بسم الله الرحمن الرحيم
Technical Presentations Skills for Engineers-4 Tools and Techniques

By; Engr. Dr. Attaullah Shah
Technical Presentations

- As engineers we will present our work many times throughout our careers
  - Interviews, reports to management, design reviews etc
- We are often trying to persuade someone to our own way of thinking
- We are often presenting highly technical information
- It is in our best interests to put forward our arguments as clearly and concisely as possible
Basic Layout

- A typical presentation will comprise
  - Introduction (& outline of what is to come?)
- Problem statement
- Main body
  - Methodologies, theory development
  - Results and discussion
- Conclusions and recommendations
- A good presentation:
  - “Flows” – it defines a problem or an argument and then systematically addresses it
    - Not necessarily chronologically ........
  - Speaks in terms appropriate to the audience
Using Powerpoint / Graphic Aids

- The way you use Powerpoint can make or break your presentation
- It is an aid to you, not the whole story in itself
- Following are a few common errors in Powerpoint usage
The Three Most Important Elements of a Technical Presentation

- Organization
- Visual Aids
- Delivery and Style: Your Presence and Preparation
Before You Present...
Identify the Purpose

- What is your general purpose?
- What is your specific purpose?
- What is your thesis statement?
- What do you want your audience to learn?
- What action should be taken next?
Perform an Audience Analysis

- Identify who your audience will be
- Identify your objectives for the audience
- Identify their understanding of the subject
- Determine how willing they will be to accept your ideas
Organization
Organization: Introduction

- Identify who you are/establish your “presence”
  - Why should they listen to YOU? Express your qualifications, passions, become a bit “human” to the audience

- Earn the audience’s attention
  - What will they get from listening to you?
  - Why should they listen?

- Give a roadmap: Tell ‘em what you’re gonna tell ‘em
  - Explain where you plan to go, set up the story
  - Explain what the audience can anticipate
Organization: Introduction cont.

- Don’t say “Before I begin”
- Don’t apologize for being nervous
- Don’t read the introduction
- Don’t use a dramatic, irrelevant opener
- Don’t make the introduction too long
Organization: Body

Create main points to express key ideas and major claims

- Present points as declarative statements
- Reflect points back to thesis
- Keep speech points unified, coherent, and balanced
- Verbalize connections between points
Organization: Transitions

- A word or phrase that signals when a speaker has finished one thought and is moving onto another
  These are the turn signals necessary for changing lanes.

- 2 parts to a transition: Transitions state the idea that the speaker is leaving (the review part) and the idea that the speaker is coming up to (the preview part)

Ex: Now that you know what the TPS report is (review), I will discuss its functions (preview).
Organization: Conclusion

- **Purpose**: Tell ‘em what you told ‘em
  - Offers audience a sense of closure
  - Reinforces thesis

- **Tips**
  - Signal the end verbally and non-verbally
  - Restate the thesis using a strong concluding statement
  - Make conclusions strong and brief
Organization: Conclusion
cont.

- Don’t drag out the conclusion
- Don’t end on a weak or rambling note
- Don’t introduce new points
- Don’t say “so in conclusion”
- Don’t end with “Any Questions?” (if the audience was engaged, then they will have questions)
Visual Aids
Fonts Are Important!

- Use Microsoft sans serif fonts
- Use readable font sizes
- Use appropriate color combinations

40 point Title
28 point Heading
24 point Sub-headings
18 point References and Labels
Avoid using 12 point font or smaller
Preparation - Slides

- Use Images & Graphics
- Minimise text & numbers
- Light text on dark background
- Avoid distracting backgrounds
- Use large sans serif fonts

Helvetica or Arial rather than serif fonts like Times

24 pt is minimum, 32 pt, or even 36 pt is better
ALL CAPITALS IS HARDER TO READ, ALTHOUGH IT MIGHT BE OK FOR THE ODD TITLE

Use Images & Graphics
Minimise text & numbers
Light text on dark background
Avoid distracting backgrounds
Use large sans serif fonts
Mix upper and lower case
Fonts Will Make or Break a Presentation

- Use sans serif fonts
- Use readable font sizes
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40 point Title
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Avoid using 12 point font or smaller
Make Sure *You’re* Grammar is Correct

- **Affect v. Effect**
  - Affect (verb) influence or change
  - Effect (verb) bring about or (noun) result

- **Whose v. Who’s**
  - Whose means belonging to whom
  - Who’s is a contraction of who is

- **Your v. You’re**
  - Your is possessive
  - You’re is a contraction of you are

- **Its v. It’s**
  - Its is a pronoun indicating possession
  - It’s is a contraction of it is
The Abuses of Capital Letters

- Bullet points typically have one capital letter at the beginning

- Just because You think a word is Important does Not mean it should be Capitalized

- ALL CAPITAL LETTERS MAKE IT HARDER FOR YOUR AUDIENCE TO DECIPHER WORDS
The Exclamation Point

Warning!

Don’t over use this. Be careful of when and where you use it.
Don’t just fill the page with slabs of text. It looks like hard work for the reader, and does little to highlight the key points of your argument. It also has the tendency to drag you into rote reading of your presentation slides, which disengages you from the audience, (and also tends to reduce your voice to a monotone).

Powerpoint defaults to a “dot-point” style which actually suits the intent of the medium – to provide the key points and data that define your argument, and then allow you to entertain the audience with the details of your story.
Avoid Using Too Many Words

- Use Bullet Points

- Use Condensed Sentences
  - No parking structure will be considered if the cost per stall to erect the structure is greater than $11,000.
  - Parking structures will cost less than $11,000
The Infamous Laser Pointer

• Practice with the laser pointer.

• Use sparingly: Only when necessary
<table>
<thead>
<tr>
<th><strong>Do’s</strong></th>
<th><strong>Don’ts</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Design them large enough</td>
<td>Use too much text</td>
</tr>
<tr>
<td>Design them to be simple</td>
<td>Use excessive artwork</td>
</tr>
<tr>
<td>Deign them to be clear</td>
<td>Make things look cramped</td>
</tr>
<tr>
<td>Label them</td>
<td>Use too many colors</td>
</tr>
<tr>
<td>Use only what you need</td>
<td>Overuse caps</td>
</tr>
</tbody>
</table>
Bad Colour Choices

- Your favourite colours may not translate onto a big screen
- Choose colours that contrast well
  - Projectors tend to “wash out” colours
- Beware of “flaring”
  - Reds and oranges on blues, etc
- Often dark backgrounds with white lettering work well

Use high contrast colours for important lines, symbols or text, and lower contrast colours for less important lines, symbols or text. But use a small number of colours.
Graphics and Images

- Your choice and layout of graphics can either entertain or just frustrate your audience

- Make sure graphics and images are:
  - Relevant
  - Easy to read
  - Appropriately sized

http://www.fluent.com/about/news/pr/pr81.htm

http://moneydance.com/mac_expenses_graph
Show means, sd, effect size statistics, but not test statistics
Written text over graphics

- Be very wary of placing text over fancy graphics
- It usually just ends up being really difficult to read
- The graphics should compliment your argument, not overwhelm it
Use PowerPoint’s Capabilities

- At the other end of the scale, there is no quicker way to lose your audience than slabs of text on a plain page
- Use the capabilities of the program
- Use them wisely
Figure 1: The cost analysis for the alternatives in the structural teams analysis

Delivery
Good Delivery...

- Is clearly audible, fresh, and energetic sounding
- Is a polished version of yourself
- Looks and sounds natural
- Is human, not robotic or like a TV news anchor
- Has controlled and planned body movements
- Is extemporaneous (don’t read slides!)
- Is always focused on the goal (speak so your audience will understand)
A Few Words on Practicing

- It is the most important aspect of a presentation... seriously

- It is in practice that you find out if you
  - Make sense
  - Sound knowledgeable
  - Or sound like an idiot
The Best Way to Practice

- Highlight in your notes difficult pronunciations or phrases that need emphasis or a slower rate of speaking
- Practice in a room similar to where you will present
- Imagine the audience to whom you will present
- Always practice out loud
- Plan movement and gestures
- Practice with all of the equipment you will use
Practice 7 to 11 Times

- **1st Practice:** Use notes and try to get a sense of the rhythm of the speech
- **2nd to 4th practice:** Make notes of difficult transitions, phrases, or words
- **5th to 7th practice:** Focus on how to maintain freshness and energy without making the speech seemed “canned”
- Practice two more times beyond the point of pain...you’ll know it when you get there
Establishing Credibility

- KNOW that you KNOW your stuff
- KNOW that you ARE an expert
- Speak loud enough
- Look at your audience
- Don’t assume your audience knows
- Be in control at all times
- Watch for audience’s non-verbal feedback and adjust your rate, content, or eye contact for them
Project Issues

- Confidentiality
  - You may be using sensitive material in the course of your project
  - Make sure you check with your industry partners for any confidential material before presentation
  - Also familiarize yourself with Organization policy on confidentiality, as laid out in your Employment agreement/offer
Presentation Day
Presentation Checklist

- Check the room
- Bring your presentation on a reliable disk
- Check the presentation projection
- Decide how loud you must speak
- Decide where you and your audience will be located
Dealing with the Nerves!

- Practice dramatically reduces nervousness
- Nervousness is natural. The key is to use the nervous energy to speak loudly and energetically
- Try breathing exercises
- Do a run-through
- Intend on “working the room”
- Tighten up your muscles and relax them while waiting to speak (this releases the adrenalin)
Handling Questions and Answers

- Decide who will answer which types of questions
- Decide when questions should be asked
- Introduce “new voices”
- Use welcoming body language
- Reword the question before answering
- Say “I don’t know” if necessary (you can always find the answer later and get back with the person)
Team Presentations
Teamwork Considerations

- Work out all transitions
  - Between sections
  - Between team members

- Practice as a team

- Speak with one voice

- Give the speaking member full attention. If you look distracted it will make your audience suspicious
Team Checklist

- Where will everyone stand/sit?
- What will others do when not speaking?
- Do you know your presentation equipment well?
- Are all your slides consistent?
  - Team logo
  - Numbering
  - Bullet point structure
  - Graphic images
Conclusion

- A presentation is an opportunity for you to show the world what you are capable of
  - The audience is interested in what you have to say
  - You have full creative control of the moment
- Like most things, the best way to learn is to do

- Give it a go, and enjoy yourself!