The Art of Scientific Presentation

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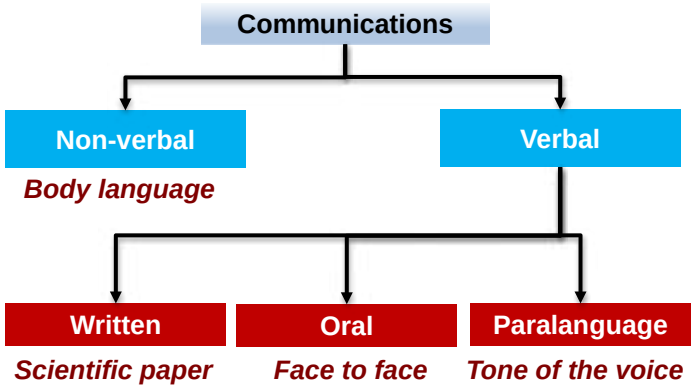
Career Path

Communication is crucial in all stages of your career

Basic types of communications



Giving a talk involves all types of communication

How to give an effective talk?

How to give an awful talk

- Make busy, confusing, and unclear slides
- Make sure you put the audience to sleep
- Make sure the audience can't see your face
- Speak softly that the audience can't hear you
- Speak in a monotonous tone

Why do speakers give bad talks?

They misunderstand what a talk is!

- Needs to be interesting and entertaining
- It is a presentation and a performance
- It is not reading of a journal article

From a written paper to a lecture

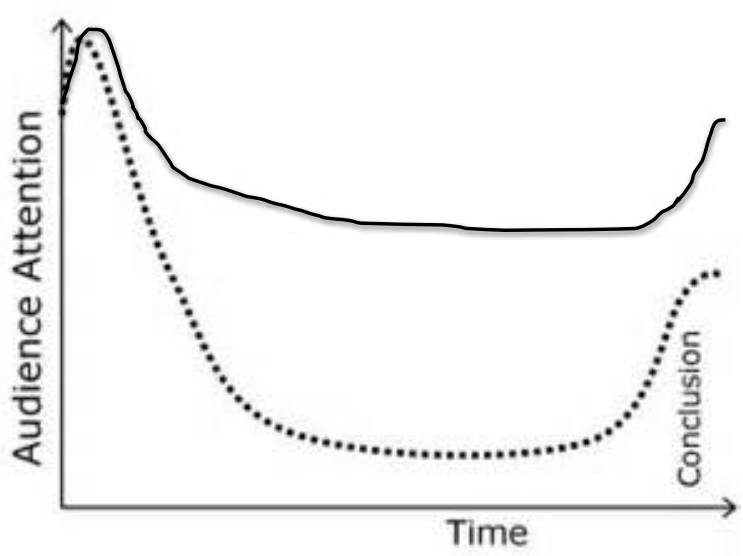
	Eight-page journal paper	15-minute scientific talk	Compression ratio
Number of printed words	~4500	500 max (50 words per slide)	9/1
Speed required for comprehension	Reading: ~240 words/min	Speaking: ~120 words/min	2/1

Reading a paper *vs* attending a lecture

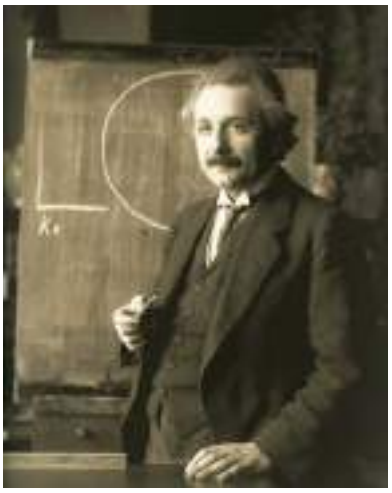
	Reading a paper	Attending a lecture
Selection of content	Reader	Presenter
Control over time	Reader	Presenter
Control over environment (light, audio)	Reader	Presenter
Control over information flow and sequence	Reader	Presenter

The responsibility of the speaker

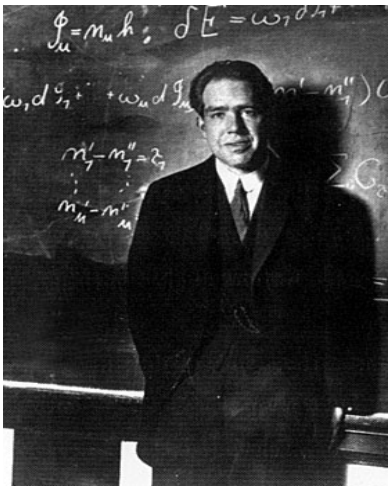
Attention Curve



Good and not so good speakers



Albert Einstein

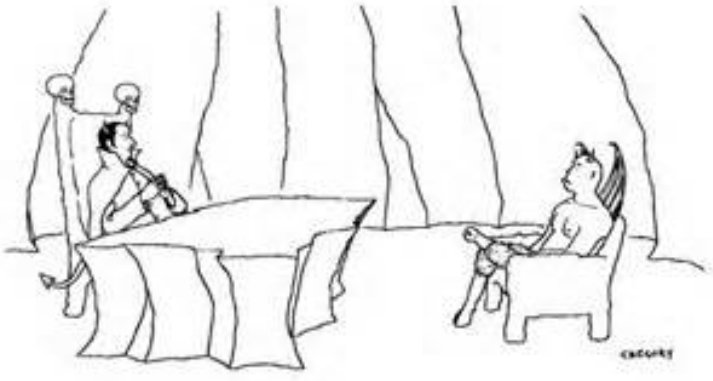


Niels Bohr

Important perspectives for a successful presentation

- ***Slides***
  Clear to read and follow
- ***Structure***
  Organization-transition-emphasis
- ***Speech***
  Know your audience-convey necessary information
- ***Delivery***
  Speaker shows energy-appropriate speed to engage the audience

PowerPoint basics



'I need someone who is well versed in the art of torture- do you know PowerPoint?'

What font to use?

- Sans Serif fonts
  - Arial
  - Helvetica
  - Comic Sans

e p r
e p r
e p r

Not

- Serif fonts
  - Times New Roman
  - Courier
  - Didot

e p r
e p r
e p r

What font size?

18 point

20 point

24 point

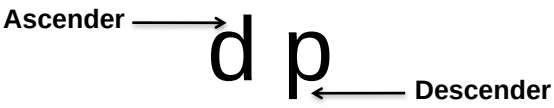
28 point

36 point

40 point

Don’t use capital letters

- CAPITAL LETTERS ARE HARD TO READ
- CAPITAL LETTERS HAVE NO ASCENDERS AND DESCENDERS



I want to give a perfect presentation

THIS SPEAKER IS VERY BORING

Try to read these covered sentences

Color and background themes are important

- Simplest background
- High contrast between the letters and the background
- Dark letters against a light background

Bright letters against a dark background

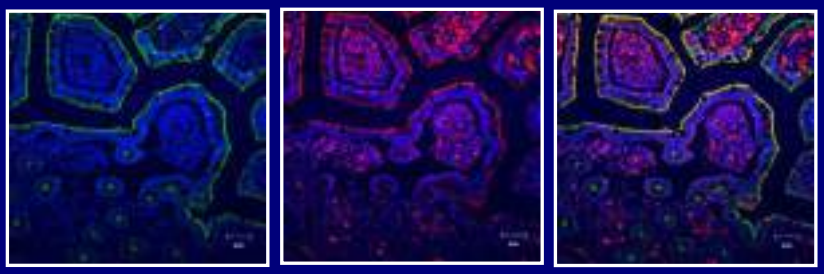
This is not good

This is not good

This is not good

Background colors

Dark blue or black background works best to project colorful images



Villin NPC1L1 Merge

Avoid red-green combination

This color combination hurts the eye

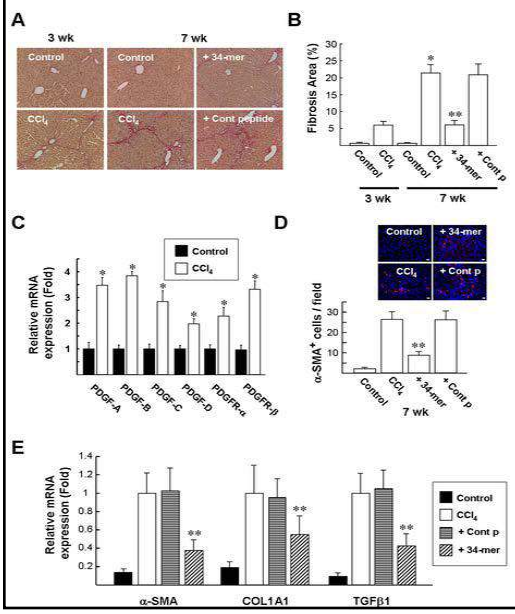
Slide layout

- Each slide should have a heading
- Limit the amount of text on each slide
- Be generous with the space

Wordy slide is a weak slide

If you have two much words in the slide, the audience will make a huge effort to read the text on the slide. In this case, the audience will not pay attention to what you are saying and you will eventually lose the audience. This will cause you to lose your focus and then your presentation falls apart.

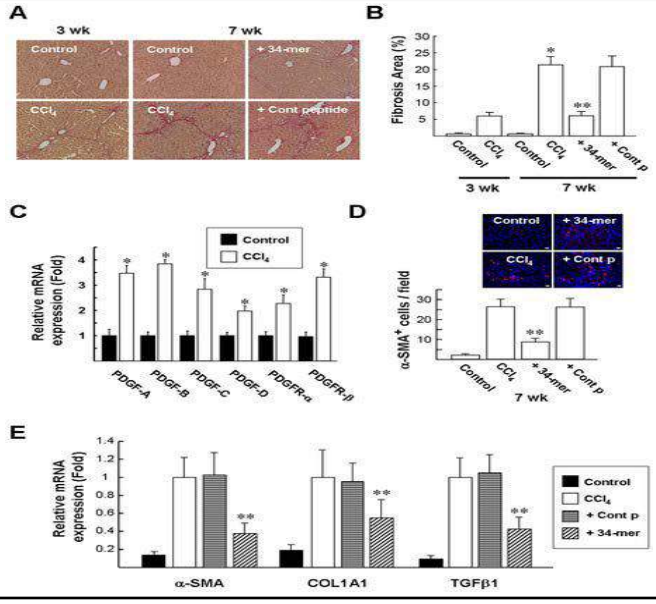
Busy slide is a very weak slide



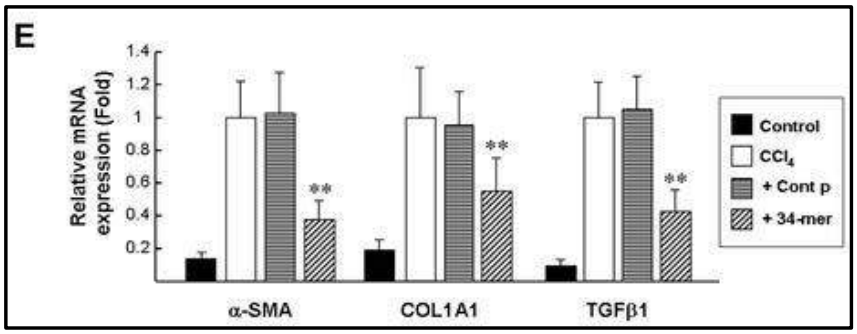
Liver fibrosis was induced by intraperitoneal injection of CCl4 twice a week for 3 weeks. The mice then received the 34-mer twice a week intraperitoneally and were continuously injected with CCl4 for further 4 weeks. (A) Histopathological detection of collagen in the liver by Sirius red-staining. (Original magnification, ×200). Representative pictures from at least 3 different experiments with six mice in each subgroup are shown. (B) Estimation of hepatic fibrosis area by Sirius red staining. Data were assessed by analyzing 10 Sirius red-stained liver sections per animal with a computerized image-plus system. *P<0.02 versus CCl4-treated 3 weeks-group; **P<0.001 versus control peptide+CCl4-treated group.

Busy slide

Busy data slide

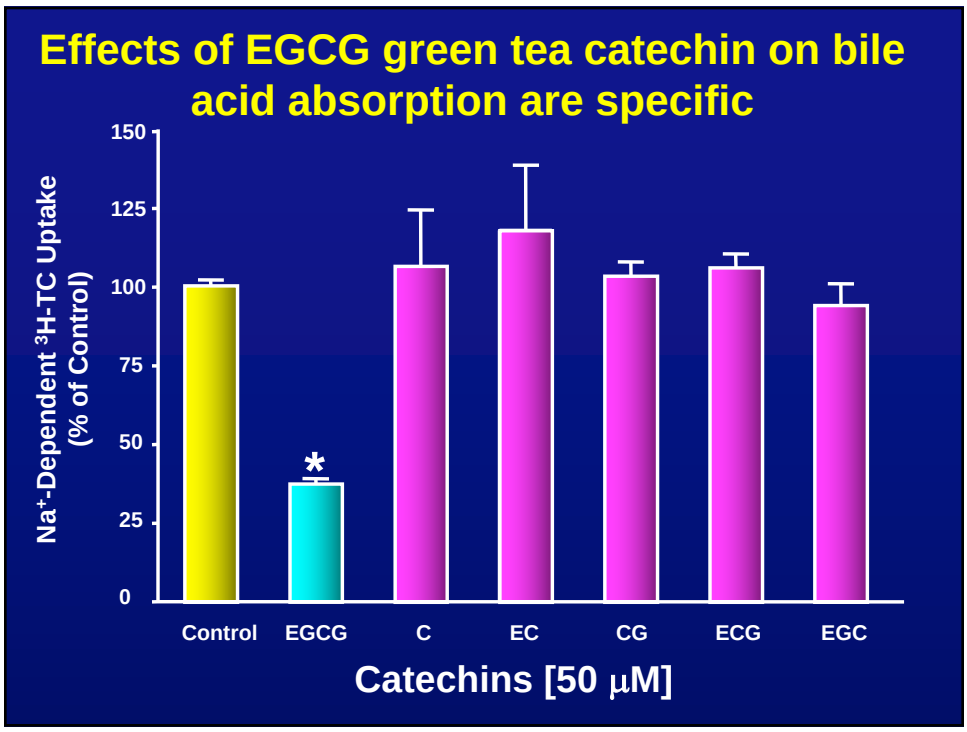


Markers of hepatic fibrosis are reduced by +34-mer



Presentation of data slide

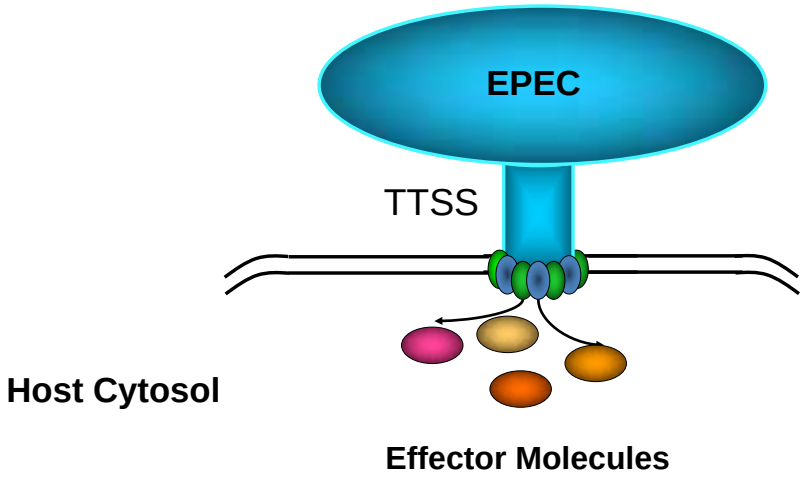
- What is the aim of the experiment?
- Experimental design: what did I do?
- Data: what did I get?
- Interpretation: what is the conclusion?



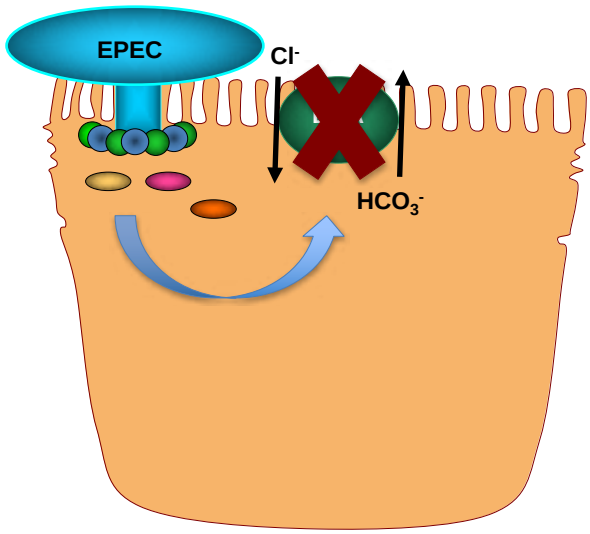
Style of the presentation

- Avoid adding items that you will not talk about
- Include images in your slides
- Use animation

Type three secretion system (TTSS) of the Enteropthogenic *E.coli (EPEC)*



EPEC inhibits intestinal chloride absorption



Structure of the presentation

Basic structure for a scientific presentation

- Background
- Hypothesis
- Methods
- Data/discussion
- Speculation/significance

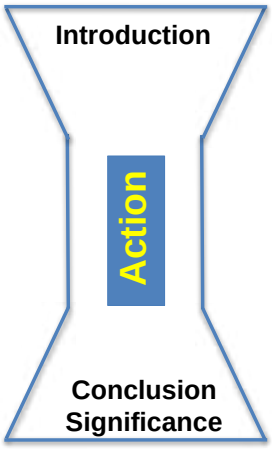
Short presentation-straightforward message

- ~ 15 -18 slides for 10 minutes presentation
- Slides for short presentation
  - Background: 3-4 slides
  - Hypothesis: 1 slide
  - Aims: 1 slide
  - Methods: 1 slide
  - Data: 5-8 slides
  - Summary: 1 slide
  - Conclusion/speculation: 1 slide
  - Significance: 1 slide

How to get the message across

- Build the content progressively
- Present a story
- Make a smooth transition between slides
- Don’t drown the audience with data

Tell a story



Cardiovascular diseases

Hypercholesterolemia

Cholesterol absorption

Regulation of cholesterol absorption

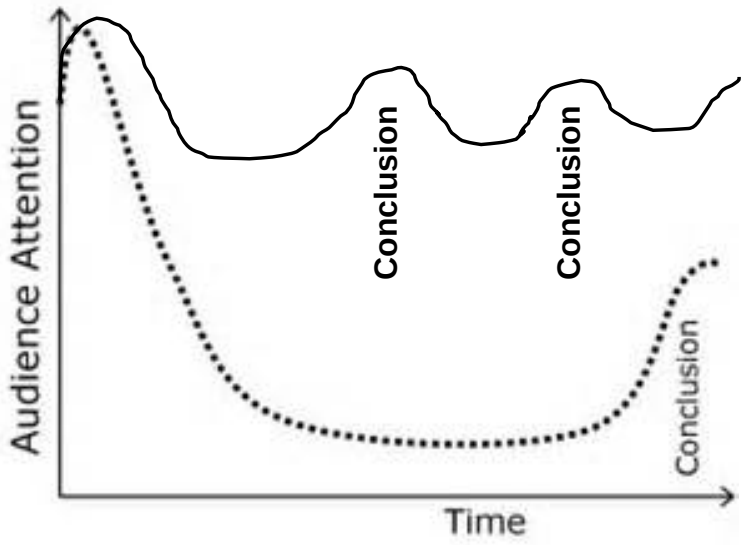
Research data

Inhibit the absorption

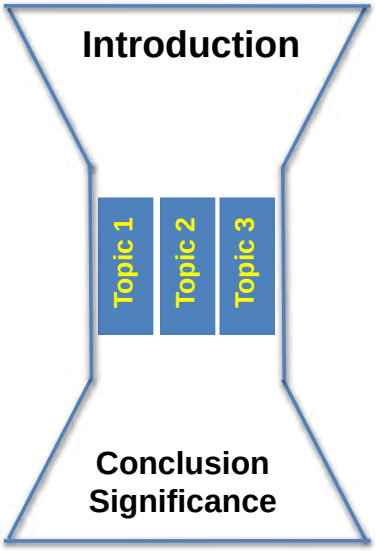
Lower plasma cholesterol

Reduce the risk of Cardiovascular diseases

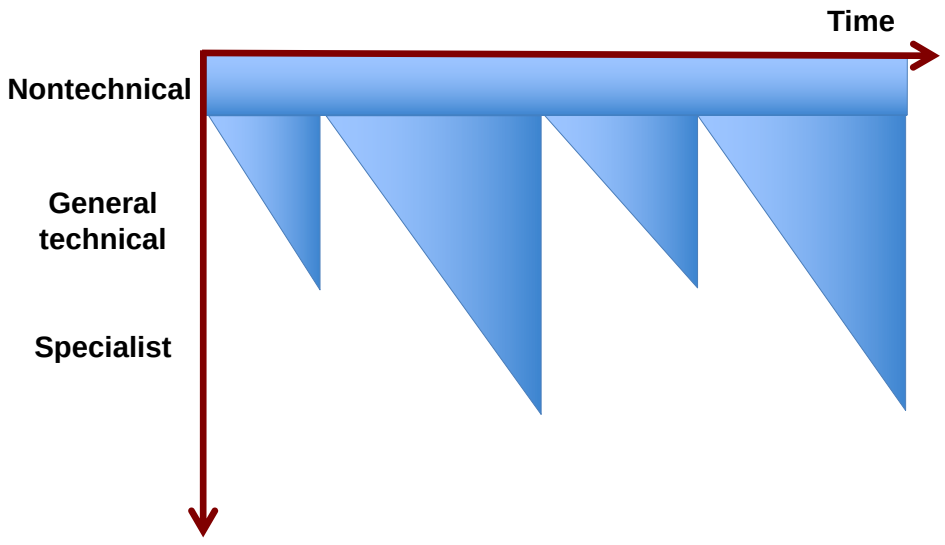
Attentive audience



Divide your presentations into episodes



Divide data in small topics



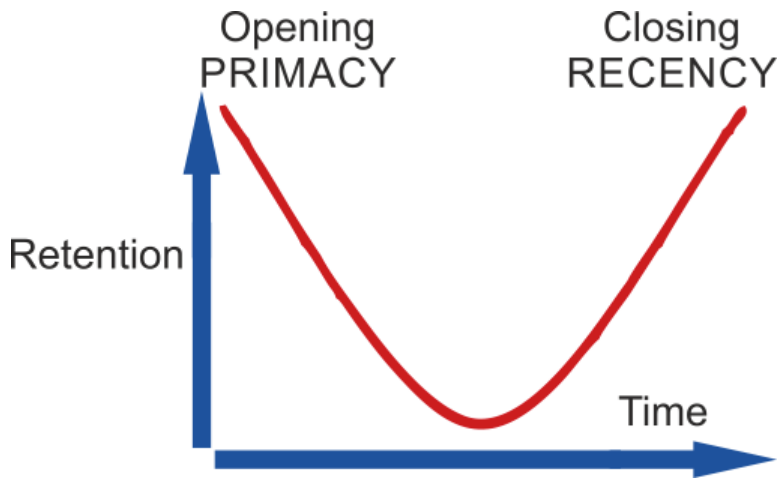
Spoon feeding strategy

Primacy-recency effect

- ***The recency effect***
  The words at the end are most likely to be remembered
- ***The primacy effect***
  The words at the beginning are also likely to be remembered
- ***The serial position curve***
  The serial position of a word in a list influences how likely it is to be remembered

Herbert Ebbinghaus

The serial position curve



Opening and closing

- Hook your audience into your speech with your opening
- End your speech in a memorable manner

Speech & delivery

How to give effective speech

- Target the audience
  1-Will the audience understand these points?
  2-Will the audience be interested in these points?
- Add flavors to your speech
  analogies, examples, stories
- Speak to the audience, do not read the slides

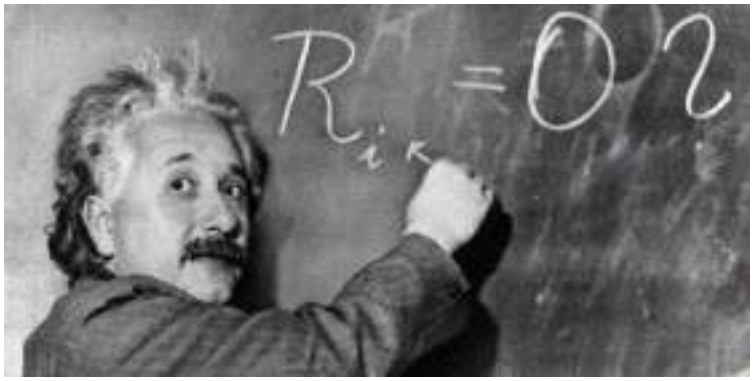
Responsibilities of the speaker

- The oral channel is for emphasis and reinforcing the visual channels to make the work:
  - Easier to understand
  - More memorable
  - More convincing & interesting
- Project an authoritative image
- Show your expertise

Common errors in a speech

- Fast-talking
- Fast-pacing
- Lack of eye contact
- Not prepared for Qs & As

Einstein's driver



Final words

- Know the expectations of your audience
- Use PowerPoint effectively
- Present a story
- Divide the presentation into episodes
- Carefully choose your opening and closing slides
- Practice, practice and practice

“To present, or not to present, that is the question”

Waddah A. Alrefai

Thank you

References

1- Michael Alley; The Craft of Scientific Presentations; 2003 Springer-Verlag New York, Inc.

2- Jean-Luc Lebrun; When The Scientist Presents; 2010 World Scientific Publishing Co. Pte. Ltd.

3- Susan McConnell (Stanford): Designing effective scientific presentations; Lecture