#### **How I See Optimal Presentation**

Karel Kubíček

## The art of scientific presentations

#### The Craft of Scientific Presentations

Critical Steps to Succeed and Critical Errors to Avoid

Michael Alley

With 41 Illustrations

HILLY REPORT





Susan K. McConnell, Ph.D.

Department of Biology Stanford University







#### Michaela Palatá, MBA

#### **Outline of this talk**

1) Introduction

2) Who are you going to talk to?

3) Where are you going to give the talk?

4) General rules – fonts, colors, sizes, sans serifs etc.

5) Timing / practicing

6) Description of gel, description of graph, of anything ...

7) Structure of your talk - Intro, Goals, Methods, Results, Conclusion, Take Home Message, Acknowledgment

#### Make things as simple as possible, but not simpler

**Albert Einstein** 

# Science, too, deserves to be presented in style

"Style is the vehicle for communicating the content."

"Strong presentations require both content and style. Content without style goes unnoticed, and style without content has no meaning."

### Most people are afraid of public speaking



#### Finding just the right level of stress



Stress level

#### How to overcome anxiety

• Breathing



#### How to overcome anxiety

- Come early
- Map out the room
- Try out the technical equipment
- Try out moving around the stage
- Dress appropriately
- Eat & drink in moderation

#### How to overcome anxiety

• Allies in the audience



### **Great presentations are about controlling these 4 aspects:**



**Preparation/context** 

#### Specific aspects to consider when presenting

#### **ADVANTAGES:**

- Opportunity to interact with audience
- Opportunity to revise on the spot
- Opportunity to use delivery for emphasis
- Ability to incorporate visual aids
- Assurance the audience has witnessed the information

#### **DISADVANTAGES:**

One chance only

- No chance for audience to look up background information
- Audience restricted to speaker's pace
- Success depends on speaker's ability to deliver
- Difficulty in assembling the speaker and audience at one time

### What is the biggest challenge for you when presenting?

- Timing
- Keeping attention of the audience
- Delivering the information at appropriate level given a particular audience
- The main struggle is to find the right balance to explain things in a clear and understandable way without spending too much time on it and going into unnecessary details. The biggest challenge is to judge the level of knowledge of my audience (i.e. how much and how deep to explain certain things)
- Stress

Time to prepare

- Presenting in another language (non-native)
- Anxiety about presenting in public. I fear to be judged by others

#### Understanding your audience is critically important

- Who are they?
- Why are they here?
- What do they already know?
- What do they NOT know?
- What do they need to know?
- What do they NOT need to know?
- What questions may they ask me?
- What do I struggle to explain?
- How can I best interact with this audience?

Depending on whether you are going to speak to experts in your field or to broad audience, your talk should reflect that

You do not need to explain the experts all technical details! All others may need / want to know what do you mean when saying:

"from the pictures / graph / gel it is obvious ..."

Find out if audience includes

- many non-experts: include basics, simple pictures
- mostly theorists: explain which quantity are you measuring, skip experimental details
- people who have done work relevant to yours
  Be sure to mention their work
- "friendly" competitors: be generous

We may not be experts at public speaking...

We may not be experts at public speaking...

... but we are all experts at listening to talks

### Using rule of thirds when presenting to mixed audience



i) The room – size, acoustic, lights, screen size ...

ii) Beamer – resolution, colors, brightness / contrast

 iii)Technique available – not everywhere you are welcome to use your notebook (ERC – Acrobat XY, USB stick communicating with Windows XY ...)

#### Use a Sans Serif font:

This font is Arial. This font is Comic Sans. This font is Trebuchet.

#### Serif fonts take longer to read...

This font is Times New Roman. This font is Courier (monospace=fixed-width, e.g., good for alignments) This font is Didot.

#### AVOID USING ALL CAPITAL LETTERS BECAUSE IT'S REALLY HARD TO READ!



### Use an online color generator to find the right colors



What a good presentation cannot do

There is no substitute for

- good data (let's assume you got some)
- knowledge of the subject area

Most scientific audiences will figure out quickly if you don't know what you are talking about In preparing your talk, think about

- precedents
- possible questions from the audience

You should be able to say something sensible in response to almost every question

Talks are the most important way to demonstrate that

- you have done excellent work
- you understand the scientific background and motivation of your work
- you can develop ideas and perspectives for future work

Talks are decisive factors in

- job appointments and promotions
- funding
- recognition for the work you do

#### **Motivation**

### In a few words: Why should the audience be interested in what you have to say?

#### **Coworkers**

make sure list is complete highlight key people mention in beginning no chance to forget later

#### **Outline**

For long talks, diverse topics: repeat to keep audience oriented

#### Conclusion

- restrict to a few key points
- indicate if conclusion is tentative

#### Outlook

 further exciting experiments you are about to do (or could do with more money / right position) Structure of a good talk

#### Start broad -> get specific -> End broad



#### Go into depth, but then use your me slide to make transitions



#### Go into depth, but then use your me slide to make transitions



#### Audience attention increases as you signal the end of the talk



Audience attention curve

#### Time your talk!

# **Running over your allotted time is a mark of incompetence**, and displaying your incompetence is a poor way to get someone to read your paper. Remember that talking to an audience takes longer than talking to a mirror.

#### Rule #X: practice, practice, practice

Watch time, skip nonessential transparencies if necessary

#### You are now thinking:

"All those dull speakers I've listened to should use these rules, but I don't need them because my talks are interesting."

All those dull speakers are now thinking exactly the same thing. Read the rules again with the proper humility. They apply to everyone.

> "The only wisdom we can hope to acquire Is the wisdom of humility: humility is endless."

Time

IIA

11.11

Distance

111100000000

#### Eye contact

Posture

Gestures

0



Facial Expressions



### **Facial Expressions**






# Here you can see a graph!







# Each slide should have the key message captured in headline



	Age	Height	Weight	Gender	Budget
Pavel	38	183	90	М	11.3
Petr	42	175	85	М	12
Irena	31	176	75	F	12.5
Jaroslav	5	100	27	Μ	0.1
Jiří	6	110	30	Μ	0.3
Mikuláš	50	165	80	Μ	13.4
Karel	39	185	81	Μ	15.89

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Karel	39	185	81	Μ	15 .9	

# How to present a gel



 $M_w$  of my protein is ~80 kDa, here you can see the band of the protein and here presumably some degradation of it. As it is multi-domain protein, may be one of the domain is autocleaved, protein is tagged with SUMO ( $M_w$ =XY), GST ( $M_w$ =XY) etc. so it may be also some of these ...











#### Rtt103 – FLAG-tagged, Trf4 – His-tagged



	lys.	sup.	FT	w	E150	E200	E250	E600
Rtt103p			-	-				

Anti-His – control

Rtt103 – FLAG-tagged, Trf4 – His-tagged









Rtt103 – FLAG-tagged, Trf4 – His-tagged

























# **Final structure / storyboard**



"Naše mládež miluje přepych, je špatně vychovaná, vysmívá se představeným a vůbec si neváží starých lidí. Děti jsou hotoví tyrani. Nepovstanou, když do místnosti vejde starší člověk. Odmlouvají rodičům. Řečeno jednoduše: jsou velmi špatní …" Seneca, roku 50 p. K.

"Ztratil jsem všechny naděje, pokud jde o budoucnost naší země až dnešní mládež převezme do svých rukou otěže řízení. Je to mládež neukázněná, drzá a nesnesitelná." Hesiodos, 720 př. K.

"Náš svět je v kritickém stavu. Děti neposlouchají rodiče, neučí se, nemají snahu po vzdělání. Konec světa není příliš daleko." neznámý egyptský kněz, 2000 př.n.l.



Toothpaste For Dinner.com



# What makes a good (PhD) student

- a) Choose a supervisor whose work you admire and who is well supported by grants and departmental infrastructure.
- b) Take responsibility for your project.
- c) Work hard long days all week and part of most weekends. If research is your passion this should be easy, and if it isn't, you are probably in the wrong field. Note who goes home with a full briefcase to work on at the end of the day. This is a cause of success, not

#### a consequence.

- d) Take some weekends off, and decent holidays, so you don't burn out.
- e) Read the literature in your immediate area, both current and past, and around it. You can't possibly make an original contribution to the literature unless you know what is already there.
- **f) Plan your days and weeks** carefully to dovetail experiments so that you have a minimum amount of downtime.
- g) Keep a good lab book and write it up every day.
- h) Be creative. Think about what you are doing and why, and look for better ways to go.
   Don't see your PhD as just a road map laid out by your supervisor.
- i) Develop good writing skills: they will make your scientific career immeasurably easier.
- j) To be successful you must be at least four of the following: *smart, motivated, creative, hard-working, skillful* and *lucky*. You can't depend on luck, so you had better focus on the others!

Nature 441, 252 (10 May 2006) / 10.1038/nj7090-252b

Time management story to show/understand how **planning of tasks is the key** to time management.

Start with a **bucket**, some **big rocks** enough to fill it, some **small stones**, some **sand**, and **water**.

The bucket is your available time. The rocks, stones, sand and water are your tasks - a few big ones, some more medium-sized ones, and lots of small jobs and continuous demands and interruptions.

Put the big rocks in the bucket - is it full? Put the small stones in around the big rocks - is it full? Put the sand in and give it a shake - is it full? Put the water in. Now it's full.

#### The point is: unless you put the big rocks in first, you won't get them in at all.

In other words: Plan time-slots for your big issues before anything else, or the inevitable sand and water issues will fill up your days and you won't fit the big issues in.

Note that a big 'task' isn't necessarily a work task - it could be your child's sports-day, or a holiday.



http://www.visjonaer.com/blog/put-the-big-rocks-in-first-in-the-jar-of-life



# Naučíme Tě!

Nemůžeš?

# Pomůžeme Ti!

Nechceš?

# Nepotřebujeme Tě!

#### EDUCATION

#### 2012-present

 Bachelor degree program in Biophysical Chemistry, Faculty of Science, Masaryk University, Brno, Czech republic

#### LANGUAGE SKILLS

Slovak native English fluent spoken and written German beginner

#### COMPUTER LITERACY

Latex MS Office, Windows 7

#### WORK HISTORY

Summer jobs Manual work in construction site in Austria

#### **INTERESTS & OTHERS**

Skiing, Trekking, Cycling, Football, Documentaries

Driving license B

#### 2007-2012

Bilingual English-Slovak Grammar School of Milan Hodža, Sučany, Slovakia

#### SCIENTIFIC EXPERIENCE





#### COURSES AND SCHOLARSHIPS

#### January 2015

- Practical course: Advanced Methods of Fluorescence Microscopy, Central European Institute of Technology, Faculty of Science, Masaryk University Lecturer: Mgr. Ctirad Hofr Ph.D.
- Practical Introduction to Supercomputing, National Centre for Biomolecular Research, Faculty of Science, Masaryk University



#### LANGUAGE SKILLS



#### 2012

- Certificate in Advanced English (CAE), Cambridge English (C1)
- Specialized State Language Examination of Professional English, field Science (C1)

#### 2011

Basic State Language Examination (B2)

#### COMPUTER SKILLS

- Operating systems Windows, Linux
- Scripting languages Bash, PHP, basics of AWK, Gnuplot
- Software Pymol Molecular Graphics System, AutoDock Vina, AutoDock 4, basics of Gaussian

#### INTERESTS

- singing, hiking, climbing, travelling
- tutoring English, Mathematics and Chemistry

Gender:	Male	
	Male	
Education		
2011- At present	Faculty of Science Masaryk University in Brno, Czech Republic Subject field: biophysics	
2006 - 2011		
2002-2006		
1998-2002		
Work experience		
2009. At present	Instructor at Lanoland ropes course Koliba, Bratislava -communication, assistance and helping clients	
2008-2009	Palace Cinemas, Bratislava - communication, assistance and helping clients	
Personal skills and competence	25	
Languages:	French C1 English B2	
Driving license B		
<u>Hobbies</u>		
Sport, Travelling, Theatre, Reading	g.	

Gender:	Male		
Education and Training			
2014 – present	Faculty of Science Masaryk Universi Subject field: Mole Master's degree	ty in Brno, Czec	
2011 - 2014	Faculty of Science Masaryk Universi Subject field: Biop Bachelor's degree	ty in Brno, Czec physics	h Republic
2006 - 2011			
Work experience			
2014 – present	Central European -measur PAGE		nnology d NMR spectra, native and denaturing
2013	Volunteering for J	loint Research C	Centre of the European Commission
2010 - 2014			ourse Koliba, Bratislava nce and helping clients
2011	Waiter in Fun Zo	one Bratislava	
2008-2009	CETELEM, Brati -adminis	<b>slava</b> trative work	
2006-2009		ProSport, Brati inication with clie and advising cli	ents
Personal skills and competenc	es		0
Languages:	English	C1 B2 A1	Certificate DALF C1 graduation B2
Social skills and competences			
Communicative, Responsible, Ha	ardworking, Intelliger	nt, Friendly, Hon	est
Computer skills and competen MS Excel, MS Word, MS Power		b	
Driving license B			

Hobbies



Nature 495, 21 (07 March 2013) | doi:10.1038/495021a



From nature.com

Sexist attitudes: Most of us are biased 06 March 2013

Inequality quantified: Mind the gender gap

06 March 2013

Laboratory life: Scientists of the world speak up for equality

06 March 2013

Science jobs from naturejobs Senior Research Scientist Philip Morris Products S.A Director, Quantitative Bioinformatics Lead Pfizer Physics Instructor (Male) Alfaisal University Faculty Positions in Pediatric Biology, Biodesign, Ecology, Human Immunology and Infectious Diseases Translational Health Science and Technology Institute

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#### Education

- 2010-2013 Bachelor's degree programme, Field of Study Medical physics Faculty of Science, Masaryk University
- 2012-Now Bachelor's degree programme, Field of Study Applied informatics Faculty of Informatics, Masaryk University
- 2013-Now Master's degree programme, Field of Study Biophysics Faculty of Science, Masaryk University

#### Employment History

2013-Now

#### Scientific Experience

Programming Languages
 BASH, C/C++, Python, Java



• Other

Microsoft Windows and GNU/Linux workstation, PATEX

#### Languages

Czech (native) English CV

#### - Why to write one Apply for

- Job
- Funding
- Speculative application
- Collaboration
- People remember you
- Ask for supporting letter
- What does the reader expect What you have
  - Done
  - Achieved
- => Selected or Not?

Your CV is a marketing document, not just information record

"Students need to be reminded that the CV is a piece of personal marketing that has to engage the reader immediately"

#### How many CVs?

Each reader is looking for something different => shape your CV according to the position you're applying for.

#### CV –structure

University of Cambridge recommends **NOT** to put Curriculum Vitae, rather your name

1)	Name	
2)	Contacts	<ul> <li>something that is secure, stable, and</li> </ul>
	reliable (and	verifiable),
	"intelligent" contacts – h	nchkrdtn@html,
	beruska@html, br	ouk@html, 42353478@hmtl
3)	Education	<ul> <li>not before high-school degree</li> </ul>
4)	Employment / Work Exp	erience
		- your roles, achievements
1)	Additional Skills	<ul> <li>RELEVANT to the position you're applying for</li> </ul>
2)	Activities and Interests	<ul> <li>what do you want to show – responsibility and sense of</li> </ul>
		personality or motivations
3)	References / Referees	<ul> <li>their position and contacts – make sure they know (and</li> </ul>
		agreed) about being referees for you

#### Most Frequent Mistakes (???)

- Photo
- Formatting
- Structure priorities time or thematically organized
- Typos
- Rarely Achievements / Awards / Recognitions
- Qualification tasks you're able / experienced with

#### Tomáš Nováček

#### Tomáš Nováček

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Ostrava – Martino	v		Ostrava - M CZ - 723 00			<u>tomas.nova</u>	cek@mail.m	iuni.cz
Czech Republic			Creak Damu	hlia	Date of Birth:			
72300			Czech Repu	DIIC	Nationality:	Czech		
		Education						
Education		2013 -	present		ence, Masaryk Un mme in Medical I		o, CZ) - 2nd •	year in Bachelor
2013 – present	Masaryk University - Brno							
	- Medical Physics (full-time student) – 2 <sup>nd</sup> year (Bc degree)	2009 -	2013	-	High School (Osti passed with dist			
2009 - 2013	Olga Havlová High School – Ostrava				english	A	physics	А
	- Final exam - english A, physics A, mathematics B, Biology A				mathematics	В	biology	А
Languages		Languages						
Czech	Native			Czech English	native Cambridge Ce	rtificate (ECE)	)	
English	Cambridge cerificate (FCE)			German	beginner (A1)	rificate (FCL)	)	
German	Basic knowledge (A1)	Additional	Skills	Computer skill	s - familiar with - regular use o			m
Additional Informa	Word, Excel, Power point	Awards and	d Recognition	c				
	- ordinary user knowledge		a ketogintion	recognized am	ongs three top ta vlova High Schoo		ent	
		Personal qu	ualities	coping with co drive, indepen	ompetitiveness, st dence	amina, motiv	vation, self-d	liscipline
		Other Inter	rests	(	ttended project ( (http://www.100	vedcu.cz)		vědců"
					ycling - 1. place ii viano	n Pieseńska 2		
		References	E-mail	Mgr. Marta Fre marta.freislerc +420 595 693 8	ova@gyohavl.cz		0	ova High School erové 1691 Ostrava

# Practice makes the master!

# **Acknowledgement:**

Tomasz Kabzinski Magdaléna Krejčíková Jiří Chaloupka

# Materials used:

Susan K. McConnell (Stanford University) Prof. Keimer (MPI Stuttgart) Leslie Lamport, 4 August 1979

# THE MOST **MOTIVATIONAL POSTER** $1.01^{365} = 37.8$ $0.99^{365} = 0.03$

VIA 9GAG.COM

# What Is a Motivation Letter?

- short letter that explains why you're the perfect fit for a job.
- one page
- It's chance to highlight achievements and showcase interests.
- for a job.
- applying to a college or university
- an educational program
- an internship
- or even a volunteer role

## **Motivation Letter vs. Cover Letter**

- might seem pretty similar at first glance
- both are 1 page or less and go along with your resume and application
- to impress the hiring manager and make them seriously consider your application.

### One key difference

**Cover letters** dive into the nitty-gritty, with specific examples of how your education, skills, job experience, and achievements perfectly align with the job requirements. They concentrate on highlighting your work experience.

**Motivation letters** take a broader approach. Instead of focusing on specifics, they showcase your interests, personality traits, and the reasons behind your application. They're great when you don't have much relevant experience to share. We'll dig into this more in the next section.

## **Motivation letter**

- motivation letter is actually "part two" of your application
- CV is a summary of the facts (educational background and work experience)
- motivation letter allows to show a bit more of personality and indicate why you are suitable for the particular position
- make sure that your motivation letter supports your CV
- emphasise relevant information about skills and experience

Before you start, analyse the vacancy and make sure you have enough information to write a good and compelling motivation letter.

• e.g. LinkedIn can also help

# **General tips**

- Use short, active sentences get to the point
- Ensure your motivation letter is in line with your CV but avoid identical overlap. In your CV, you can mention aspects about which you provide further details in your motivation letter
- Avoid negative/denying words
- Carefully check the name and job position of the receiver
- Write convincingly, but not obtrusively. Don't draw conclusions in your text, but rather formulate your arguments in such a way that the receiver can reach the desired conclusion
- Try to imagine the perspective of the reader. They want to know "What's in it for me?" So don't focus on what the company and/or the job position means to you

# **General tips**

- Customise your motivation letter for every application, delete, clarify or move items
- Avoid abbreviations and technical jargon
- Make sure there are no spelling mistakes in your motivation letter
- A motivation letter should be a maximum of 1 A4 sized page about 2/3 filled with text
- Always send your CV and motivation letter in PDF format and put your name in the title of your CV, motivation letter and email
- Have your motivation letter read by someone else before you send it.

- General info
- Motivational paragraph
- Paragraph(s) about yourself
- Conclusion of your motivational letter

• General info

Address details

Company details and contact person

Place and date

Subject

Dear Mrs \_\_\_\_ or Mr \_\_\_\_, Make sure you have a name and do not send the letter to "Dear Mr/Mrs"

### • Motivational paragraph

Choose a neutral opening or a real distinctive, compelling phrase if you have a talent for writing. (DeepL/Write, Grammarly, ChatGPT ...)

Be sure to use wording that is right for you and is appropriate for the job position.

#### **Example:**

Hereby, I respond to the \_\_\_\_\_ vacancy which I found on the Faculty of Arts Career Services website. This vacancy caught my attention, because I see a great deal of similarity between the job requirements and my experiences.

If possible, refer to a previous contact moment that you may have had by phone or email.

#### Example:

I would like to respond to the \_\_\_\_\_ vacancy which I found on the website <u>www.muni.cz</u>. Our phone call on [date] stoked my interest in the vacancy and has made me very enthusiastic about fulfilling this exiting job position.

• Paragraph(s) about yourself

Convince the recipient that you are the right candidate. Explicitly argue and name characteristics, work experience, and skills which you possess and which match the requirements of the vacancy.

Writing these paragraphs is easiest if you have first made a list of the most important requirements of the job position and the desires of the company along with a list of your characteristics, experiences and skills that match the profile. Based on this scheme, you can "build" your argument.

• Paragraph(s) about yourself

### **Possible arguments:**

I have the right education. I have relevant work experience. I have the right characteristics/attitude/mentality. I'm specifically interested in this job position / organisation because ...

Please note: you may not be required to include a motivation letter with your CV, instead you may be asked to provide a short motivation. In this case, include the information from the "paragraphs about yourself".

• Conclusion of your motivational letter

Briefly indicate your goal for this application - getting an invitation for a job interview. Also here you can choose a neutral conclusion or a distinctive and compelling phrase. Just make sure the writing style is consistent with the paragraphs above.

### **Example:**

I would like to further clarify my motivation in a personal conversation. I look forward to your swift response.

Kind regards, Jan Novák

Annex: Curriculum Vitae

# **Proofread your motivation letter**

Proofread your motivation letter to make it more concise and professional.

Correct any spelling and grammatical errors and awkward phrasing.

Edit information already listed in your application form or resume to ensure your motivation letter contains only unique information.

You may need to proofread your motivation letter **several times** to identify all problem areas. If time permits, complete this step two days or more after writing your motivation letter as time away from your work allows you to view it more objectively. To help ensure your letter has **professional grammar and spelling**, ask a trusted friend or family member to proofread your motivation letter after you.