
### Anticipate Technical Problems

- The dark or bright room.
- Big room with small screen.
- No pointer or slide-changer at podium.
- Computer incompatibility.
- Incompatible/No carousel.
- Slides jam in projector.
- Bulb burns out/no back-up projector.

### Effective Presentations

**Summary**

- Consider purpose, audience, site, and time.
- Learn to use graphics software.
- Tell a logical story with appropriate a/v material, transitions, and periodic summaries.
- Rehearse.
- Be enthusiastic about your subject.
- Anticipate A-V problems.
- Use pointer effectively.
- Provide final summary of key points.