

# Visualizing and Presenting in Research and Teaching

## Visualization: Tools and Tips

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# Course Goals

- How to prepare scientific content for a presentation
- How to prepare a presentation
- How to visualize a content
- How to layout slides
- How to prepare slides with PowerPoint and  $\text{\LaTeX}$



# A picture says a thousand words!

- No learning without emotions
- Logic is just the tip of the iceberg
- Two hemispheres:
  - left: details, language, numbers, logic, reason
  - right: overview, images, color, association
- 75% of all sensations are visual
- Visualizing makes meetings more efficient
- Visualizing requires precision



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# Don't lose your audience

- Visualize the red thread
- Show it throughout the presentation
- Use same formulations in speech as well as on the board/slides
- What are the most important arguments/issues?
- Reduce your ideas to its core – draw a picture...
- Provide detailed facts and figures on a handout
- Examples are not necessarily on your slides



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# Pictures

“If you want to build a ship, don’t drum up the men to gather wood, divide the work and give orders. Instead, teach them to yearn for the vast and endless sea.” (Antoine de Saint-Exupéry)

- Choose pictures that fit!
- Allow sufficient amount of time for brainstorming (“ping-pong-peng”)
- What are your ideas? (examples)
- If applicable, choose a motto or metaphor



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# Types of pictures

- Mind maps
- Symbols, pictograms, icons
- Photos
- Cartoons
- Drawings (by hand! – pre-sketch on flipchart sheets)



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# 5 Tips for Drawing

- 1 Simplify
- 2 Direction (left/right)
- 3 The difficult things first
- 4 Hide details
- 5 No perfect lines



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# Colors and Writing

- *Colors should make it more easy and more comfortable to recognize content and structure.*
- Blackboard: Use yellow or orange for highlighting
- Whiteboard/Flipchart:
  - Don't use too many different colors
  - Same color for same meaning
  - Don't use too light colors
  - Use "nice" colors
  - Corporate design?
  - Markers: 2–5 mm for text, 6–12 mm for headers, no round tip
- Block letters, no capitals, narrow letters, wide space between words,  $\frac{1}{3}/\frac{2}{3}$  ratio for letters





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# On the Slide

Consider some examples...



# Colors and Fonts

- Cultural context of colors (e. g. orange)
  - Corporate design (e. g. Orange)
  - Use colors in a purposeful way
  - Less is more
  - Readability!
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- At least 18pt, 24pt is better; at most 4 different sizes
  - Choose appropriate fonts, at most 2 different ones



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# 5 Tips for Layouting

- Manageable amount of information (magical 7)
- Clear structure: Itemization, Frames around central statements
- Right font size, prudential choice of fonts
- No too colorful pictures, purposeful color management



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- Blackboard: chalk, clean cloths, magnets or Tesakrepp™
- Whiteboard: markers, Kleenex™, magnets or Tesakrepp™
- Flipchart: markers, paper?, Tesakrepp™
- OHP: permanent/nonpermanent markes, transparencies, Kleenex™, extension cable?
- Beamer: laptop, extension cable, printouts (on transparencies), presentation on USB stick





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