Introduction to Scientific Communication II

Lutz Pluemer

Overview of the Course

Lutz Pluemer, Course on Scientific Communication, 2021, OSU Joint Program			
Week	**Tuesday**	**Lecture**	**Thursday**
2	14-Sep	Introduction, 2 Presentations	16-Sep
4	28-Sep	The Art of Scientific Lectures	
6	12-Oct	First Round of Group Lectures 3x3 Minutes	14-Oct
7	19-Oct	How to design a scientific poster	
8	26-Oct	Midterm Exam - written test	
9	2-Nov	Second round of Oral Group Presentations	4-Nov
10	9-Nov	Scientific Poster Presentation	
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12	23-Nov	Third round of Oral Group Presentations	25-Nov
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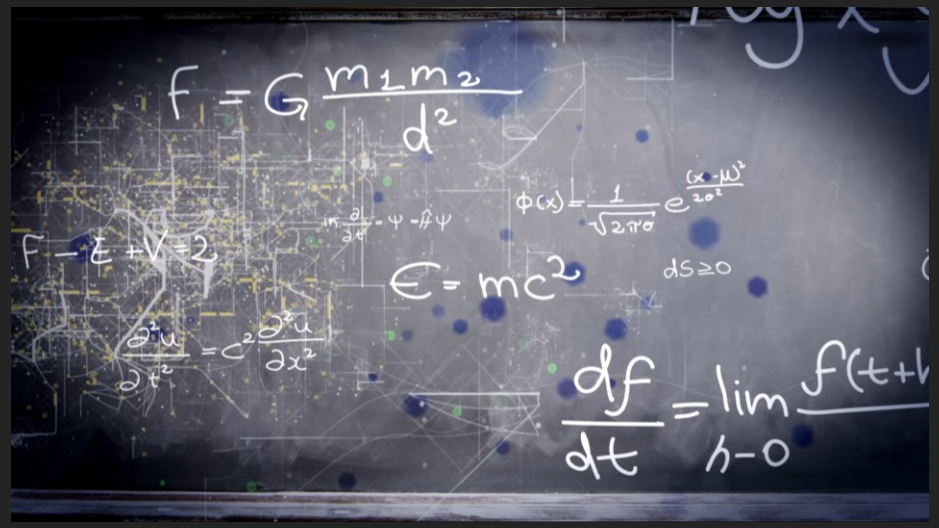
14	7-Dec	Final Exam - Oral Presentation	9-Dec



As a Researcher, you will have to adress two Questions:

Two Questions

How to **achieve** significant scientific research results (that is not what this course is about)

How to **present** scientific research results (Topic of this Course)

How to **present** scientific research results

Oral Scientific Presentations

On Scientific Workshops, Conferences, Project Meetings

Defense of a thesis

→ Building a Scientific Network

Scientific Writing

Reports, Journal Papers

→ Achieve International Visibility in your Research Community

How to **present** scientific research results

Proposal Writing

To apply for **funds** four your research or the research of your students

Poster Session

That is during a Conference or a Workshop, very important for **Networking**

All these aspects are addressed in this lecture.

Starting point and finding

Scientific Articles in High Ranking **Journals** are a Key for the Career of a Scientist

Oral Scientific Presentations are a key for a Scientific, but also a Professional Career

But:

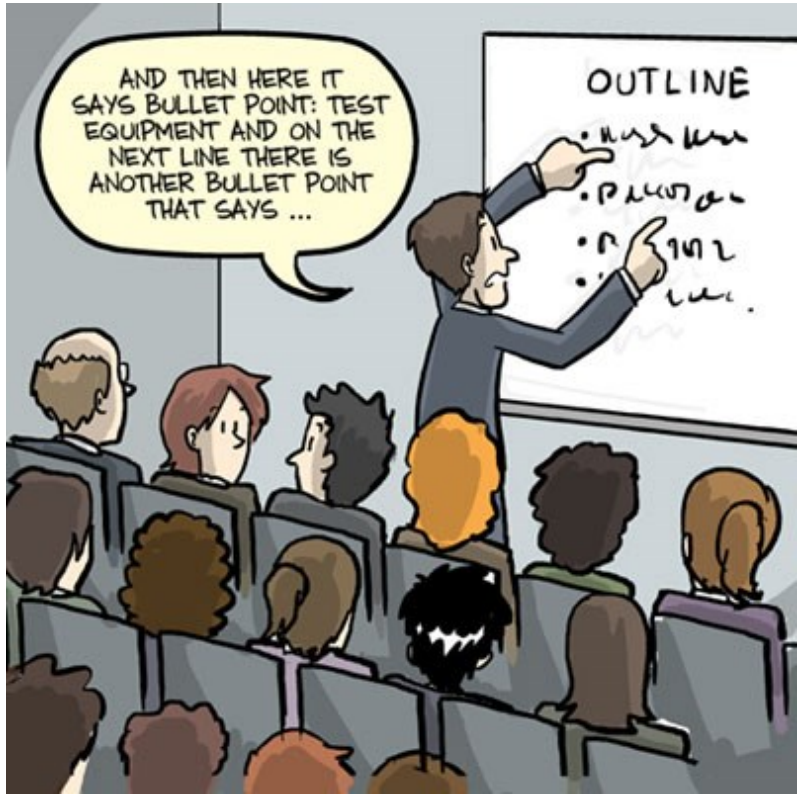
Many submitted Papers are **rejected** – just because the Reviewer does not see a chance to **understand** what the Author wants to say.

Many scientific and professional Presentations are just **boring** –
for the same reason and some other reasons

Do you remember

What i Told in the first lecture about the **difference** between a **boring** and an **exciting** Lecture?

A Boring Presentation



Boring Lecture

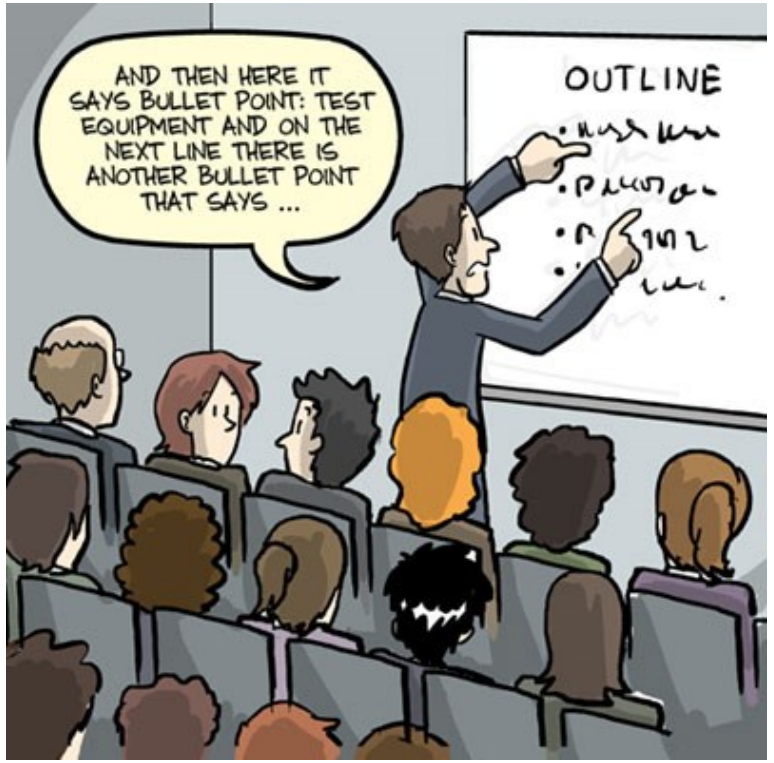
Exciting Lecture

Exciting Lecture

What characterizes the difference between a boring and an exciting presentation?

A Presentation is **boring** if

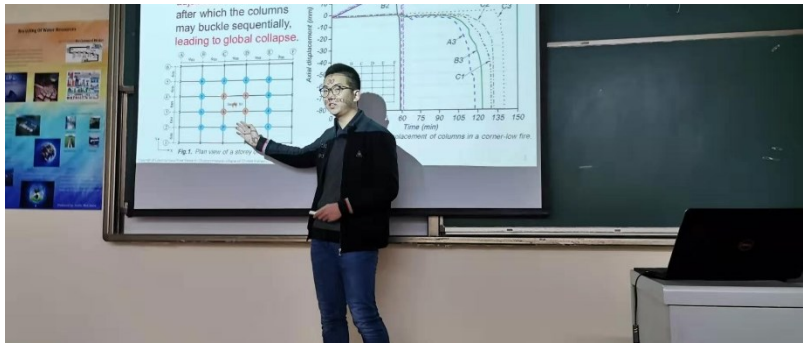
- the Audience has **no chance to understand** what the speaker wants to say
- if the Speaker does not **address** the audience but only looks at his slides or notes
- and if the Speaker **does not tell a Story**

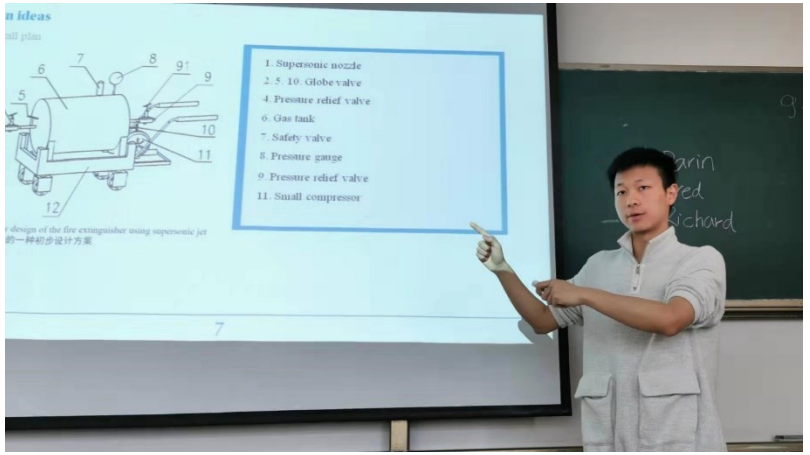


What characterizes an exciting Presentation?

A Presentation is **exciting** if

- the Audience **understands** the research question, **grasps** the main methods and **appreciates** the achieved results
- if the Speaker **addresses** the audience and keeps eye contact
- if the Speaker **tells a Story** and gives the impression **of a professional Attitude**





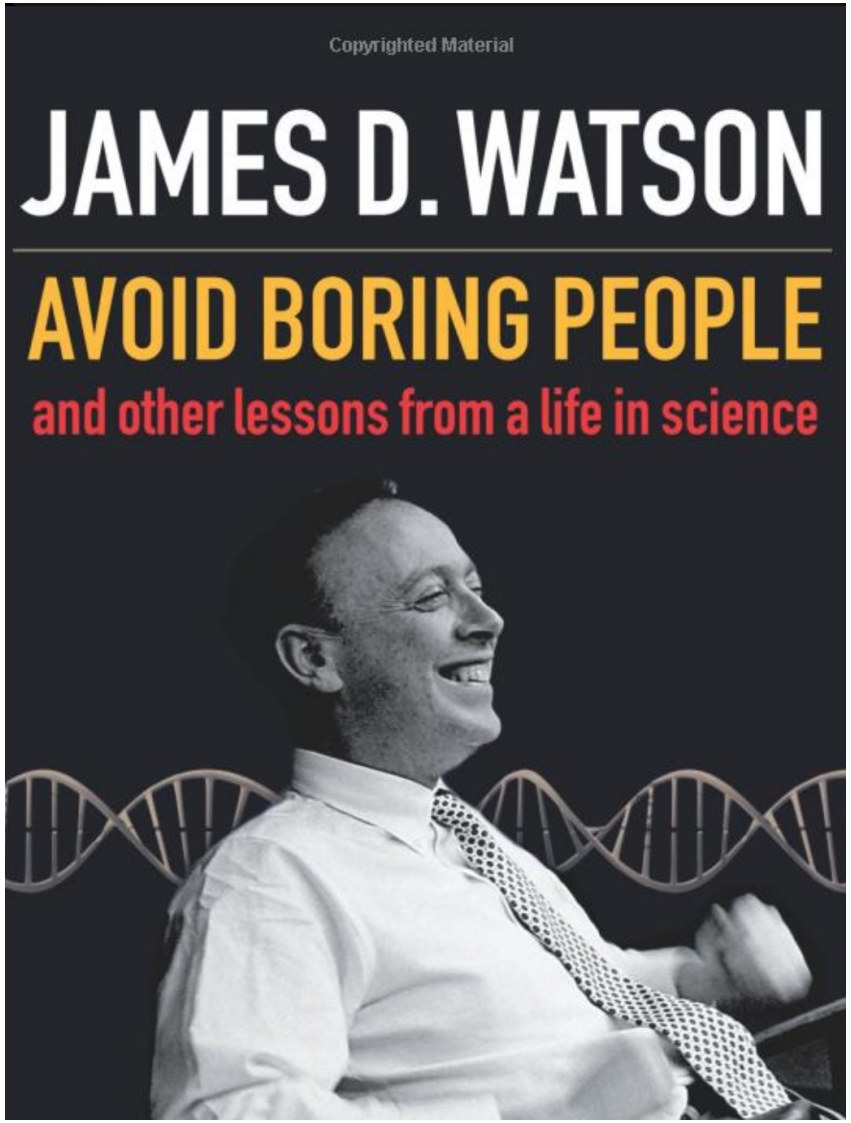
A Little Short Story

about one of the most important scientists of the last century

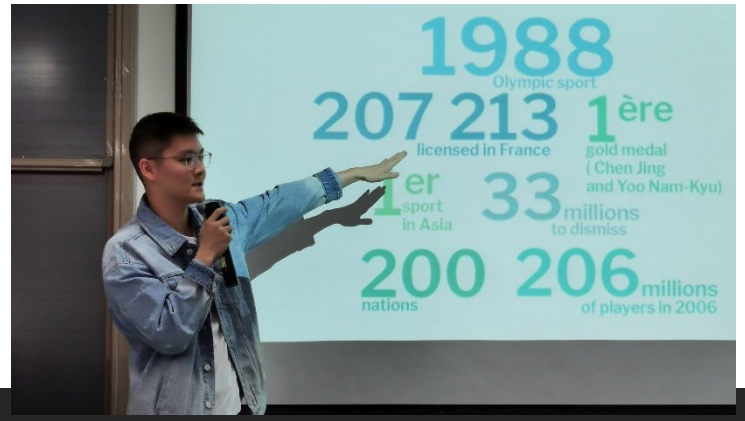
who was instrumental in deciphering the genetic code through the discovery of the double helix.

a little eccentric as one learns from his readable book about his life as a scientist which has a very interesting title

AVOID BORING PEOPLE
and other lessons from a life in science



By the way …



Most of your lectures were **exciting**

How to avoid boring People?

It is easy to understand, but not that easy to implement

There are some basic Rules which I will present today – providing basic **Knowledge**

But to achieve **Competence, Practice** is the Key

Rule No. 1: Understanding

Give your audience the chance to **understand** within **15 minutes** your results for which you may have needed **several years** to achieved

To do this, you need to take a **perspective from the outside,** as opposed to the **perspective from the inside** that you took during your research.

And always have two kinds of listeners in mind: one who is **not an expert** in your field, and one who **knows** it very well

One needs the **big picture,** the other expects depth of field and **details,** usually also detailed **formulas** and **graphics**.

The 5 Big Questions

What is the **Problem**?
Why is it **relevant**?
Why is it **hard**?

How was it solved, what was the main **method**?
What is my **contribution**?

What, How, and Why

difficult to name

requires a lot of practice

you need a **perspective from the outside**, as opposed to the **perspective from the inside** that you took during your research

First try to **explain** your **grandmother** (or mother, or girl / boy friend) and write it down afterwards. **Repeat** again and again

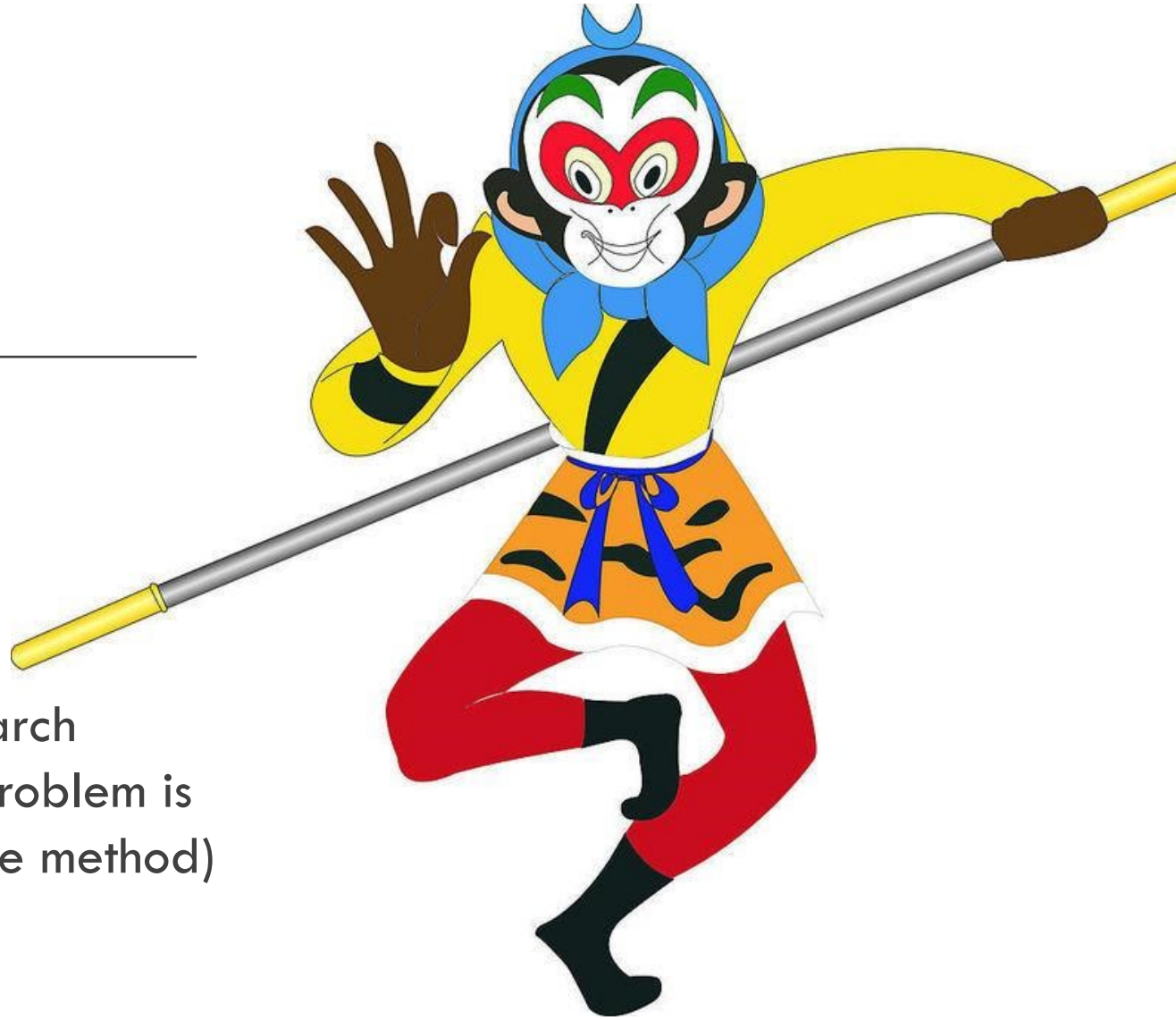
Story Telling

A good Presentation tells a **Story**

You know Stories very well

A good Story is **exciting** and **thrilling**

It lives on a fearsome **danger** (relevant research problem), a frightening opponent (why the problem is hard), a hero (the author) with a **weapon** (the method) who after many **efforts** (data and methods) achieves the **victory** (your contribution)



Source: http://www.ujmaweb.de/Spot%20Nudelkrise.html

Different Kinds of Professional Presentations

With regard to the audience	Presentations for **Experts**. Not Experts in your field, but in your discipline Scientific Conferences and Workshops are examples, but also thesis defense
	Presentations for a **technical audience**, but not in your field. The auditorium consists of engineers, but not of fire protection. You can assume familiarity with math, statistics and formula, but not thermodynamics
	Presentations for **Decision Makers**. Clients, Superiors Reviewers, Government. They do not have access to technical details, but must understand the problem. It's often about a lot of money
	All of them. **The man on the street**. Sometimes nervous. Sometimes angry. Sometimes afraid. But you have to convince them what you want them to do.

Fire Protection Engineering Presentations

As expert in **Fire Protection Engineering** you will again and again have to give oral presentations

You will often have to **address** people

Which kind of **Scenarios** do you have in mind?

Which **kind of talks** will you give?

What will be the **challenges** – with regard to scientific communication?

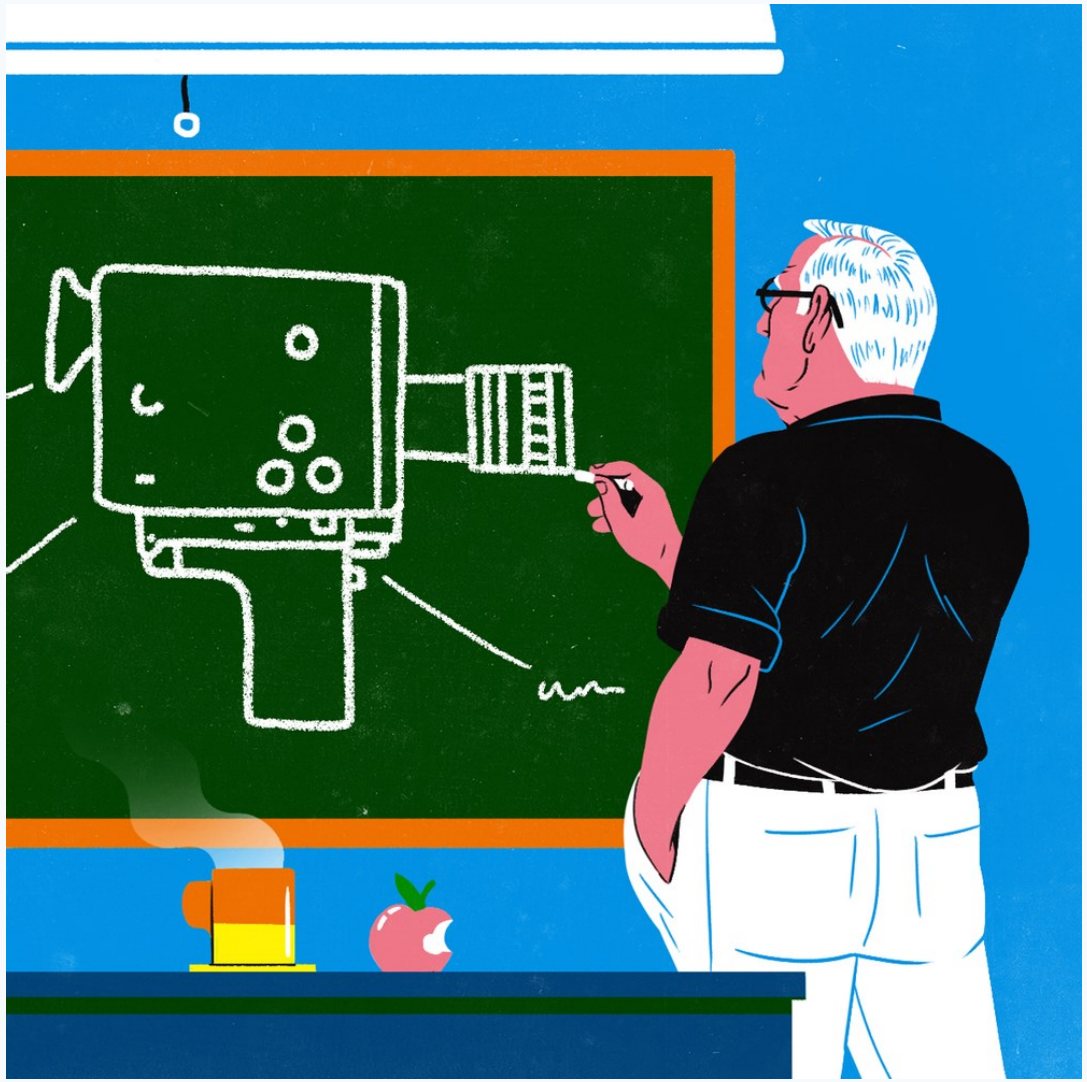
Come back later to these questions

Essentials

Whomever you are addressing, **whatever** you are talking about – there are some **essentials** for a good speaker

- The subject of your speech will be **difficult** and **demanding** – give your audience a chance to **understand** what you have to say
- If you want people to **follow your advice** - make sure they can **trust** you!
- Do **not** try to **meet anyone's expectations**. Find and develop your own **personal style**!

Understandability



- the most important of all - think of your **listeners**
- they should **understand**
- making them understand is anything but simple
- topic of today: how can we convey **Understandability**
- And what about the **Interaction** between the **Speaker** and his **Audience**

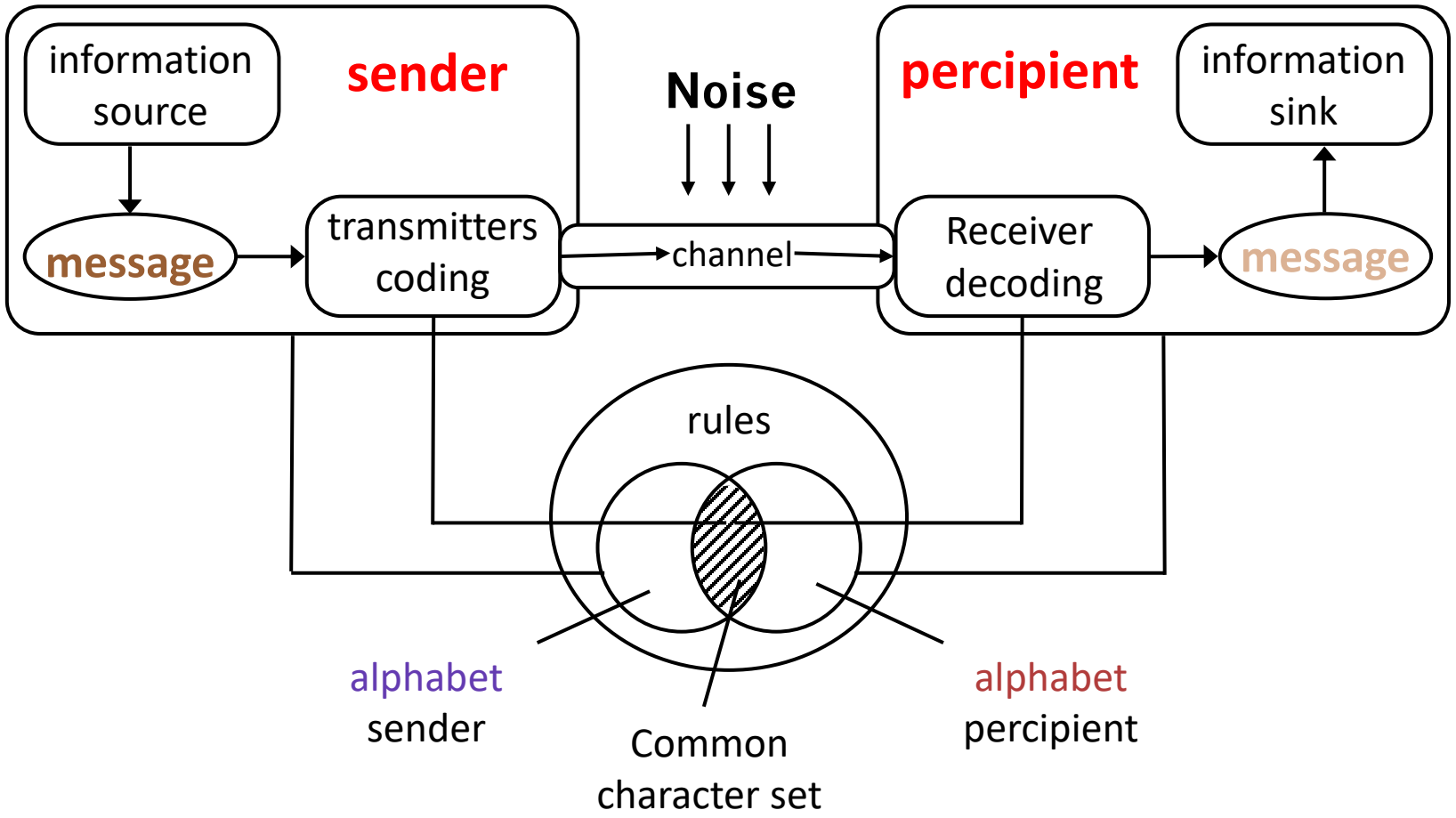
The Science behind Scientific Communication

Two **Models** for Scientific Presentations

One focusses on the Content and the Technical Aspect – how to use **Visual Communication** with **Redundancy** to convey complex Information in limited Time?

One focusses on Communication as **Human Interaction** – different Channels of Communication and the relevance of Implicit Messages

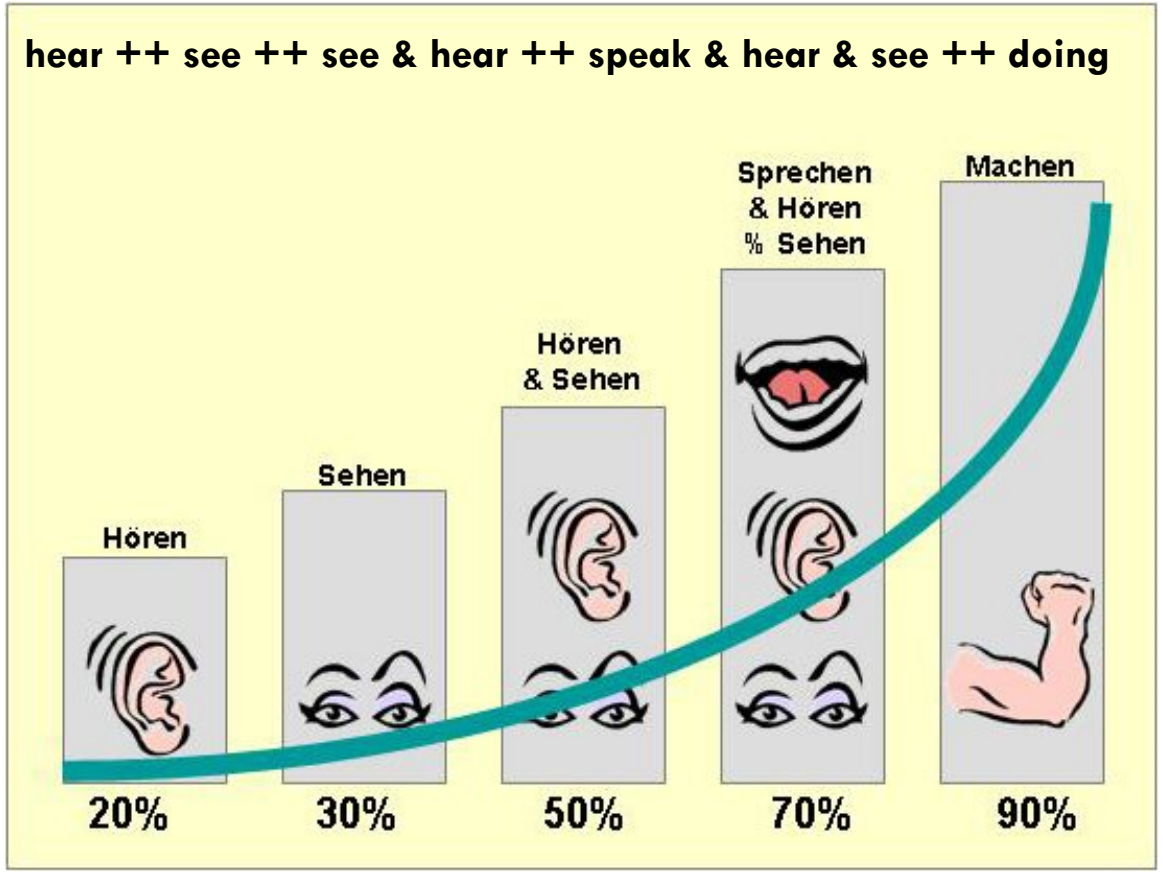
A technical model of Communication



Source: Lecture D. Morning Star, "Cartography II" SS2001

Communication through a noisy Channel

Sustainability of Perception – how much of what has been said do we keep in mind?



Increased learning through media combination

Source: P.Meurer, biMedia, University Arta si Design, ClujNapoca

How to convey complex Information through a noisy Channel?

The first answer is: **Redundancy**

- between spoken and written text

- between text and pictures

The second keyword is **Conciseness** - how do i convey a complex Subject so that it can be properly grasped with minimal cognitive effort?

Use pictures, graphics, highlighting, and animation and design your slied in a way that achieves maximal Conciseness

Always start with a Question

- A **good** Talk always starts with a Problem or a Question
- A **boring** Talk presents a solution to a problem which has not been posed
- **Never** give a lecture without a problem at the very beginning.

The 5 Big Questions

What is the **Problem**?
Why is it **relevant**?
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How to find a Structure for your Slides

This is a creative, demanding process

The most important three rules:

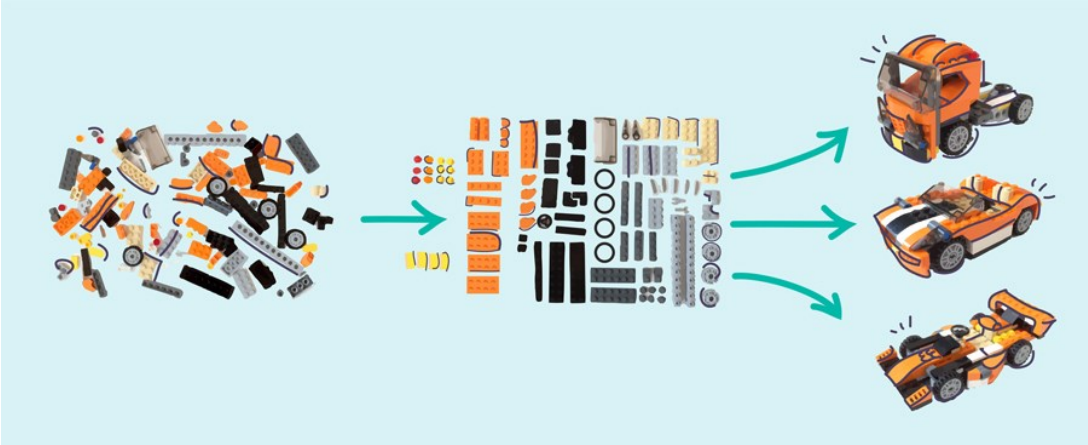
- **Simplify**
- **Simplify**
- **Simplify**

Focus on the **Big Story**

Leave out details at the beginning

But think about **illustrations,** pictures etc. from the very beginning.

Techniques to support this Process:



Tools to prepare

Mindmaps

- For collecting **ideas**

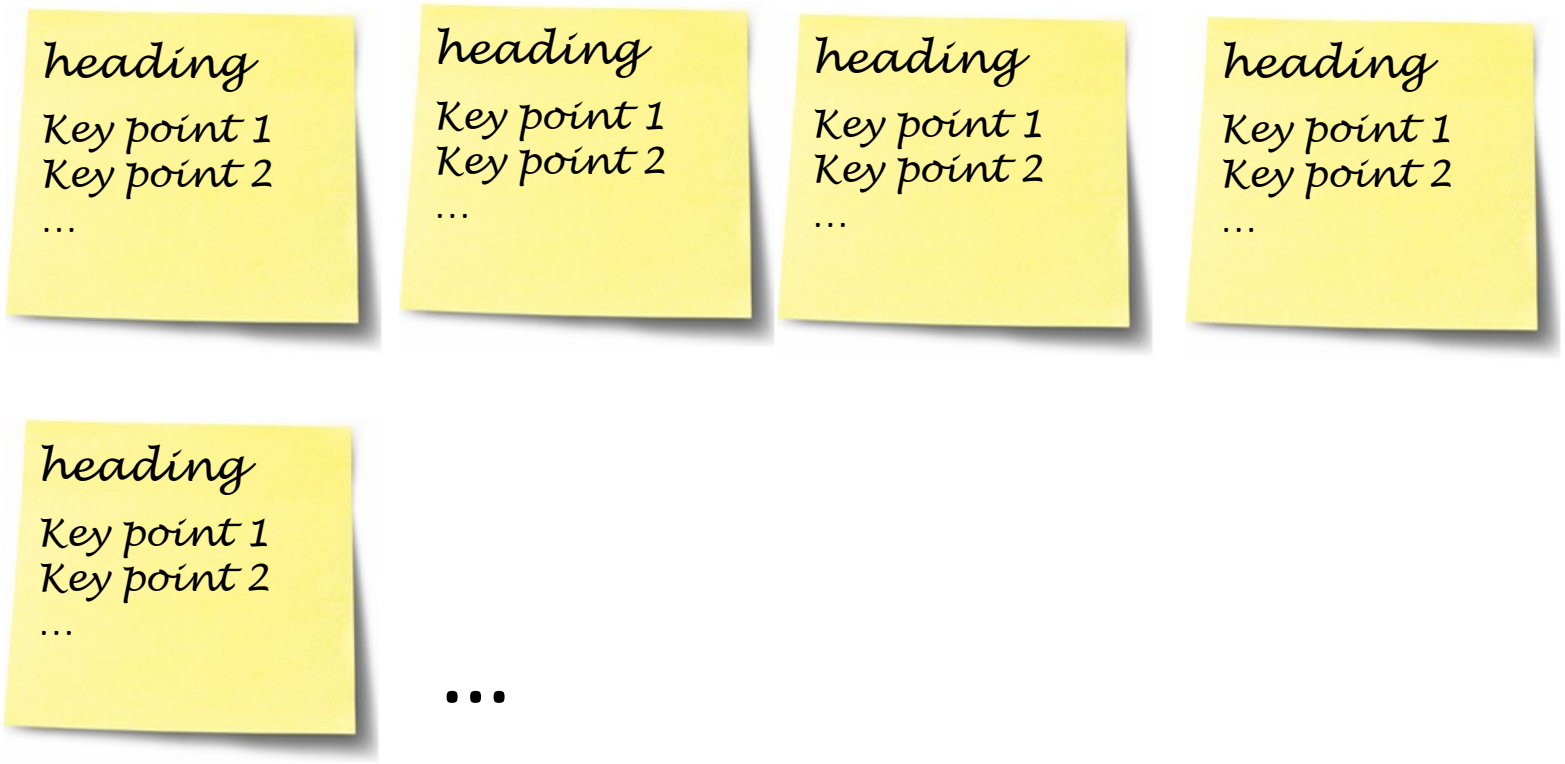
Fold a sheet of paper and fill it with sketches of your slides

- To **structure** your presentation

Structure of lectures

storyboard

- Sketch your presentation



My **favorite** Method

Fold a Sheet of Paper in **8 Parts**

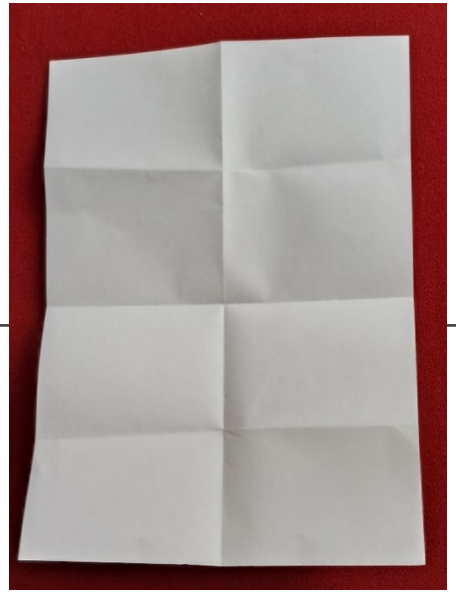
Each part represents a **single slide**

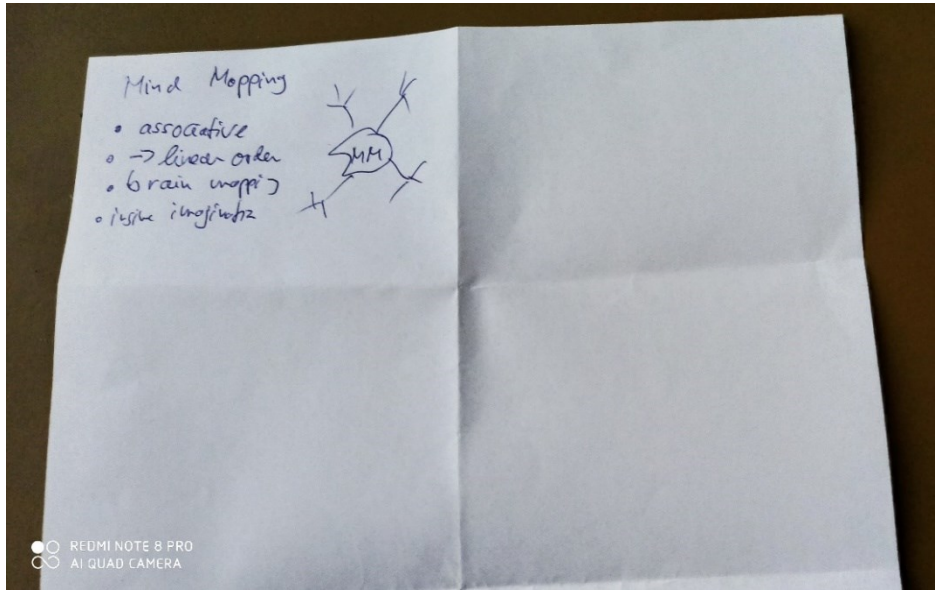
this space is just enough for a nice **sketch** of ideas

start with a **rough outline**, you can refine later

have the **big picture** in mind

include **illustrations** from the beginning





Mind Maps

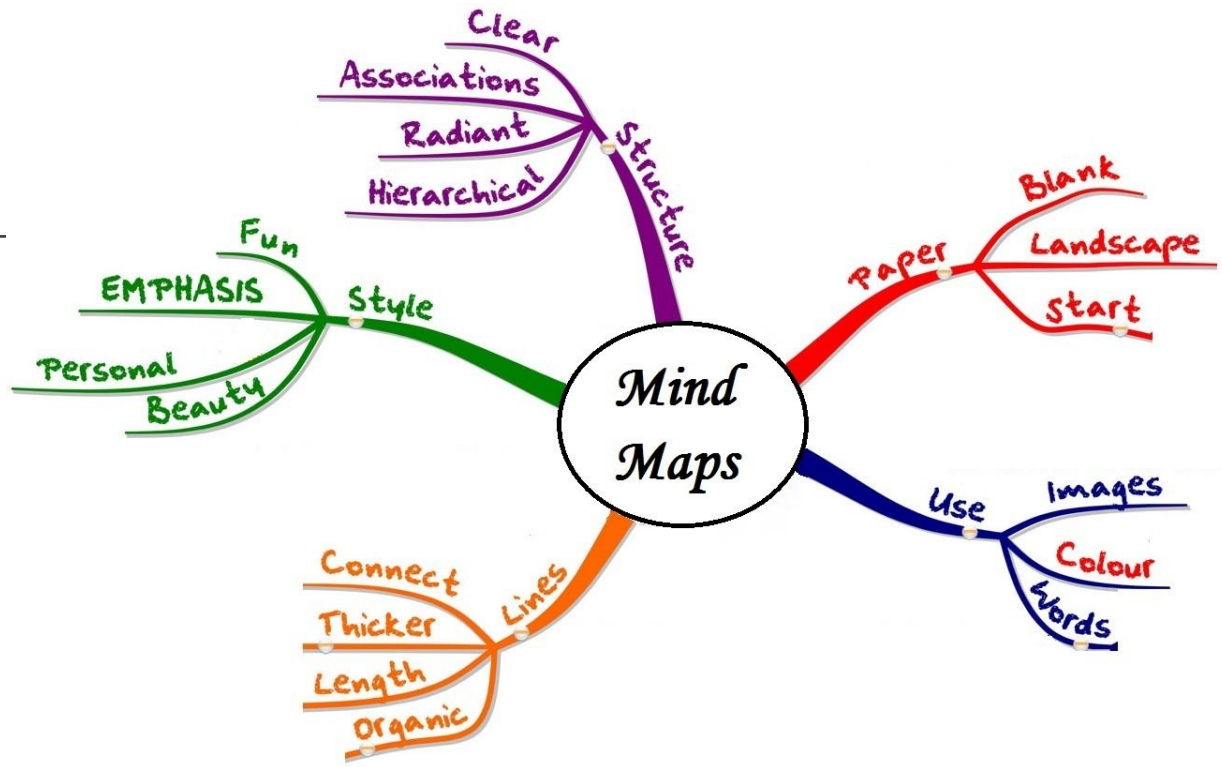
We will
discuss mind
maps later

This is an
example on
a mind map on mind mapping

Idea: unstructured
association of ideas

Try to be **relaxed**

Try to
inspire your imagination



Classroom Exercise 1

Start to make a mind map for your next presentation

You may discuss it with your neighbor

If there is one mind map for a group it is fine

If more than one it is fine as well.

After five minutes I will ask some of the groups for their results

What makes a good Slide?

- Each single Slide is an important entity in ist own – **logically** connected both to the **previous** slide and the **next** slide
- With a *carefully* designed **Header –** naming either a Problem or the topic of this special slide
- Carefully designed Text giving the Content of the Slide, well structured by **Bullets** and **Hinglighting**
- **Text** is **supported** by **pictures** which are either **technical** or **atmospherical**

Why atmospherical Pictures?

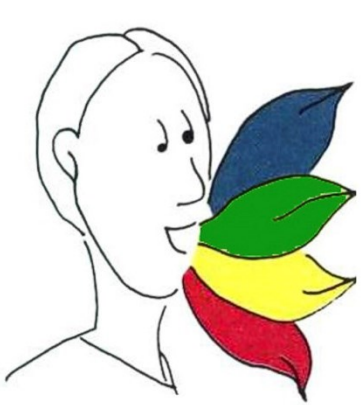
They may **emphasize** your main **message**

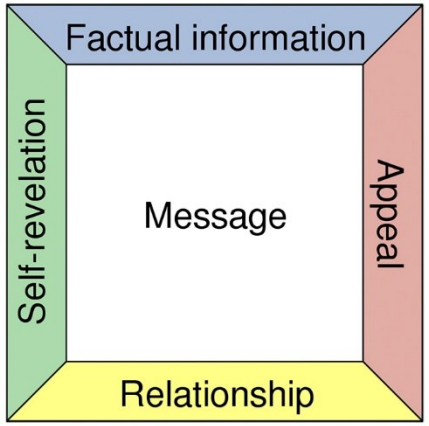
They may make your **audience happy**

Which bring us to the next topic:

The interaction between the Speaker and its Audience

Communication as Social Interaction – the 4 Side Model of Shulz von Thun

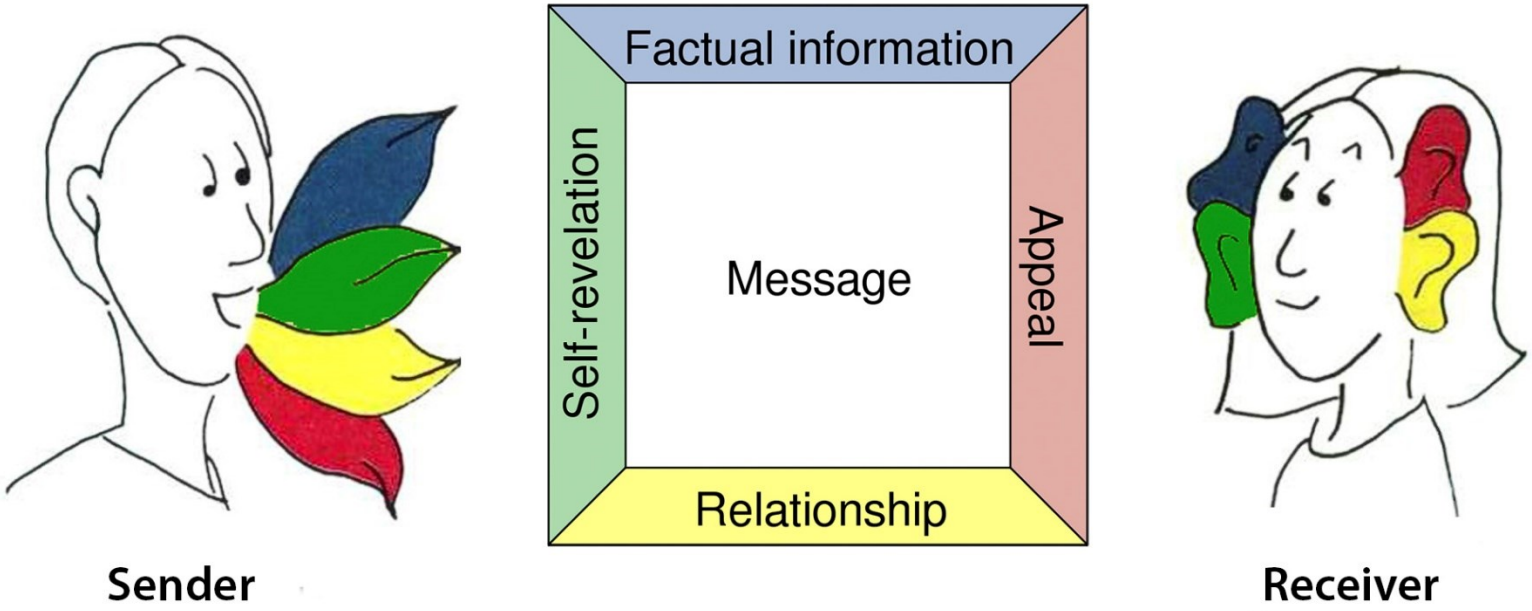




Sender

Receiver

The 4-Side Communication Model



A simple example from daily life

MOTHER

Factual information

"Your presence is nice"

Self-revelation

"I am lonely"

"It's nice that you are here again"

Appeal

"Visit me more often"

SON

Relationship

"You don't visit me enough"

Schulz von Thun, 2001

Sample 1: receiver's perspective

A married couple is waiting together in a car in front of a red traffic light. It is turning green, but the man doesn't start driving immediately. Therefore his wife is saying: "The traffic light is green." These are four different ways the husband can receive the message.

She is impatient. She is annoyed.

Self-revelation

Factual content

The traffic light turned indeed green.

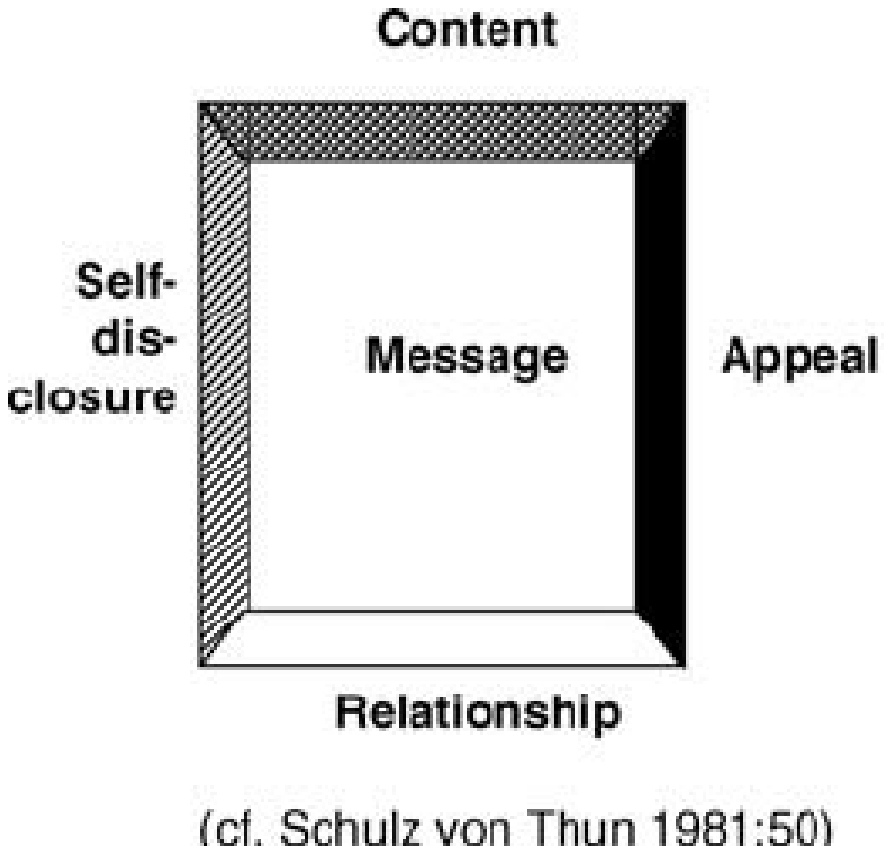
She is showing her superiority over me OR she wants to help me.

Relationship

Appeal

She is saying: "Don't dawdle. Start driving. Hurry up!"

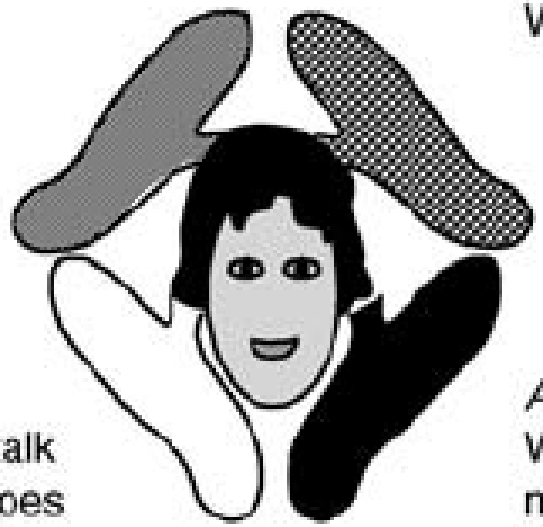
Executive Coach International Pte Ltd – www.liveyourmark.com



(cf. Schulz von Thun 1981:50)

Self disclosure:
What kind of person is he?

Content:
What are the facts?



Relationship:
How does he talk to me? Who does he think I am?

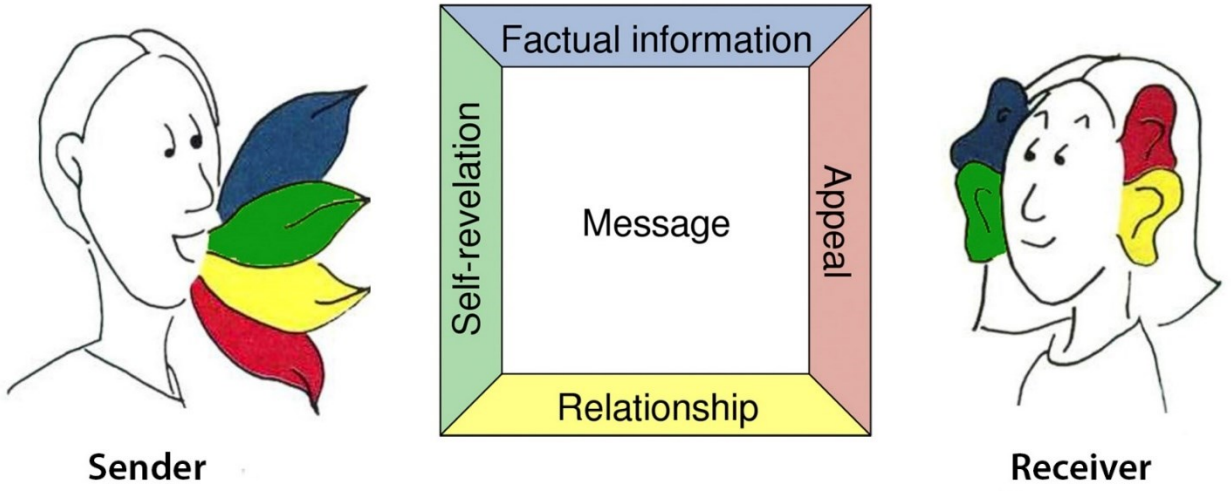
Appeal:
What does he want me to think or do, how does he want me to feel?

What does it mean for us?

How does it relate to Scientific Communication?

What can we learn for our Scientific Talks?

Have a look again on the Four Ears!



Implicit Messages

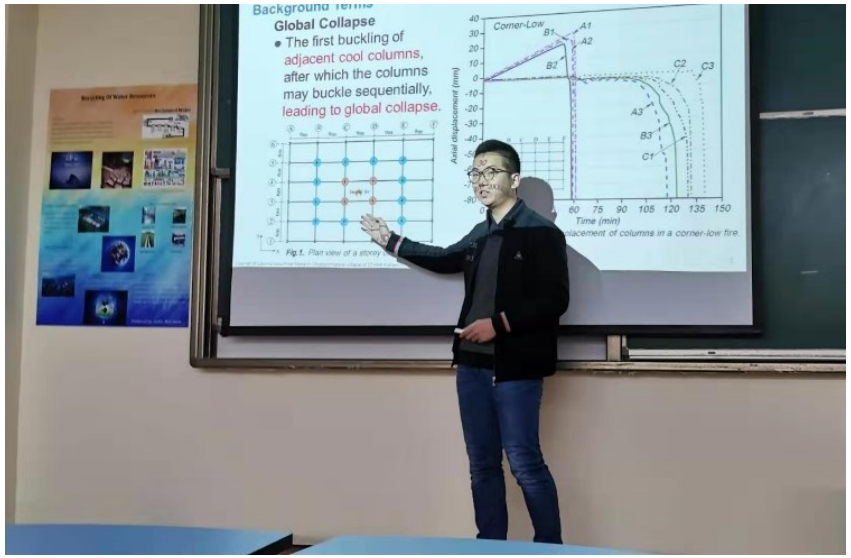
Factual Information – as addressed by the first model – is only one aspect of Scientific Communication

Relationship: „I take my listeners seriously and strive for understanding and eye contact“

Appeal: “Please listen carefully and share my fascination with this topic”

Self-disclosure: “I am a professional expert in this field and at all”

Note: in contrast to factual Information, these Messages are **implicit**, not explicit.



Give a professional impression

Careful, **professional slide design**, good body language, and eye contact give an impression of **professionalism**.

Lovelessly created **sloppy slides, omitting** eye contact, give the **opposite** impression

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Group Lectures

Class is divided into **Groups of 3** (or 4 in one or two cases)

Each Group prepares a Presentation of **9** (or **12**) Minutes,
3 for each group Member

Scientific and Research Topics from **Fire Protection Engineering,** maybe based on but
extending your lectures so far. Best SRTP

Should be scientifically and technically demanding,
so you have a chance to demonstrate your **competence**
and give a **professional** impression

A **second** group will ask **Icebreaker Questions –**
one for **each** Speaker

A **third** group will provide **Feedback**

Icebreaker Questions

So each time 3 Groups are involved
Preparing a **Question** helps you to **listen** more carefully and **understanding** better.
By the way, generating good questions is a **competence** in ist own.
Preparing **Feedback** helps you to **understand** what makes a good Presentation
Questions and Feedback help the **Speakers** to be well **prepared** for Workshops, Conferences and **Thesis Defense**

Thanks for your concentrated Attention!