Preparing Effective Oral Presentations in 7.17 Project Lab

What are the qualities of an effective oral presentation?

• Points clearly elucidated, makes eye contact, avoids fillers (you know, like, um, etc.).
• Speaker builds on points that are on the slides rather than just reading them off.
• A confident speaker (in what he/she knows or doesn’t know).
• Knowledge of the direction of the presentation (a map).
• Don’t assume that we remember what you said two weeks ago--keep reframing background.
•
First thing to do to prepare an oral presentation is to overcome fear

On October 7, 1973, the *Sunday Times* in London published a survey asking 3,000 Americans: "What is your greatest fear?" The result: 41% of respondents answered "speaking in public."

Five Canons of Classical Rhetoric or the art of persuasive speech

1. *Invention*: Generating content and choosing a type of argumentative appeal
2. *Arrangement*: Organizing the material
5. *Delivery*: Controlling voice, gesture, expression—and graphics!
**Invention:** Classical Rhetoric described three types of persuasive appeals.

*Logos:* Appeal to reason, logic, objectivity

*Pathos:* Appeal to emotion, subjectivity

*Ethos:* Appeal to the character of the presenter

Effective presentations make use of all three types of appeals.

**Arrangement:** Control the story that you want to tell about your data (in four parts).

1. **Introduction**
   - Offer the background for your experimental work.
   - Give the listener reasons to be interested.
   - Consider presenting your work as a problem to be solved.

2. **Methods:** Summarize the methods you used in the lab; offer detail only on novel methods (not routine ones).

3. **Results:** Focus on key results (not all of them), which can include both successful and unsuccessful experiments.

4. **Interpretation/conclusion/summary/next steps:** Answer the “so-what?” and “so-what-else?” questions.
Style: Consider your speaker’s persona--even shy people can be very effective public speakers!

- Think in terms of talking to people
- Look at your audience
- Observe their reactions
- Adjust your style accordingly
- Make your enthusiasm for your work infectious

Memory: Memorizing your talk word-for-word is not necessary

However, use notes, note cards, or a printed version of your PPT slides to keep yourself organized and on track.
**Delivery:** The rain in Spain falls mainly on the plane.

- Avoid filler words and distracting sounds (um, like, you know, okay).
- Don’t hide from your audience.
- Talk to your audience not to the screen.
- Don’t fix your gaze on only one or two audience members.
- Don’t read your visual aids verbatim.
- Practice, practice, practice.

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You have several choices for how you deliver your speech

<table>
<thead>
<tr>
<th>Memorizing the Speech</th>
<th>Reading From a Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ allows eye contact</td>
<td>+ ensures precision</td>
</tr>
<tr>
<td>- difficult for long speeches</td>
<td>- does not sound natural</td>
</tr>
<tr>
<td>- room for precision errors</td>
<td>- no room for improvising</td>
</tr>
<tr>
<td>- no room for improvising</td>
<td>- hinders eye contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Winging It</th>
<th>Speaking From Slides</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ sounds natural</td>
<td>+ insures organization</td>
</tr>
<tr>
<td>- has much room for error</td>
<td>+ allows eye contact</td>
</tr>
<tr>
<td></td>
<td>+ allows improvising</td>
</tr>
<tr>
<td></td>
<td>- some room for error</td>
</tr>
</tbody>
</table>
Preparation: Focus Your Thoughts

1. Develop a general goal.
   – Inform? Persuade? Brainstorm?

2. Develop a precise objective.
   – e.g., After my presentation, the listeners will be able to identify my three major conclusions and their implications.

3. Consider the questions your presentation will answer for your audience.

Type an Outline and Practice from It

- **Type your outline** in bold print and large font so you can refer to it easily during your presentation.
- **Practice** your presentation **from this outline** but do not memorize it and do not read from it during your presentation.
- **Tape record** your presentation and listen to yourself.
  - Listen for excessive use of “uh” “like” “you know” and failure to pause occasionally.
- **Make sure you are within the time limit.**
Tips for Effective Visual Aids

Audiences remember more when you use well-designed slides

<table>
<thead>
<tr>
<th>Recall (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>Hear and See</td>
</tr>
</tbody>
</table>
Choose a format that is easily read

Choose legible type

Arial

BOOK ANTIQUA

Choose a helpful layout

Color can distinguish a presentation
Color affects how fast the audience can read.

The color combination that is read most quickly is black on yellow.

What is important is that the combination has contrast—the one on this slide fails to do so.
Color affects how fast the audience can read

Color affects the emotions of the audience
RESULTS

Four warmest years of century

1988
1987
1983
1981

The world is warming

Include slides that accent important details

Neptune has three moons

Include slides that show organization

METHODS TO REDUCE SULFUR DIOXIDE EMISSIONS FROM COAL-FUELED UTILITIES

Cynthia Schmidt
Mechanical Engineering Department
University of Texas

Three classes of methods exist for reducing emissions of sulfur dioxide:

1. Combustion
2. Pre-combustion
3. Post-combustion

By using these methods, coal utilities can greatly reduce SO2 emissions.

Beginning
Middle
Middle 2
Ending

Conclusion

Middle 1

Percentage Reduction of SO2

coal cleaning
coal switching
fluidized bed absorption
adsorption
Exclude details that the audience does not need or cannot remember

Avoid filler information
Roentgen discovered x-rays in 1895. He found that a cathode-ray tube produced fluorescence in a distant platinum-barium-cyanide screen.

Avoid long lists
• Corrosion
• Acid rain
• Toxic materials
• Pulsed combustion
• Energetic materials
• Pyrogenic materials
• Smog

Avoid complex images

Slide Template for Scientific Presentations: Light Background

Michael Alley
College of Engineering
Virginia Tech
February 15, 2003
Evaluation of Novel and Low-Cost Materials for Bipolar Plates in PEM Fuel Cells

Kevin Desrosiers
Holly Grammer
Dr. D. J. Nelson

Fuel Cell Group
Virginia Tech
April 23, 2002
This presentation focuses on… (complete sentence, but go no more than two lines)

- **Topic 1**
- **Topic 2**
- **Topic 3**

This presentation evaluates composite materials for the bipolar plates of fuel cells

- **Role of bipolar plates in fuel cells**
- **Comparison of bipolar plate materials**
- **Evaluation of bipolar plate performance**
Fuel cells are devices for energy conversion

[Breakthrough Technologies Institute/Fuel Cells 2000]
This sentence headline introduces the 2nd topic (28 points, left justified, no more than two lines)

First point (keep points to no more than two lines)

Second point (parallel in structure to the others)

Third point (parallel in structure to the others)

Composite materials are ideal for bipolar plates

Advantages
- Easy to shape
- Light in weight
- Resistant to corrosion

Disadvantages
- Low conductivity
- High cost (at present)
This sentence headline introduces the third topic (28 points, left justified, no more than two lines)

First point (keep points to no more than two lines)

Second point (parallel in structure to the others)

Third point (parallel in structure to the others)

Three methods exist for evaluating bipolar plates

- Polarization Curves
- Power Curves
- Visual Inspection
In summary,… (here, you state your most important conclusion of the work)

Supporting point (no more than two lines)

Another supporting point (parallel to the first)

A third supporting point (parallel to the first)

Questions?

In summary, composite bipolar plates show promise for fuel cells

Composite materials function well, while under operating conditions

Minimal corrosion was observed

Conductivity difficulties need to be addressed

Questions?
Workshop overview: Our histories and values as writers and researchers shape the ways we use writing in the classroom.

In your discipline, what does the process of research look like?

What is your writing process for a typical academic task?

What are your expectations for the introduction to a research article?

What do we mean by Context, Focus, and Justification?

- **Context**: Orient your reader to the published literature related to the study you are presenting.

- **Focus**: Define your research space, stake out territory. What question are you addressing? What is your hypothesis?

- **Justification**: Show how your work fits into and extends previous work. Argue for the importance of your work.

- Your introduction sets up the direction you’ll take in the Discussion Section.
Introductions across disciplines contain the essential elements of context, focus, and justification.

**Context:** Orient your reader to the published literature related to the topic and to essential background information.

**Focus:** Define the research space, stake out territory. What questions are you addressing? What is your hypothesis?

**Justification:** Show how your work fits into and extends previous work. Argue for the importance of your work.

Swales (1990)