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საქართველოსთვის
The European Union for Georgia



**“Supporting inter-sectoral collaboration possibilities between
Research and Industry”
(GE 18 ENI OT 02 19)**

Agenda

Component 4 “Science Communication and awareness on science-business collaboration stimulated”

Activity 4.1.1. Conduction of awareness-raising and science communication actions through targeted programmes and supporting activities

Action 4.1.1.1.5.

19-20 November 2020

Training “Insights: Design of the science communication activities”

Synergy action within the project EU Horizon2020 “Science is the Captain”



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Responsible for training organisation

Component 4 MS experts:

Dr. Gilbert Ahamer (short-term expert, senior international expert, Component 4 Leader, Environment Agency Austria)

Dr. biol. Muza Kirjusina (short-term expert, Head of Parasitology and Histology Laboratory, Daugavpils University, Latvia)

Component 4 SRNSFG experts:

Maka Kajaia (Head of Science Communication office)

Ministry of Education Science Culture and Sport of Georgia

Zaza Maruashvili (Deputy head of Higher Education and Science Development Department)

Short bio of experts:

Gilbert Ahamer studied physics and later economics and the environment. However, the complexities of real life and globalisation seemed to be better covered by interdisciplinary fields such as geography, social sciences, humanities and didactics. Since 1990 he has been at the service of national and transnational institutions – including six universities, the Austrian Academy of Sciences, the International Institute for Systems Analysis and the European Commission.

Muza Kirjusina studied engineering sciences, biology, ecology and pedagogy. Have experience in organisation of science communication activities. She is an expert of Latvian Council of Science. She has worked in many national and international projects as leader and expert, as well as in European Commission programs.

Target of this training: To enable participants to design, prepare and reflect their own media products for science communication for (A) peer scientists, (B) pupils / youth and (C) the wider public at the end of this training.

19 November 2020

Time GMT +4	Description (grey cells = lectures, white cells = interactive work)	Presenter/Moderator Name
13:00	Welcome and Opening <ul style="list-style-type: none"> - Mr. Jaba Samushia, Director General, Shota Rustaveli National Science Foundation of Georgia - Mr. Gilbert Ahamer, Component 4 Leader, senior international expert, Environment Agency Austria 	
Lectures “Communication strategy for target audience”		
13:20	Definition of <i>expectations</i> and <i>needs</i> of Target Groups (TG = <u>audience</u> : A. peer scientists, B. youth, C. wider public)	Muza Kirjusina
13:30	1 st Breakout Groups (BG) work: What kind of benefits your research project brings (brought /or will bring) to whom in the society.	
14:00	Presentation of each work product (2 minutes per group)	GA & MK
14:20	Drafting of communication <u>messages</u> (including “why is this needed and relevant?”)	Muza Kirjusina
14:30	2 nd Breakout Groups work: Why you chose your research career and how your career choice changed your life.	
15:05	Presentation of each work product (3 minutes per group)	GA & MK
15:25	Communication <u>medium</u> , language, design and structure	Gilbert Ahamer
15:35	3 rd Breakout Groups work: Short message preparation for <u>peer scientists</u> (colleagues) (= TG A)	
16:10	Presentation of each work product (4 minutes per group)	GA & MK
16:30	How to prepare presentation in Pecha Kucha manner	Gilbert Ahamer
16:40	Short feedback from participants. Closing remarks and home task for the next day training.	GA & MK

Home task for each participant (= 4th Breakout work, individually):

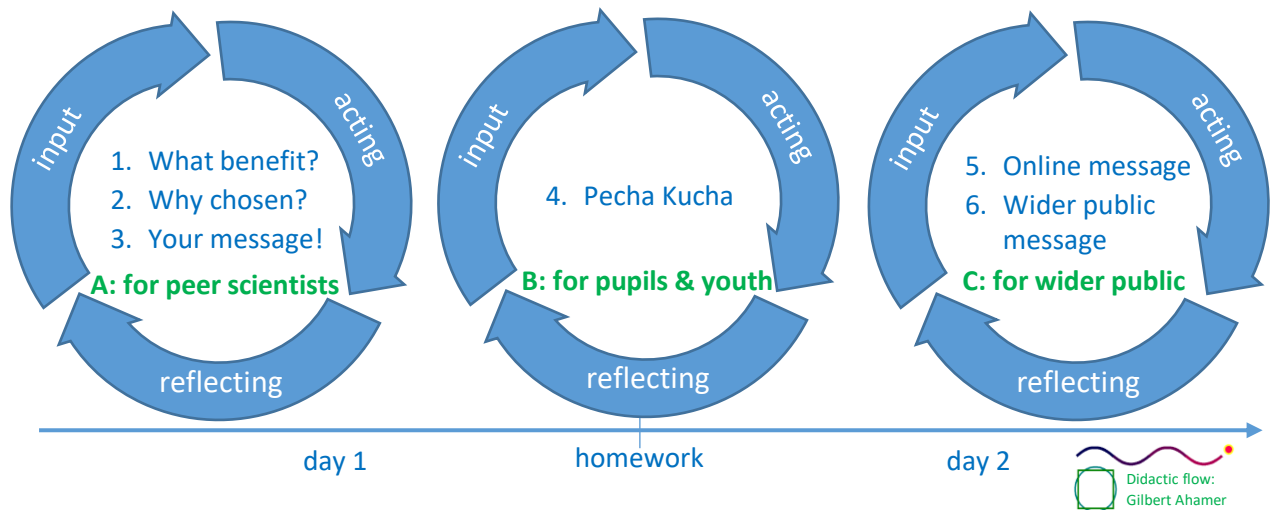
Prepare presentation/report/message (e.g. in Pecha Kucha manner, e.g. with 10 slides with 10 seconds each, if possible: automatically running, with an explaining sound track), about your personal research for pupils /youth (= **TG B**)

20 November 2020

Time GMT +4	Description (grey cells = lectures, white cells = interactive work)	Presenter/Moderator Name
13:00	Opening	GA & MK
13:05	4 th Breakout Groups work: Presentation of the home tasks within groups and selection of the presentation to be presented to the all groups	
13:35	Presentation of the chosen presentations; description of the selection criteria by each group	
14:05	How to promote and present your project and its results	Gilbert Ahamer
14:15	5 th Breakout Groups work: Message preparation for <i>on-line</i> presentation	GA & MK
14:50	Presentation of each work product	GA & MK
15:10	Targets, audience and message. How to communicate your research for various Target Groups	Muza Kirjusina
15:20	6 th Breakout Groups work: Short message preparation for the wider public (= TG C)	GA & MK
15:55	Presentation of each work product	GA & MK
16:15	Closing remarks and end of training	GA & MK

*Note: Certificates of the attendance will be issued after presentation of **all** the completed tasks during training activities*

The overall sequence of interactive events in this seminar, according to “*action in reflection*”:





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EU Twinning project
Supporting inter-sectoral collaboration possibilities between Research and Industry
GE 18 ENI OT 02 19

Training

“Insights: Design of science communication activities”
Tbilisi, November 2020

Muza Kirjušina & Gilbert Ahamer

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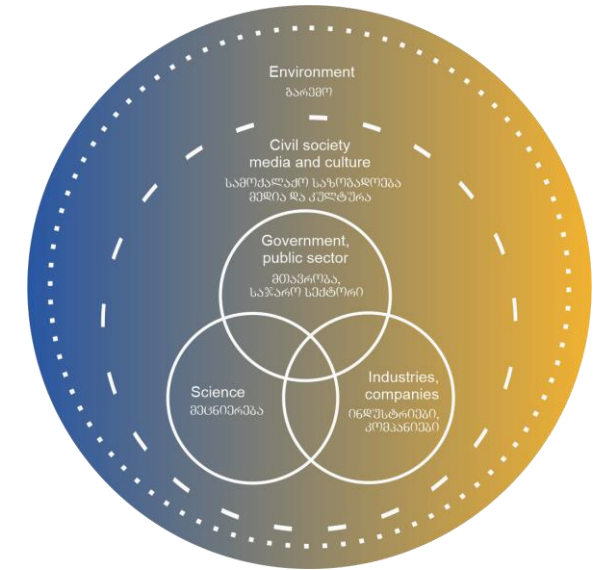


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Twinning project objectives

Overall Objective:
to address the priorities and challenges in Georgia’s Science, Technology and Innovation System with the aim of ensuring interdisciplinary approach, collaborative research and promote evidence-based policy implementation in line with the EU-Georgia Association Agreement.

Specific objective:
to enhance the capacity of the Shota Rustaveli National Science Foundation of Georgia by revising and improving existing programmes and operational activities in response to national priorities and socio-economic challenges, considering regional and international context.
The project will address the absence of the science-business collaboration, promote intersectoral multidisciplinary research opportunities and support advancement of the STI system in Georgia.



ჰელიქსის ხუთკუთხა სპირალის ინოვაციური მოდელი

Quintuple helix of innovation model

- Science – business links strengthened
- SRNSFG legal framework revised and improved
- SRNSFG international collaboration enhanced
- Science communication and science – business collaboration stimulated

Why science-business collaboration is important

Twinning = institution building

Twinning = building bridges

What are benefits of science-business collaboration for business?

Some answers, with a focus on long-term development:

- Better economic development through home-made innovation in Georgia
- Forming of production chains with linkage to export markets
- Meeting quality requirements of international partners better
- Co-deciding on strategic research directions within Georgia
- Making use of the well-developed human resources within Georgia
- Science communication and science-business collaboration is continuous learning process and there is no one common strategy for all countries.
- Culture is great opportunity for science communication and mediation science-business cooperation.

science
KNOW



business
GROW

1st input



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Definition of expectations and needs of Target Groups

(TG = audience: A. peer scientists, B. pupils and youth, C. wider public)

First input

Muza Kirjusina, Daugavpils University

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 **DLR** Projektträger

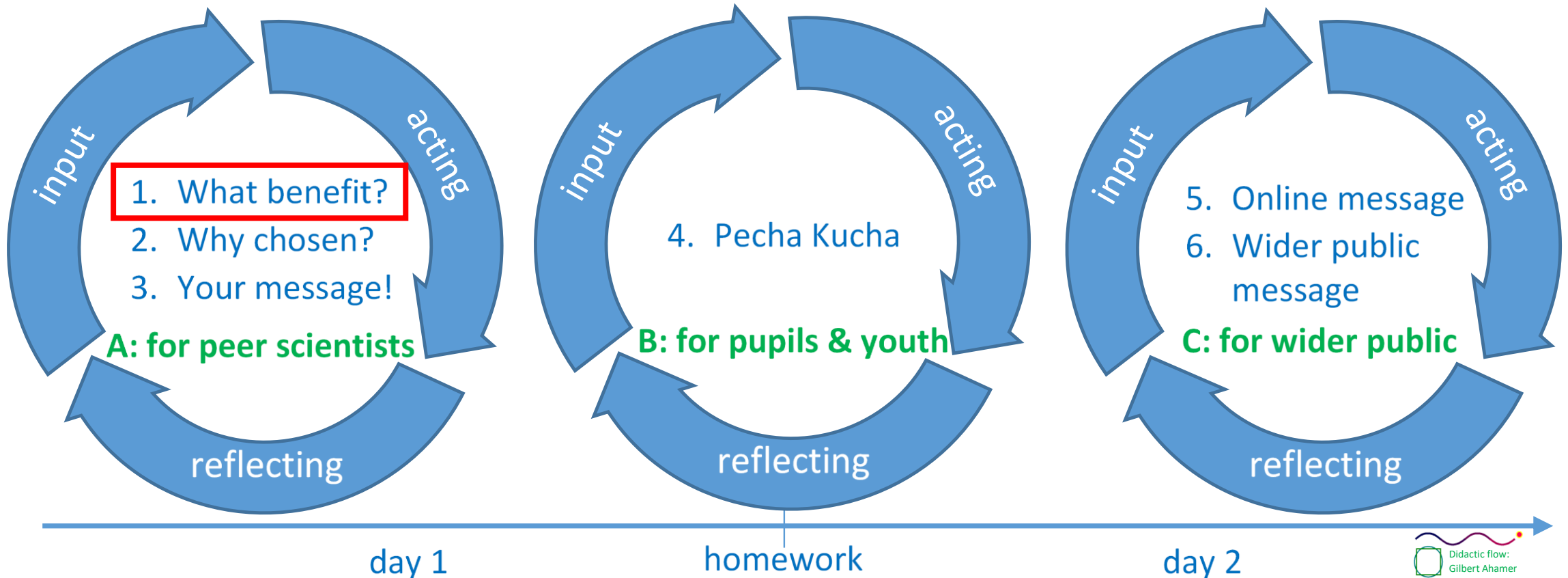
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Schön, D.A. (1983), Reflective Practitioner: How Professionals Think in Action. Taylor & Francis Ltd, London.



Defection of Science Communication

AEIOU

Awareness of science, including familiarity with new aspects of science

Enjoyment or other affective responses to science (e.g. appreciating science as entertainment or art);

Interest in science, as evidenced by voluntary involvement with science or its communication;

Opinions, the forming, reforming, or confirming of science-related attitudes;

Understanding of science, its content, processes, and social factors.

Key Elements of Effective Science Communication



Are expectations and needs the same for TGs?

A. Peer scientists

University
education

Already engaged
in one / different
fields of science



Expectations:

- Learn new knowledge
- Discussion
- Job?
- Apply science

Needs:

- Apply new knowledge
- Collaboration
- Multidisciplinary research

B. Pupils and Youth

Different age pupils

Various interests

Seeks a place in society

Self-discovery

Family

Science is “miracle” !?



Some bits of science will never be relevant to everyday life, I mean when will I ever need that?

Expectations:

- Impress us!
- Surprise us!
- Scientific research work in school
- Satisfy of ambitions

Needs:

- Understanding, why we need to know it
- More information about occupation
- career,
- explore intellectual strengths and abilities

C. Wider public

Individuals who operate primarily outside of the practice of science

Professional interest

Education, experience

Communicators



scientists

publics



Hobby

Health

Collaboration

Expectations

- What new will I know.

Needs:

- How to apply new knowledge in everyday life

Summary



Expectations: New knowledge

- ✓ Learn new knowledge
- ✓ Discussion
- ✓ New job
- ✓ Apply science
- ✓ Scientific research work in school
- ✓ What new will I know?



Needs: Practical implementation

- ✓ Apply new knowledge
- ✓ Collaboration
- ✓ Multidisciplinary research
- ✓ Understanding, why we need to know it
- ✓ More information about occupation
- ✓ Career
- ✓ Explore intellectual strengths and abilities
- ✓ How to apply new knowledge

Example: Animal diseases

Peer scientists:

- **New diseases**
- **Diagnostic**
- **Prevention**
- **Agent diversity**
- **New treatment**

Youth:

- **Pets**
- **Safety**
- **Protecting your health**

Wider public:

- **Safety**
- **Protecting your health**
- **Can it be cured?**
- **Risks connected with traveling**
- **Food quality**
- **Hobby**

Your task now

Describe what kind of **benefits** your research project brings (brought /or will bring) to **whom in the society**

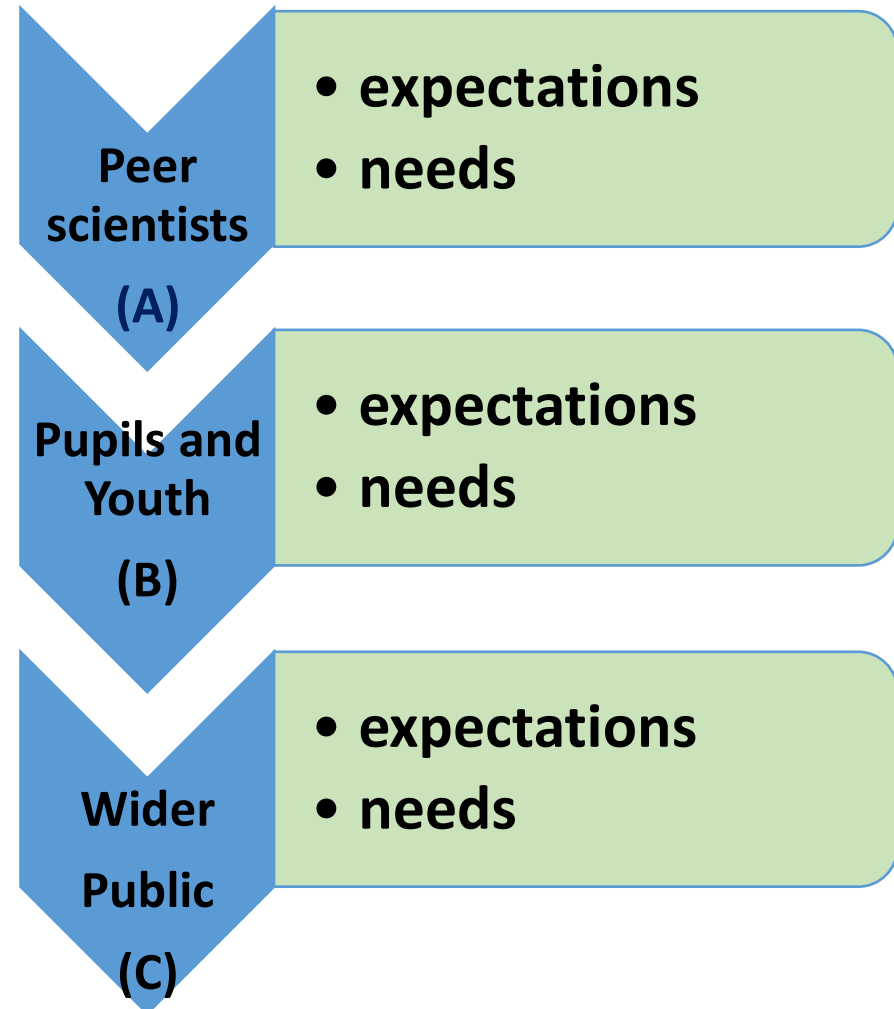
Just 1-2 sentences
for each points (A,B,C)



30 min



Present your message



References:

- Burns T. W. , O'Connor D. J. and Stocklmayer S. M. 2003. Science Communication: A Contemporary Definition. *Public Understanding of Science* 12: 183.
- Mercer-Mapstone L. and Kuchel Core L. 2015. Core skills for effective science communication: a teaching resource for undergraduate science education. *International Journal of Science Education*.
- Llingworth S. 2017. Delivering Effective Science Communication: Advice from a Professional Science Communicator. *Seminars in Cell & Developmental Biology*.
- Csermely P. 2003. Recruiting the younger generation to science. *Science & society*. EMBO reports VOL 4, NO 9.
-

2nd input



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Drafting of communication messages (including “why is this needed and relevant?”)

Second input

Muza Kirjusina, Daugavpils University

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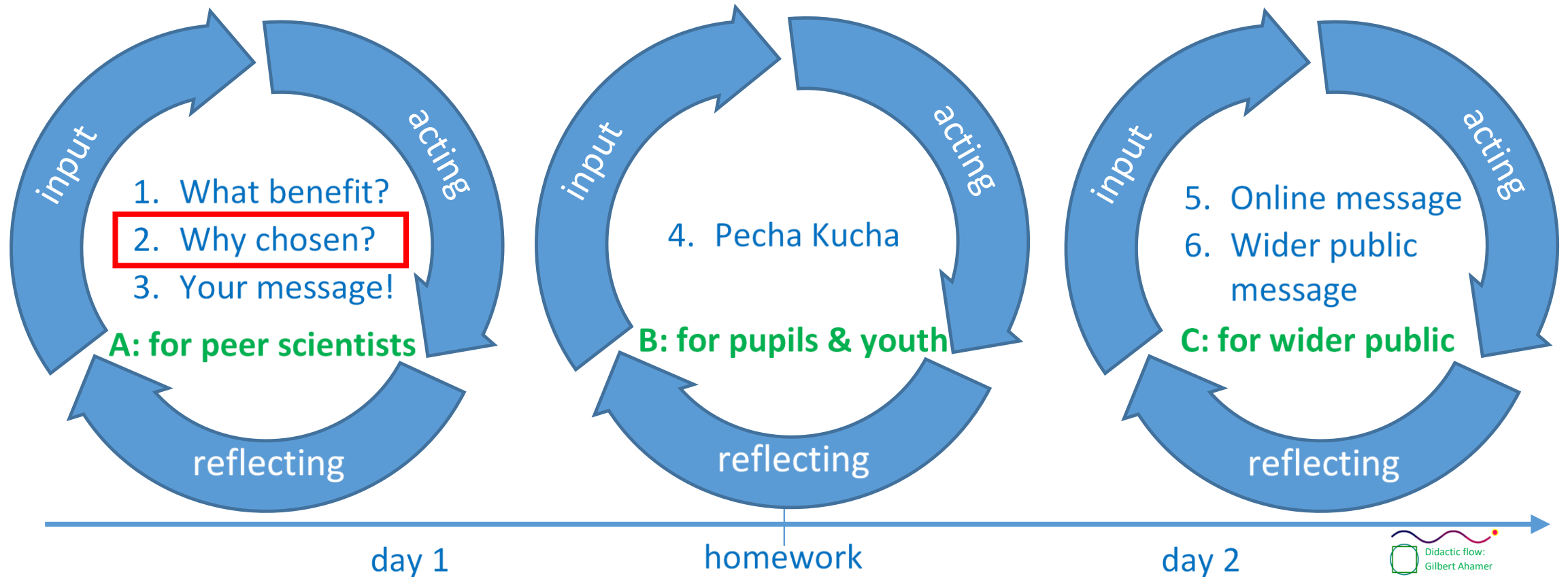
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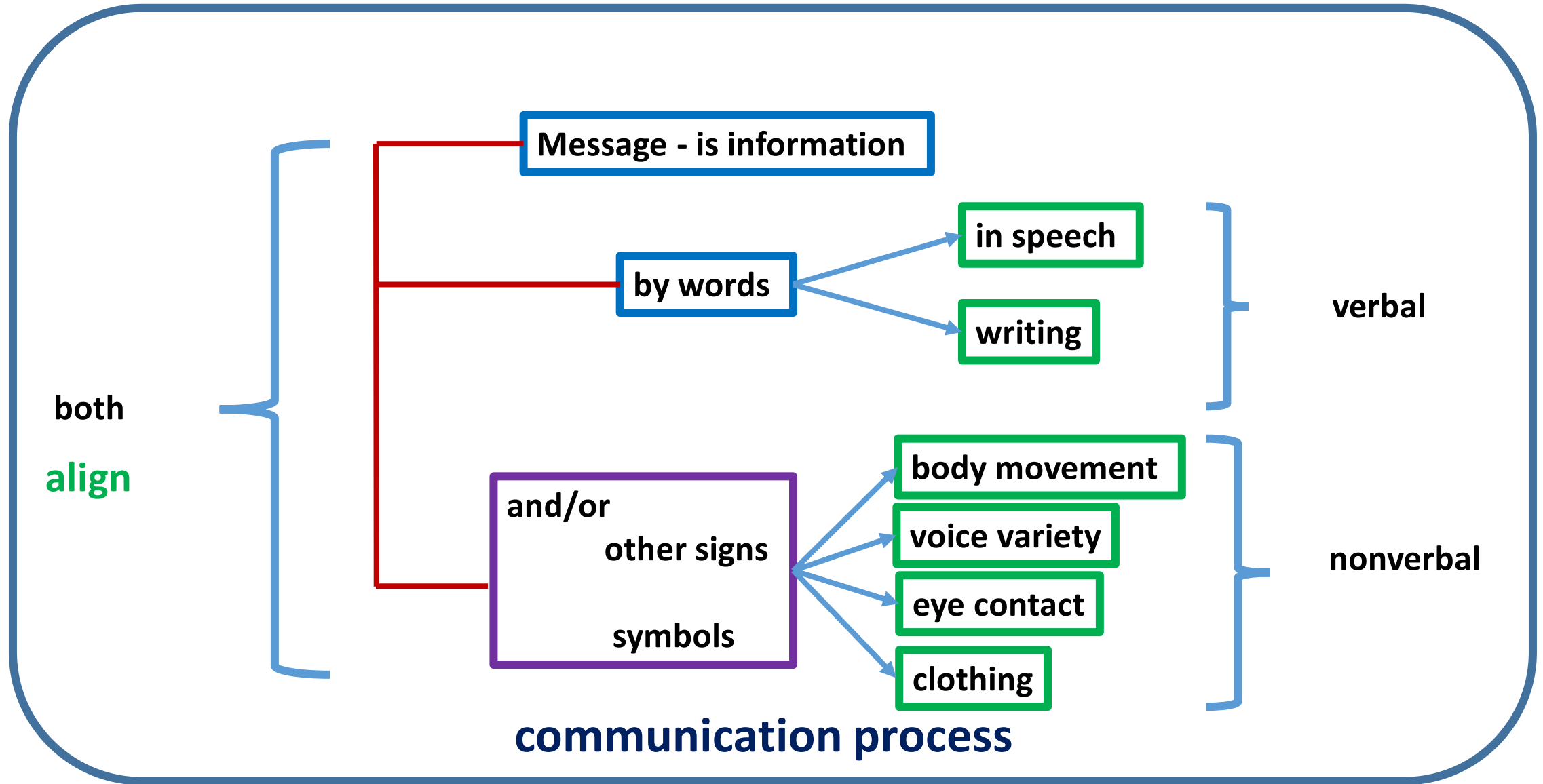
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What is a message?



both
align

verbal

nonverbal

communication process

goal-audience-message

Popularization of science: what for?/tasks

Education ?  Serious lecture

Entertainment ?  Movie, games


❖ Increasing of communication value

✓ Tell a compelling real life story related to science (they will tell it to colleagues and others)

❖ Safety

✓ Fake news (Lots of information and pseudo-scientific crooks), easier to distinguish crooks from non-crooks (information analysis)

❖ Understanding why science is needed

✓ People can influence funding allocation (vote for parties that support science)  increase the country's competitiveness

✓ Scientists who are engaged in science and its popularization increase their own fame (what can help fundraising)

✓ A mechanism to monitor the related areas and their leading trends

C

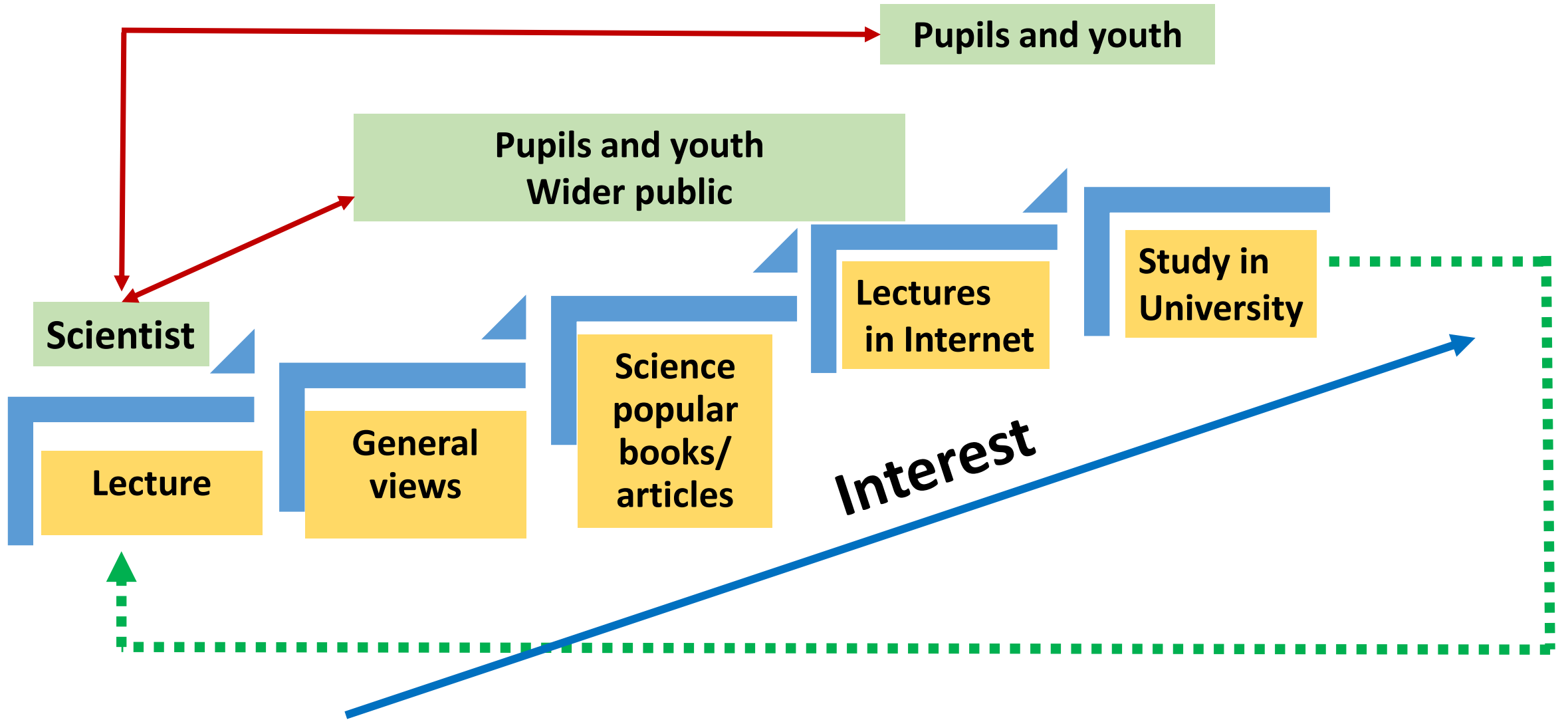
A

Science popularization:

Scientific communities → Audience

Science communication:

Scientific communities ↔ Audience



Astronomy, Cosmology, and Space Travel

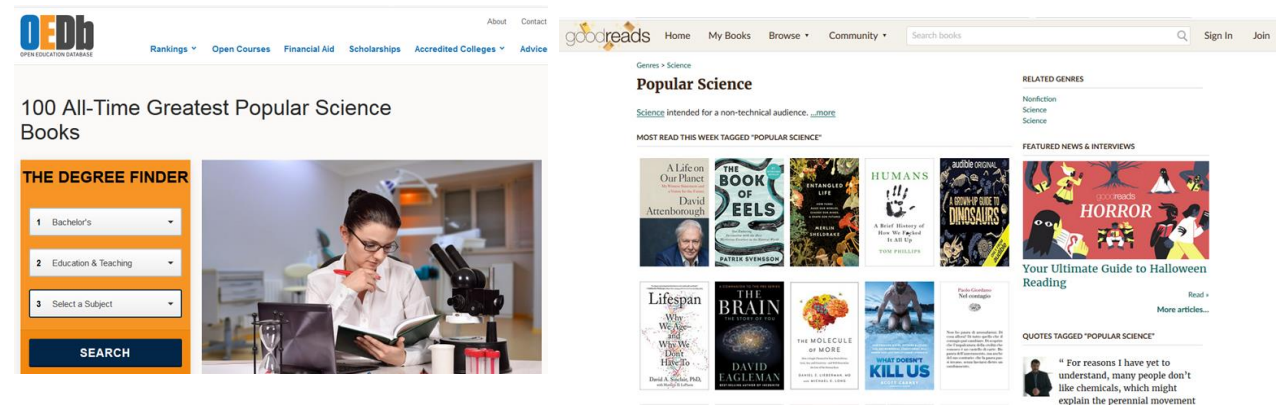
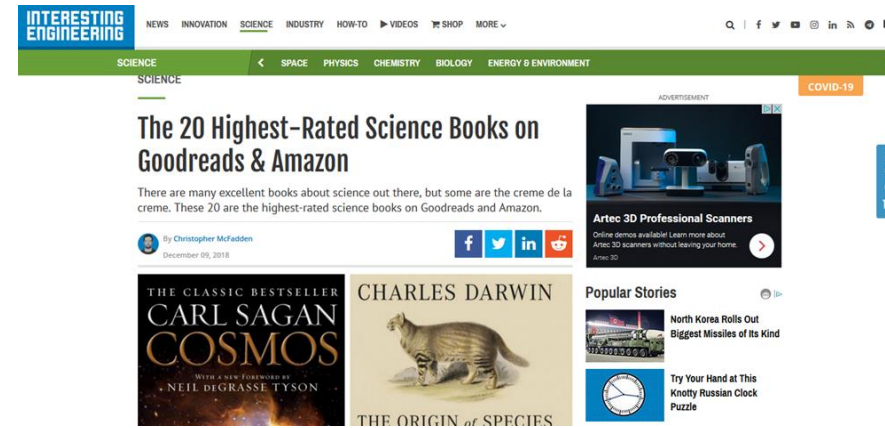
Biology and Natural History

Physics

Psychology and Sociology

For the Kids

Etc.



popular science literature

fiction

What`s is the secret?

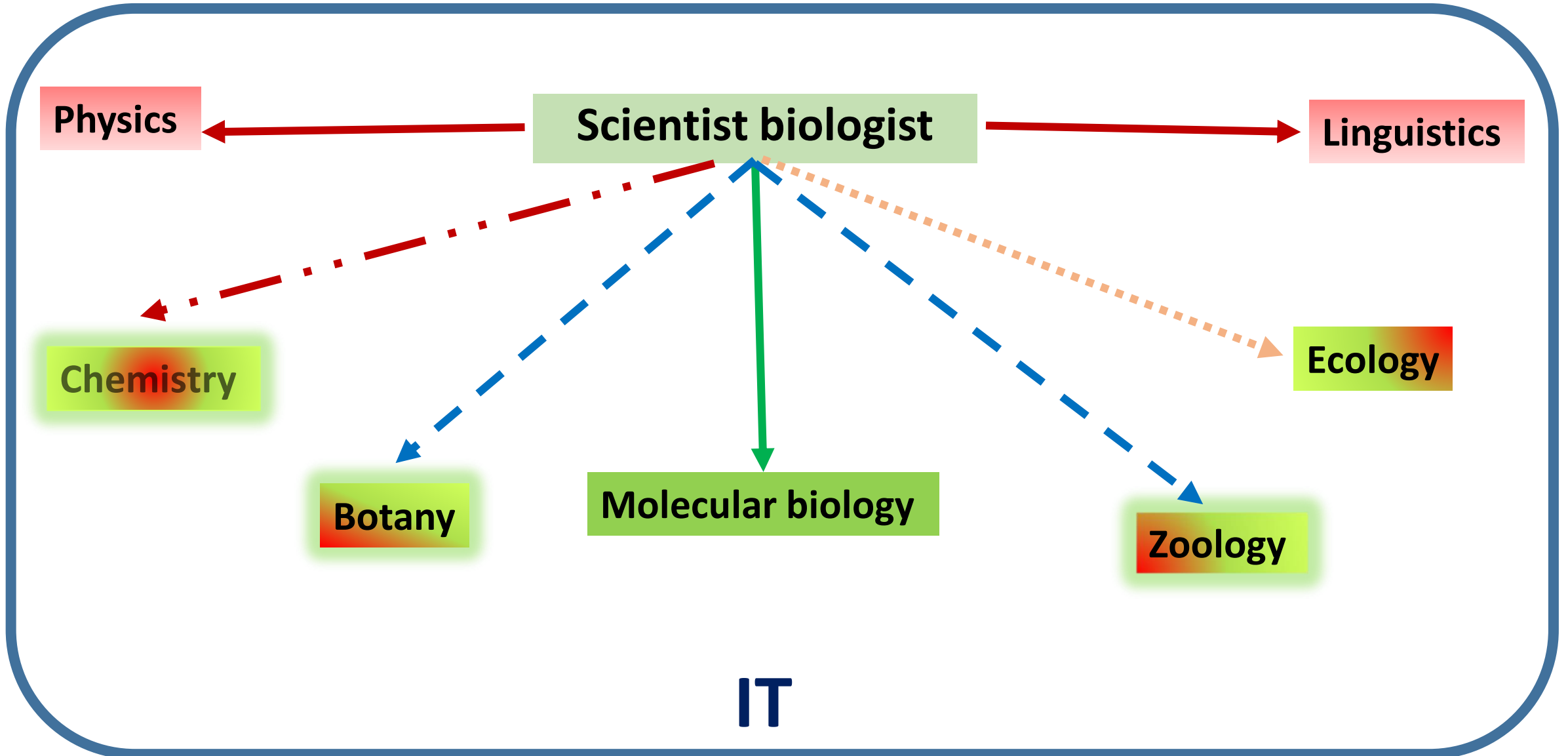
Conversation

Fiction – have to read both

Popular science – can read one, but discuss with others

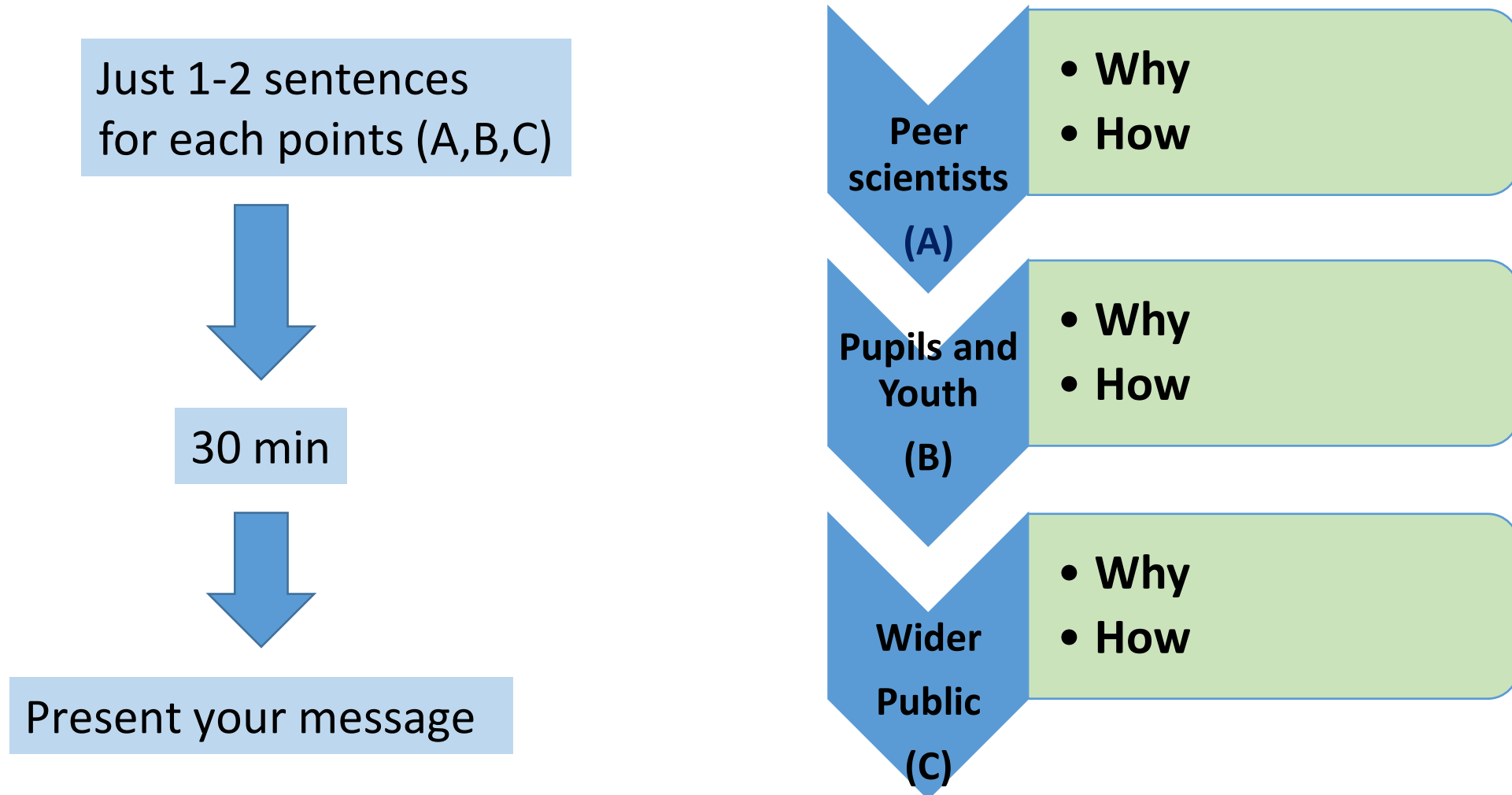
<https://oedb.org/ilibrarian/100-all-time-greatest-popular-science-books/>
<https://interestingengineering.com/the-20-highest-rated-science-books-on-goodreads-amazon>
<https://www.goodreads.com/genres/popular-science>

Example



Your task now

Why you chose your research career and **how** your career choice changed your life.



References

- <https://www.aaas.org/resources/communication-toolkit/communication-fundamentals>
- <https://www.britishcouncil.org/voices-magazine/why-should-scientists-communicate-clearly-public>
-

3rd input



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Communication medium, language, design and structure

Third input

Gilbert Ahamer, Environment Agency Austria

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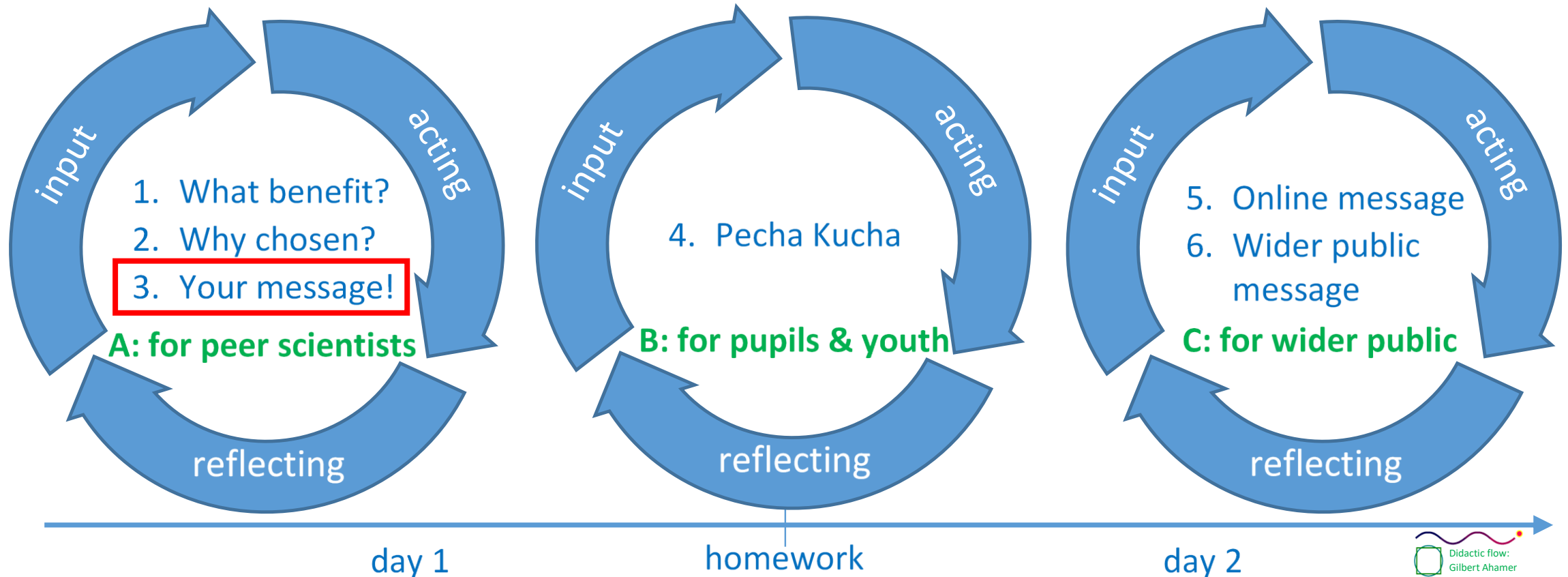
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The essence of what we are doing

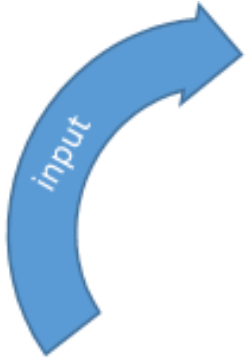
**What is
a publication?**



**What is
science-business communication?**



Caring about the social linkages when communicating



Our input for you: a toolbox

- A toolbox for science-business communication
- We prefer to bring you a small toolbox for a quick start



*My main tip:
Be no scientist! ;-)*



✓ Black = important, for now

✓ Grey = handbook, for later

Don't Be Such a Scientist: Talking Substance in an Age of Style, Randy Olson (2018):
https://www.amazon.com/-/de/dp-1610919173/dp/1610919173/ref=dp_ob_title_bk

1



Identify your method

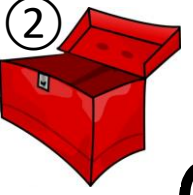


- Know your **audience** (e.g., lay public, the media, policy makers, ...)
- Know your **message** (including “So what?” and “Why should I care?”)
- Know your **medium** (that I am going to use to communicate my message to my audience)

Sources: General overview on methods: <https://libguides.ncl.ac.uk/sciencecommunication>, <https://www.nature.com/articles/d41586-019-03869-7>, <https://www.nature.com/articles/d41586-019-01359-4>, <https://www.ascb.org/science-policy-public-outreach/science-outreach/communication-toolkits/best-practices-in-effective-science-communication/>, <https://www.pnas.org/content/116/16/7670>, https://en.wikipedia.org/wiki/Science_communication

3 steps: https://www.brown.edu/academics/science-center/sites/brown.edu.academics.science-center/files/uploads/Quick_Guide_to_Science_Communication_0.pdf

2



Communication **message**



- Once you know your audience, you can develop your **message** (see Muza).
- Your message should **answer** the audience's questions like “*So what?*” and “*Why should I care?*”
- Answers to these questions **vary** depending on your audience.
- As a science communicator, it is **important to frame** your message in terms that are *accessible, relatable, and meaningful* for your specific audience.
- Why framing?
 - actively *engage* your audience with an issue
 - build *trust* and relationships with the public
 - *encourage* the public to participate in dialogues about scientific issues.

Communication medium



Options to choose media: **A. peer scientists, B. youth, C. wider public**

- **Writing about science:** Use active verbs; avoid jargon, euphemisms, clichés, wordplays, and puns; use analogies and examples; only include critical details; create an outline; tell a story but stay true to the facts; spend a lot of time; revising and rewriting; cite your sources.
- **Visualizing science:** Use a consistent style and format; use colors with purpose; use high-resolution graphics; format your graphics and include labels, legends, and captions.
- **Speaking about science / presentations:** Give yourself plenty of time to prepare and practice; state your message at the beginning and end of the presentation; give your audience background on your topic; focus on the aspects that are most interesting and relevant to your audience and introduce them early on; engage your audience through questions and dialogue; explain your visuals and use them to support your presentation; talk about the process, not just the results; aim to use less time than you are allotted; leave time for questions; based on what you know about the audience, try to predict their questions and prepare answers. If you use slides: spend one to two minutes per slide; each slide should have a visual element; explain your visuals to your audience; include an outline slide.
- **Creating a poster:** Remember that your title is your message; be intentional in your choice of colors; use high resolution visuals; use photos for the general public; use conceptual diagrams for the informed public and non-specialist scientists; use supporting visuals even if your audience is scientists in your field; use text to support your visuals; create a handout of the poster.
- **Using social media:** blogs and other social media platforms such as Twitter and Facebook for a variety of purposes.

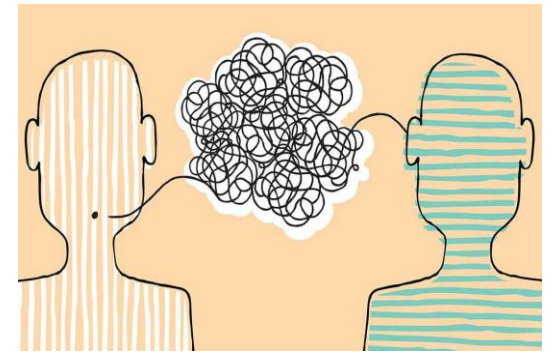
Communication language



Use the following techniques, especially for *Lay Public*:

- Use analogies and **visuals**
- Use (simple) **stories** and build trust in you
- Focus on making the story **relevant** and meaningful
- Respect your audience's prior knowledge (be mindful of “talking down”)
- Address the question “so what?” early on to keep your audience interested
- Address the points that less-specialized audience members care about first, followed by the interests of the more knowledgeable audience members

Communication design



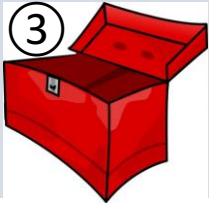
3 Models of Science Communication:

- **The Deficit Model:** This model assumes that public skepticism about science is caused by the public's lack of relevant knowledge. In this approach, scientists can remedy the “deficit” by sharing their knowledge with the public.
- **The Contextual Model:** Here, scientists put themselves in their audience's shoes. They are aware of the needs, attitudes, and existing knowledge of their different audiences and adjust their content and communication approach accordingly, e.g.:
 - What does my audience already know about this topic?
 - Why does my audience need the information I am communicating to them?
 - What will my audience do with the information I am communicating to them?
 - How will my audience feel about my methods?
 - What is the future of my research and how will it apply to my audience?
- **The Participation Model:** Scientists, the public, and policymakers *participate equally* in discussions and debates about issues in science and technology. The model variation “upstream engagement” proposes public debates about potential scientific and technological developments before they occur, instead of reactive debates post-development. **We encourage** members of the public to learn about a scientific topic and its implications for society. These activities also strengthen relationships between scientists and the public and inspire further public participation in scientific debates.

Communication structure



- 3 Key Structures of Effective Communication
 - From the Known to the Unknown. From General to Specific. From Simple to Complex.
- 7 C's of **Effective Communication**:
 - **Courtesy, Clarity, Conciseness, Completeness, Correctness, Concreteness, Credibility.**
- The 3 I's: issue, illustration, invitation.
- Top 9 Simple Principles of Effective Communication
 - Have A Goal. Listen. Adjust To Your Medium. Stay Organized. Be Persuasive. Be Clear. Less Is More. Be Curious.
- The 3 W's: What? So what? Now what?
- PSB: Problem, solution, benefit.



How do we communicate science?



Cook Book

Science communication skills: **top 9 tips**

Make sure you understand what your audience is interested in and adapt your communication accordingly.

1. **Understand your audience.** Put yourself in their shoes. How your research affects their lives.
2. **Build your message.** What single idea should they leave the room with? What do you want to achieve?
3. **Connect with the public.** Why should they care about my work? Convey emotion, make them laugh
4. **Tell your public a story.** Storytelling humanises scientists. Share a personal or professional anecdote.
5. **Talk to journalists.** Start by understanding why they care about your research. It's a public service.
6. **Make your science understandable.** We usually overestimate how familiar audience is with the topic. No jargon.
7. **Deal with controversial topics.** Expect your public's preconceived ideas. Respect their opinion.
8. **Embrace uncertainty.** What is true today may not be as accurate tomorrow. Uncertainty excites.
9. **Mix communication channels.** Articles, conference talks, press, social media, blogs, videos.

How do you cook?

- Have the cookbook in front of your eyes, or rather
- first read the cookbook, then create your own creation?

The right
audience

with the right
message

in the right
medium

at the right
time

- For both styles, the following exercise is suitable, as you may always look into the presentation.

The Recipe Book

The right audience

with the right message

in the right medium

at the right time

For you 😊



RecipeBook



How do we communicate science?

Science communication skills: top 9 tips

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Source: <https://agentmajor.com/science-communication/>, <https://agentmajor.com/humour-science-presentations/>



Identify your method

The right audience

with the right message

in the right medium

at the right time

- Know your **audience** (e.g., lay public, the media, policy makers, ...)
- Know your **message** (including "So what?" and "Why should I care?")
- Know your **medium** (that I am going to use to communicate my message to my audience)

Sources: General overview on methods: <https://bigguides.ncl.ac.uk/sciencecommunication>, <https://www.nature.com/articles/041586-019-03869-7>, <https://www.esch.org/science-policy-public-outreach/science-outreach-communication-toolkit/best-practices-in-effective-science-communication/>, <https://www.pnas.org/content/116/26/7676>, https://en.wikipedia.org/wiki/Science_communication

3 steps: https://www.brown.edu/academics/science-center/sites/brown.edu/academics/science-center/files/uploads/Quick_Guide_to_Science_Communication_0.pdf

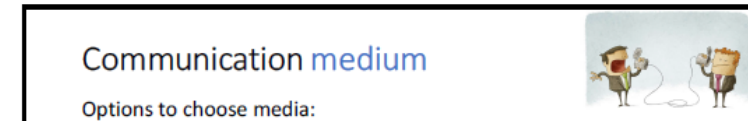


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- Once you know your audience, you can develop your message (see Muza).
- Your message should answer the audience's questions like "So what?" and "Why should I care?" Answers to these questions vary depending on your audience.
- As a science communicator, it is important to *frame* your message in terms that are accessible, relatable, and meaningful for your specific audience.
- Why framing?
 - actively engage your audience with an issue
 - build trust and relationships with the public
 - encourage the public to participate in dialogues about scientific issues.

Sources: Working with Public Information Officers by Dennis Meadows (2010); Working with Print, Broadcast, and Online Media from AAAS Annual Meeting 2010; Communicating Science Seminar, Ann 'Mabling Mead' Clew? by Corinne Dale (2006)



Communication medium

Options to choose media:

- **Writing about science:** Use active verbs; avoid jargon, euphemisms, clichés, wordplays, and puns; use analogies and examples; only include critical details; create an outline; tell a story but stay true to the facts; spend a lot of time; revising and rewriting; cite your sources.
- **Visualizing science:** Use a consistent style and format; use colors with purpose; use high-resolution graphics; format your graphics and include labels, legends, and captions.
- **Creating a poster:** Remember that your title is your message; be intentional in your choice of colors; use high resolution visuals; use photos for the general public; use conceptual diagrams for the informed public and non-specialist scientists; use supporting visuals even if your audience is scientists in your field; use text to support your visuals; create a handout of the poster.
- **Speaking about science / presentations:** Give yourself plenty of time to prepare and practice; state your message at the beginning and end of the presentation; give your audience background on your topic; focus on the aspects that are most interesting and relevant to your audience and introduce them early on; engage your audience through questions and dialogue; explain your visuals and use them to support your presentation; talk about the process, not just the results; aim to use less time than you are allotted; leave time for questions; based on what you know about the audience, try to predict their questions and prepare answers. If you use slides; spend one to two minutes per slide; each slide should have a visual element; explain your visuals to your audience; include an outline slide.
- **Using social media:** blogs and other social media platforms such as Twitter and Facebook for a variety of purposes.

Sources: Working with Public Information Officers by Dennis Meadows (2010); Working with Print, Broadcast, and Online Media from AAAS Annual Meeting 2010; Communicating Science Seminar, Ann 'Mabling Mead' Clew? by Corinne Dale (2006)

Communication language



Use the following techniques, especially for *Lay Public*:

- Use analogies and visuals
- Use (simple) stories and build trust in you
- Focus on making the story relevant and meaningful
- Respect your audience's prior knowledge (be mindful of "talking down")
- Address the question "so what?" early on to keep your audience interested
- Address the points that less-specialized audience members care about first, followed by the interests of the more knowledgeable audience members

Sources: Brown University Science Center's Quick Guide to Science Communication (2016); Research, A. ed. English Communication for Scientists (Cambridge, MA: NRC Education, 2010); Talking From Science: A Non-Scholar Writer's Guide from the National Foundation for Medical Research (2013); <https://www.nature.com>

Communication design



3 Models of Science Communication:

- **The Deficit Model:** This model assumes that public skepticism about science is caused by the public's lack of relevant knowledge. In this approach, scientists can remedy the "deficit" by sharing their knowledge with the public.
- **The Contextual Model:** Here, scientists put themselves in their audience's shoes. They are aware of the needs, attitudes, and existing knowledge of their different audiences and adjust their content and communication approach accordingly, e.g.:
 - What does my audience already know about this topic?
 - Why does my audience need the information I am communicating to them?
 - What will my audience do with the information I am communicating to them?
 - How will my audience feel about my methods?
 - What is the future of my research and how will it apply to my audience?
- **The Participation Model:** Scientists, the public, and policymakers participate equally in discussions and debates about issues in science and technology. The model variation "upstream engagement" proposes public debates about potential scientific and technological developments before they occur, instead of reactive debates post-development. We encourage members of the public to learn about a scientific topic and its implications for society. These activities also strengthen relationships between scientists and the public and inspire further public participation in scientific debates.

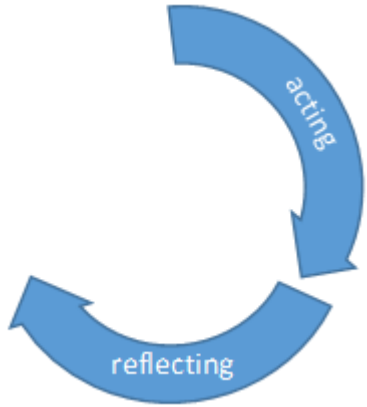
Communication structure



3 Key Structures of Effective Communication

- From the Known to the Unknown. From General to Specific. From Simple to Complex.
- 7 C's of Effective Communication:
 - Courtesy, Clarity, Conciseness, Completeness, Correctness, Concreteness, Credibility.
- Top 9 Simple Principles of Effective Communication
 - Have A Goal. Listen. Adjust To Your Medium. Stay Organized. Be Persuasive. Be Clear. Less Is More. Be Curious.
- The 3 I's: issue, illustration, invitation.
- The 3 W's: What? So what? Now what?
- PSB: Problem, solution, benefit.

Sources: https://www.brown.edu/academics/science-center/sites/brown.edu/academics/science-center/files/uploads/Quick_Guide_to_Science_Communication_0.pdf, <https://www.esch.org/science-policy-public-outreach/science-outreach-communication-toolkit/best-practices-in-effective-science-communication/>, <https://www.pnas.org/content/116/26/7676>, https://en.wikipedia.org/wiki/Science_communication



Your task now



- Formulate **your short message** prepared for *peer scientists* as target group!
 - Describe the *medium* you prefer to use (and why)
 - Add your thoughts on how to use *language, design and structure* and combine them into your product
-
- You might use *half a page* for your succinct work – keep the text short! 😊
 - After 30 minutes, you will present your message quickly to the plenum

4th input



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საქართველოსთვის
The European Union for Georgia



EU Twinning project

Supporting inter-sectoral collaboration possibilities between Research and Industry

GE 18 ENI OT 02 19

How to prepare a presentation in Pecha Kucha manner

Fourth input

Gilbert Ahamer, Environment Agency Austria

umweltbundesamt^U



JOANNEUM
RESEARCH

FWF
Der Wissenschaftsfonds.

 DLR Projektträger

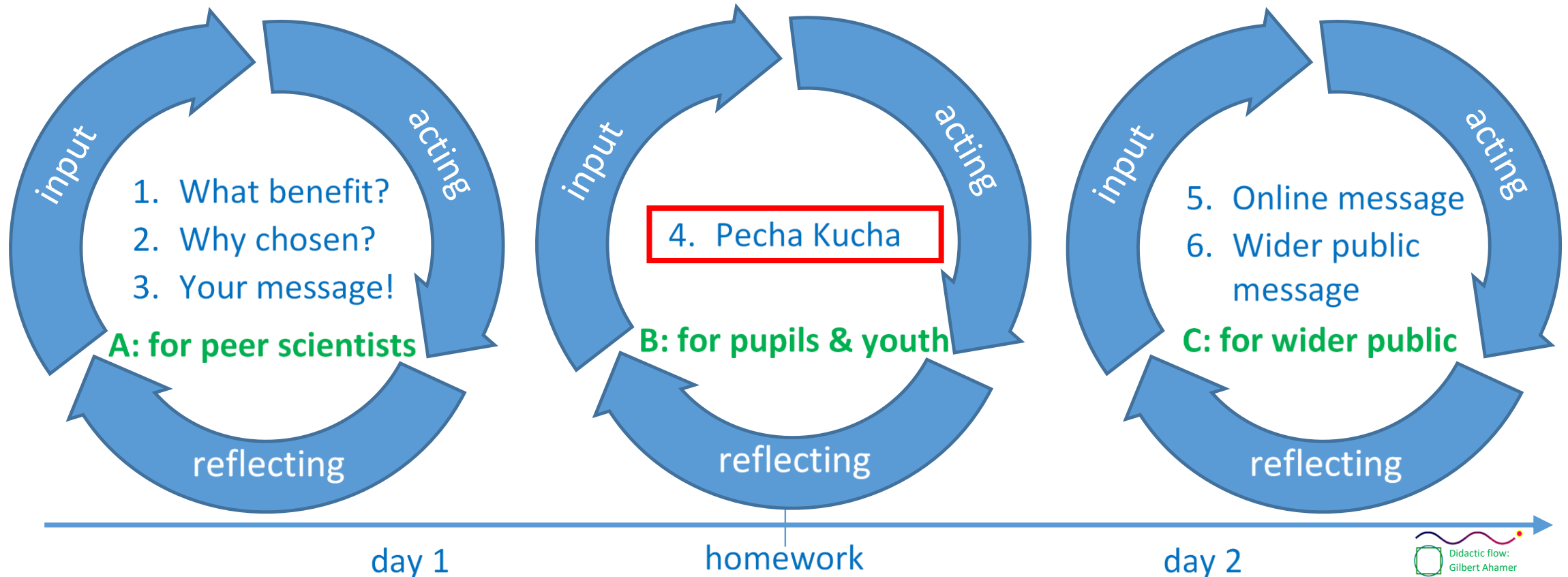
 FFG
Promoting Innovation.

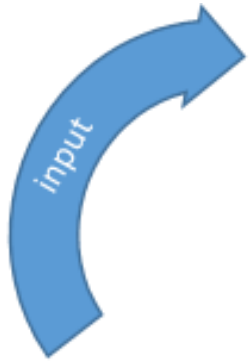


The overall sequence of interactive events in this seminar

according to the didactic paradigm of “action in reflection”

Schön, D.A. (1983), Reflective Practitioner: How Professionals Think in Action. Taylor & Francis Ltd, London.





PECHA KUCHA

ぺちやくちや

[pe̞t̚ɕakɯ̟β̚t̚ɕa]

“constantly chatting”

“constantly talking”

20 images for **20** seconds each = 6:40 min
Automatically running, e.g. on ppt, best with recorded speech

The topics are mainly in the areas of design, art, fashion, culture and architecture.

PechaKucha
20 X 20
IMAGES SECONDS

Let your image convey your message!

e...volution?

by reflection!

EGIScience

1 ★ 00:20

Mapping Global Dynamics

This is not just a nap

EGIScience

2 ★ 00:20

EGIScience

3 ★ 00:20

Changing Global Dynamics

... how to map these waves?

TRENDS

4 ★ 00:20

Dynamising Global Change

... but like that!

saturation effects & new qualities

... not only like that

pure trend extrapolation

3 examples

EGIScience

5 ★ 00:20

Mapping population growth

photos: Nepal 2008

6 ★ 00:20

Population

1990 2025 2100

EGIScience

7 ★ 00:20

Population growth in %

at change of sign: "population transition"

8 ★ 00:20

Mapping GDP growth

EGIScience

9 ★ 00:20

GDP level

1990 2025 2100

EGIScience

10 ★ 00:20

Mapping strategy

Which transformation facilitates ...

... pattern recognition?

EGIScience

11 ★ 00:20

EGIScience

12 ★ 00:20

Mapping energy

energy, not entropy!

EGIScience

13 ★ 00:20

Energy

1990 2025 2100

EGIScience

14 ★ 00:20

Energy per capita: saturation

EGIScience

15 ★ 00:20

Mapping Land Use Change

EGIScience

16 ★ 00:20

Land use change: Lessons learned?

The agricultural scenario for the 1990s:

average annual increase rates 1963-91 displayed for the continents

EGIScience

17 ★ 00:20

Stylised dynamics of change

Evolutionary transitions

EGIScience

18 ★ 00:20

Stylised map of evolutionary dynamics

EGIScience

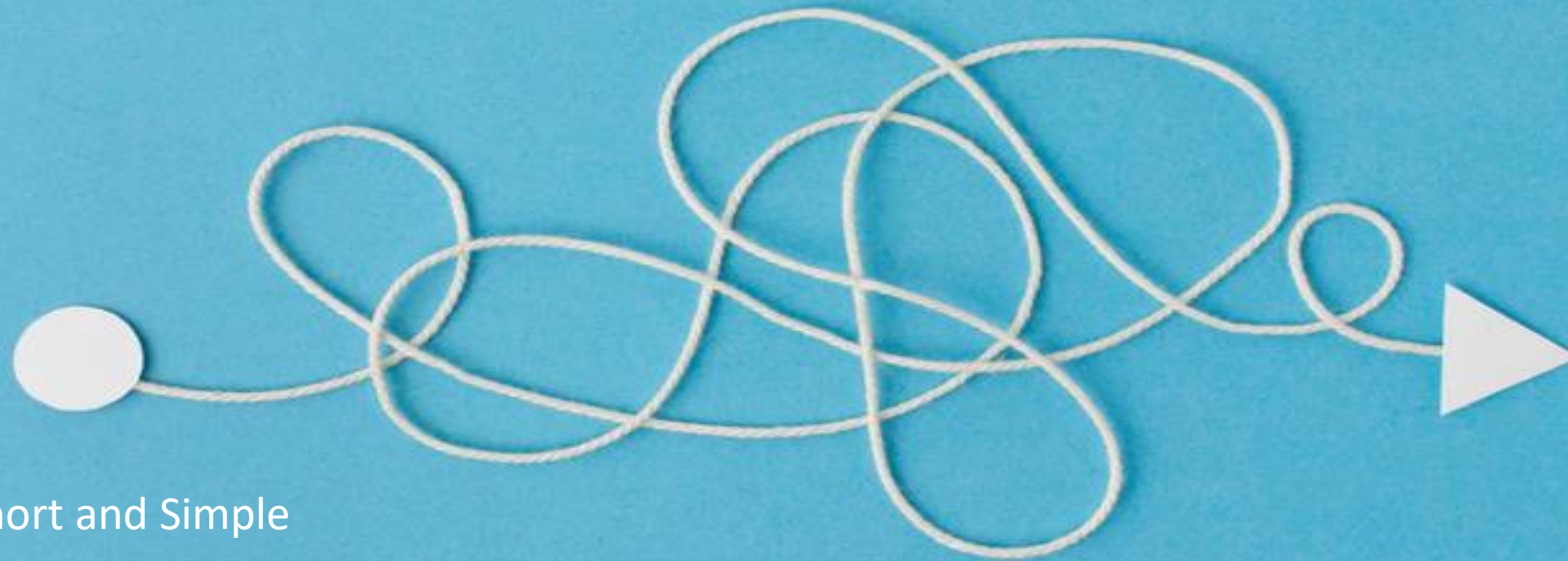
19 ★ 00:20

Ανθρώπος μετρον παντων;

EGIScience

20 ★ 00:20

KISS principle: Keep it simple and straight



- Keep It Short and Simple
- Keep It Simple and Smart
- Keep It Simple and Straightforward.

What is “Pecha Kucha”?



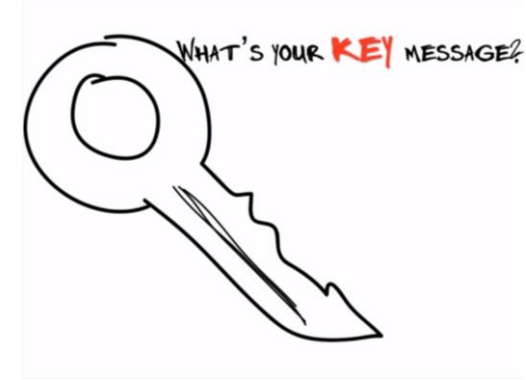
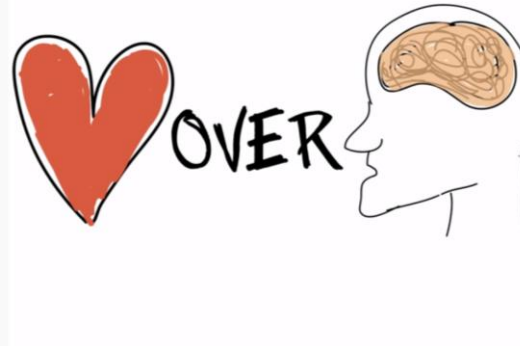
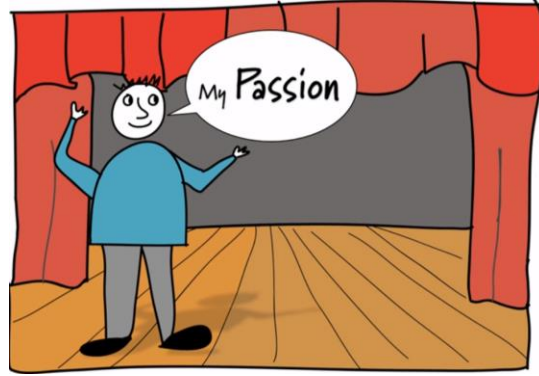
- The advantages of this technique lie in the short, concise presentation with rigid time constraints, which make lengthy lectures and the associated fatigue of the audience ("death by PowerPoint" syndrome) impossible from the outset.

What is “Pecha Kucha”?



- A Pecha Kucha presentation utilizes imagery and efficient use of spoken word to create a seamless, memorable, meaningful and concise presentation.
- Designed to be completed in 6 minutes and 40 seconds, the rules regarding its composition are likened to visual Haiku. **20 images, 20 seconds each**, autoadvancing, and connected seamlessly with well-developed narration are your only rules.
- Inspired by their desire to "talk less, show more," Astrid Klein and Mark Dytham of Tokyo's Klein-Dytham Architecture (KDa) created Pecha Kucha in February 2003.
- There are public [Pecha Kucha nights](#)/events in many cities on the planet.

Tipps



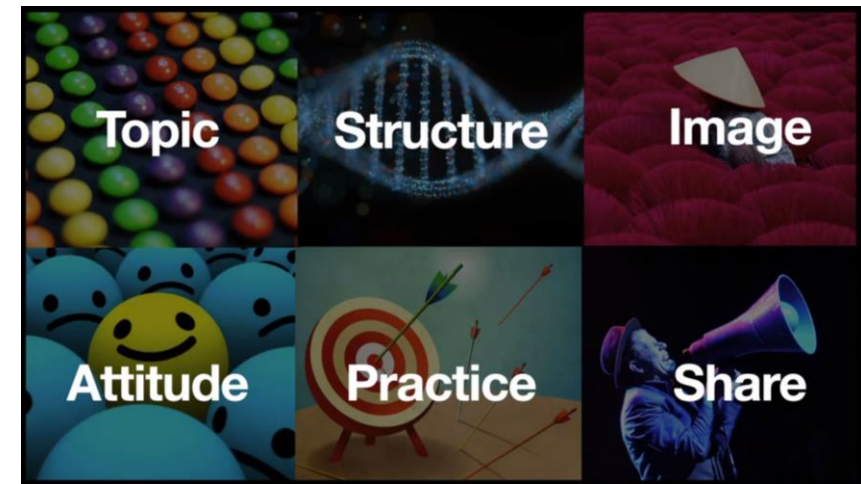
1. **Have a theme:** a key message supported by three points. Choose something unique to you – be authentic!
2. **Plan your outline before the slides**
& only then storyboard the slides to fit with the outline
3. Spend more than 20 seconds on a point
4. It's better to finish earlier than later
5. Rehearse – rehearse a lot!



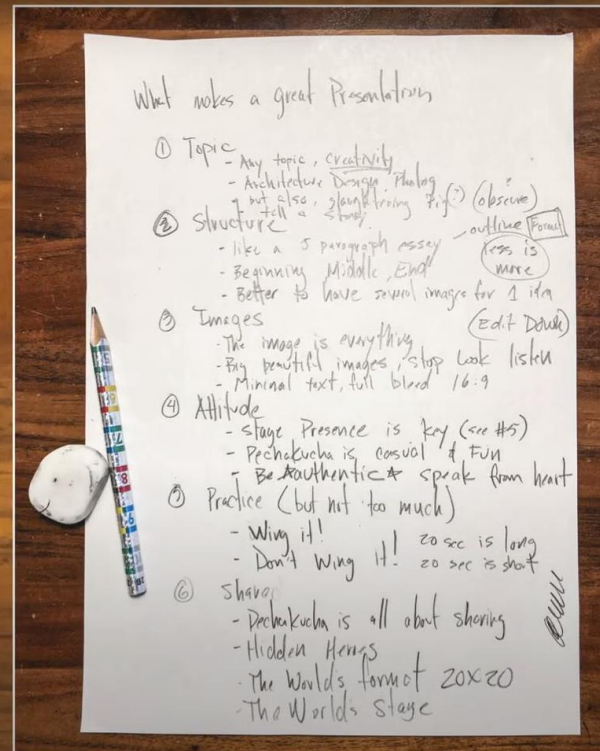
What makes a good Pecha Kucha

- 1. Interesting **topic**: *your passion*
- 2. Simple **structure**
- 3. Beautiful **images**
- 4. It's all about **attitude**
- 5. **Practice** but not too much
- 6. **Share** it!

... sharing is caring 😊



What makes a great PechaKucha Presentation



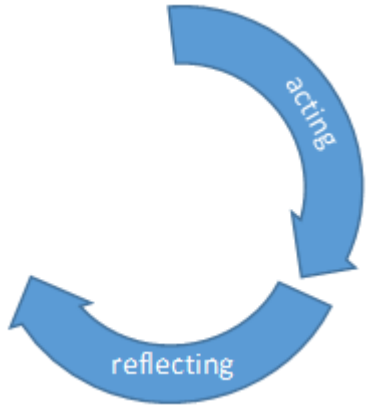
Tips

1. Storytelling: wrap your message in a story
2. Ice breaking: capture audience's attention
3. Content development: What are the salient points



YouTube has several effective tutorials: 😊 *Do you think these are good???*

- **“What makes a great Pecha Kucha Presentation”**
- “A Pecha Kucha about Pecha Kucha”
- “Top Tips for Pecha Kucha Presenters”
- “5 Tips to Pecha Kucha Excellence”
- “Making a Pecha Kucha on PC with PowerPoint” (record as a movie)
- “Creating a Pecha Kucha Presentation Using PowerPoint” (first [boring] steps)
- “How Pecha Kucha Changed My Life” (a lengthy narrative)



Your task now



- **Create a Pecha Kucha as homework!**
on a theme of your choice, in a style of your choice, only: **20x20!**



- Present it tomorrow: first within your group, then the winner in the plenum

5th input



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The European Union for Georgia



EU Twinning project

Supporting inter-sectoral collaboration possibilities between Research and Industry

GE 18 ENI OT 02 19

How to promote and present your project and its results

Fifth input

Gilbert Ahamer, Environment Agency Austria

umweltbundesamt^U



JOANNEUM
RESEARCH

FWF
Der Wissenschaftsfonds.

 DLR Projektträger

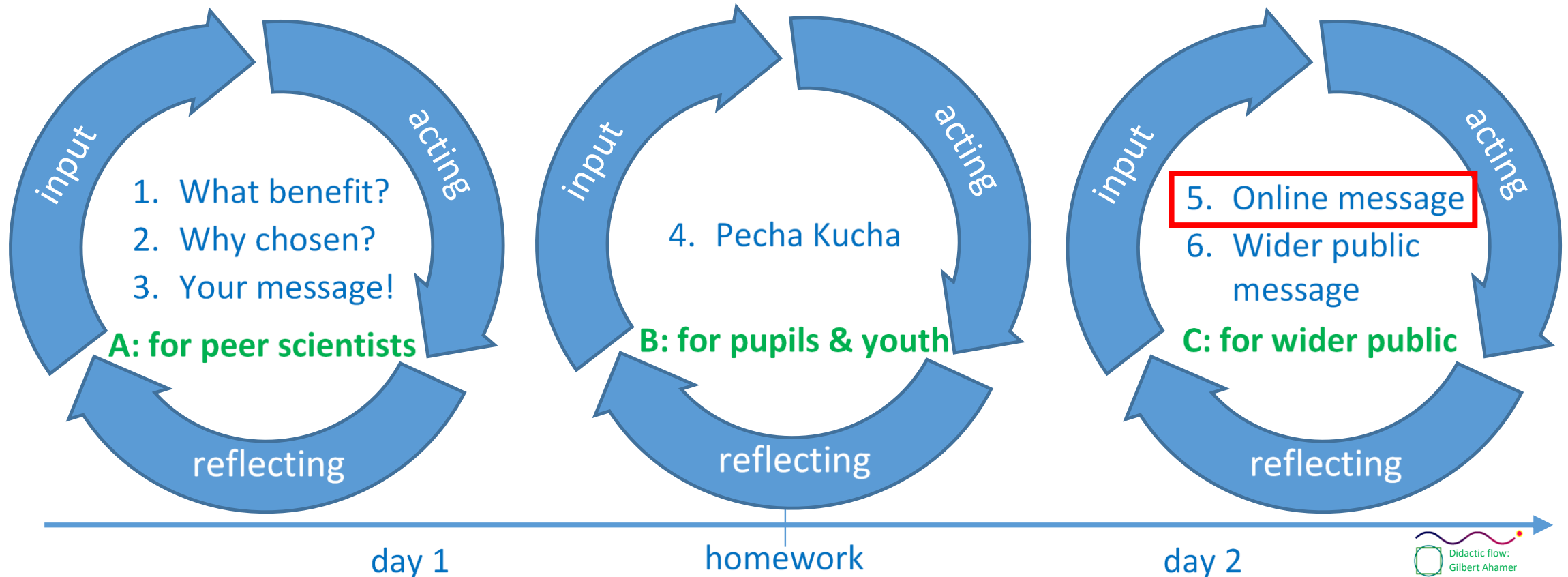
 FFG
Promoting Innovation.



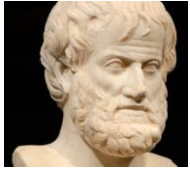
The overall sequence of interactive events in this seminar

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Schön, D.A. (1983), Reflective Practitioner: How Professionals Think in Action. Taylor & Francis Ltd, London.



What does the world consist of?



Aristoteles' world view:

- True



- False



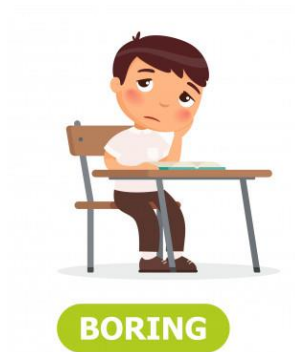
Our world view:

- Interesting

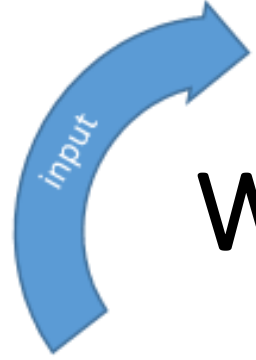


INTERESTING

- Boring



BORING



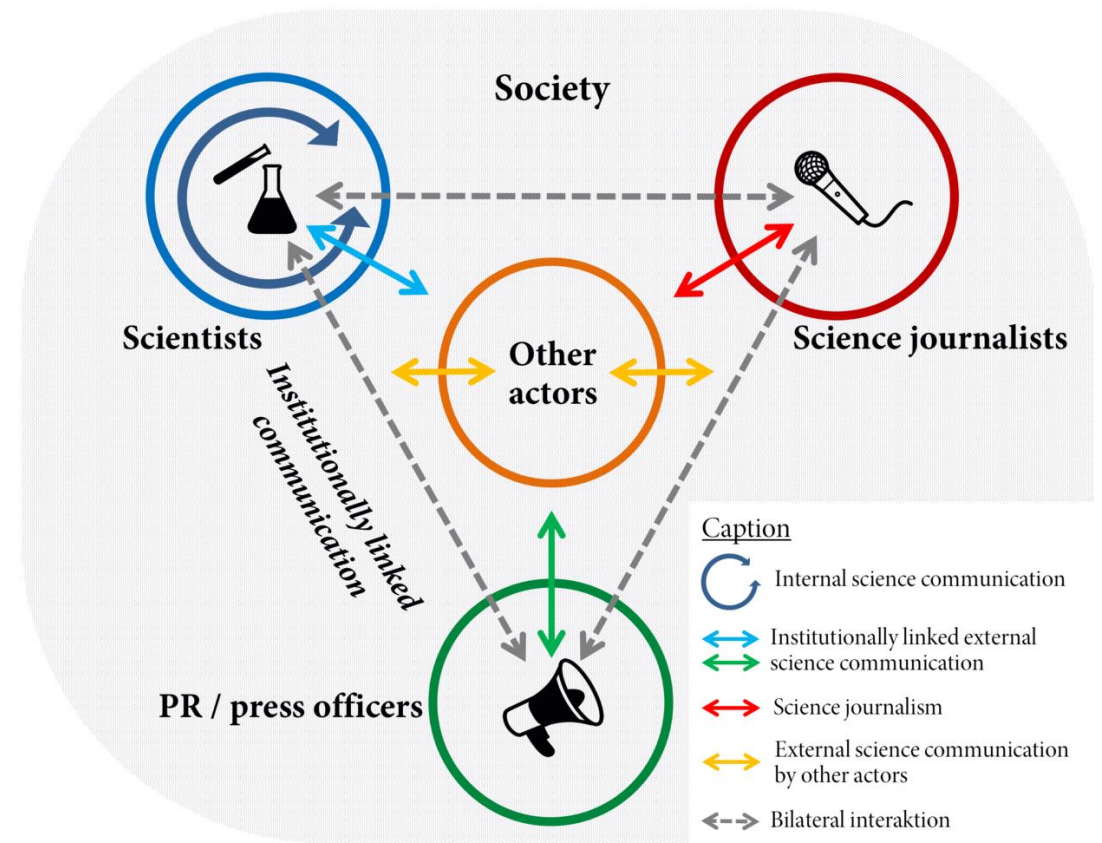
Why “science communication”?*

science ↔ population



The advantage for you:

1. Extra motivation
2. A different way of thinking
3. Broaden your skills
4. Expanding your network
5. It's fun



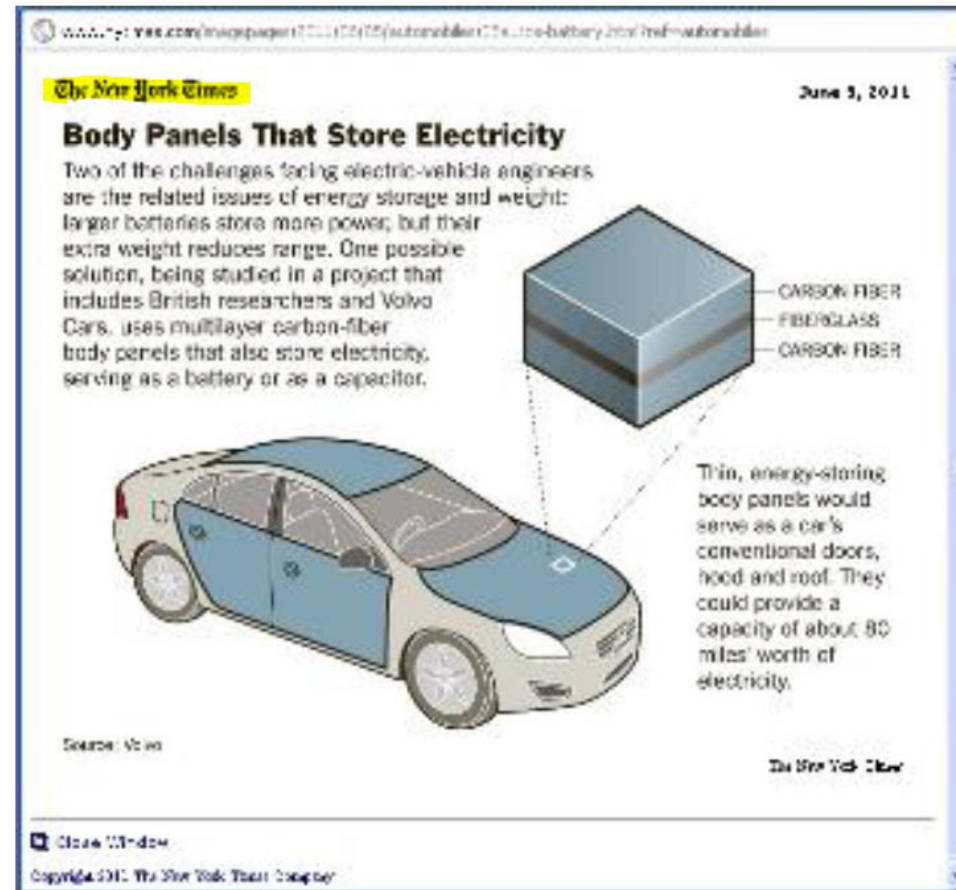
* Science communication is the practice of informing, educating, sharing wonderment, and raising awareness of science-related topics. Science communicators can use entertainment and persuasion including humour, storytelling and metaphors.

Cooperate with the press!

Good practices

The STORAGE project has attracted quite a lot of attention, ranging from *Der Spiegel* to the *New York Times*. As a result, there has been considerable interest in the technologies being developed and the subsequent impact they could have on future automotive applications (and beyond). In fact, Volvo has estimated that the advertising exposure from the STORAGE project has been worth €112 million, from the press release (January 2010) up to May 2011. If you set that off against the cost, it is good value for money! To give an idea of what it involves for a team of researchers:

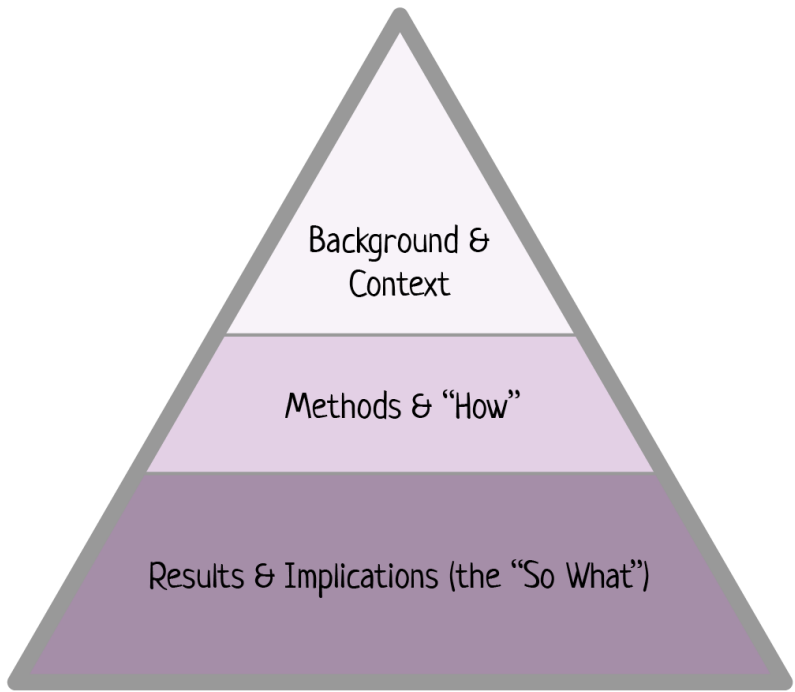
- **Initial meeting** (1 hour) — This involves meeting with your press officer to discuss the project. The press officer will need to take notes for the press release and work out the campaign timeline.
- **Editing process** (1 hour) — A draft release will come back to you for approval. You will need to look at the release to ensure the copy is accurate.
- **Speaking to the press** — As a rule of thumb, always remember that broadcast (TV) will take the most time and online media may take the least amount of time as they tend to use press releases verbatim.
- **Interviews** (1-2 hours) — If your story has a really interesting visual element, always remember that the broadcast press may want to come and interview



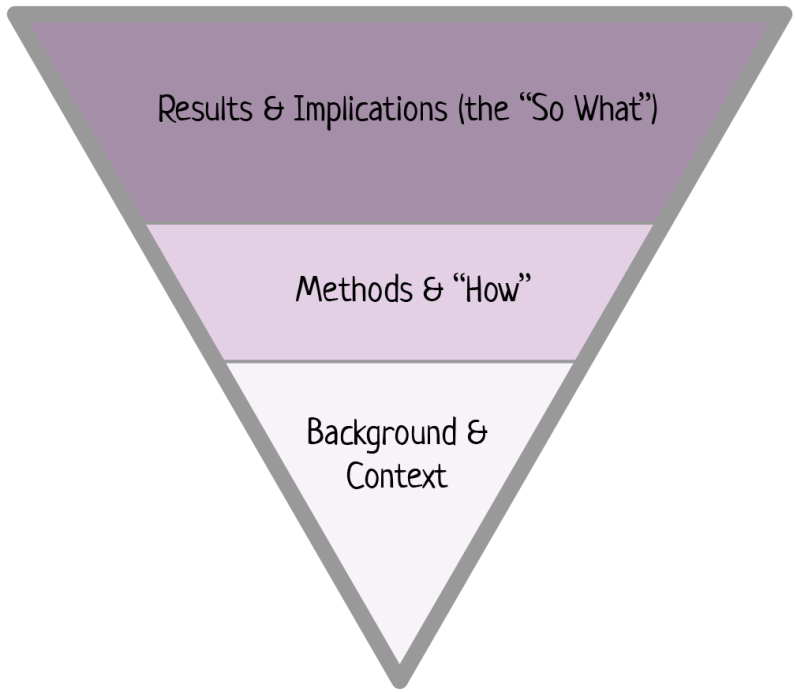
After issuing our press release, we received a huge number of queries from the press as well as approaches from industry for more information about STORAGE. For example, we received an invitation and funding to visit Singapore and Canada

The main difference to what we do already

Scientific Article



Journalism & Communications



Communication, dissemination and exploitation



COMMUNICATION, DISSEMINATION AND EXPLOITATION WHY THEY ALL MATTER AND WHAT IS THE DIFFERENCE?

Communication: Promote your action and results

Inform, promote and communicate
your activities and results



Reaching multiple audiences

Citizens, the media, stakeholders

Dissemination: Make your results public

Open Science: knowledge and results (free of charge)
for others to use



Only to scientists?

Not only but also to others that can learn from the results:
authorities, industry, policymakers, sectors of interest, civil
society

Exploitation: Make concrete use of results

Commercial, Societal, Political Purposes



Only by researchers?

Not only, but also:

- Industry including SMEs
- Those that can make good use of them:
authorities, industrial authorities, policymakers, sectors of
interest, civil society

Build your own communication strategy – a checklist

A. Ensure good management

1. Have *resources* been allocated (time and money)?
2. Are *professional* communicators involved?
3. Is continuity ensured?

B. Define your goals and objectives

1. Are there any goals and objectives?
2. Are your goals and objectives neither too ambitious nor too weak?

C. Pick your audience

1. Is your audience well *defined*?
2. Does it include all relevant target groups?

For each audience, you should work on a distinct strategy using targeted messages, means and language.

D. Choose your message

1. Is it news?
2. Are you connecting to what your audience wants to know? See through your audience's eyes
3. Are you connecting to your own communication objectives?

*Tell a **story**, don't just list facts*

E. Use the right medium and means

1. Do they reach the audience?
2. Do they go beyond the obvious?

F. Evaluate your efforts

Key messages from EU handbooks and guidelines

- ‘Communication is certainly a way to keep all partners actively involved in the project’

(J.W. Gunnink, COMET)

- We receive massive amounts of taxpayers’ money to carry out fantastic projects.
⇒ **Letting the public know** how this money is spent is an obvious obligation.
- ‘It is very important to know **who** you want to reach’
- Communicating EU research and innovation guidance for project participants ([2014](#)):
 - **The best advertisement is demonstrating a working product.**
 - Suitably framed messages can help to:
 - Increase the success rate of your proposal (provided you have a good communication and dissemination plan);
 - Draw the attention of national governments, regional authorities & other funding sources to the need for and ultimate benefits of (your) research;
 - Attract the interest of potential partners;
 - Encourage talented students and scientists to join your partner institutes and enterprises;
 - Enhance your reputation and visibility at local, national and international level;
 - Help the search for financial backers, licensees or industrial implementers to exploit your results;
 - Generate market demand for the products or services developed.

HOW TO COMMUNICATE YOUR PROJECT



Think, Plan, Act strategically

- What do you want to achieve?
- Communicate from day one



Be creative

- Vamp up the visual, reduce the writing
- Use social media



You can't reach everyone

- Define your target audience
- Use consortium resources, expertise and ideas



Get into the media mindset

- Identify relevant media people
- Understand media language and needs



Think Issue, not project

- What issue is the project addressing?
- Link communication to hot topics in society



Think global, act local

- Local and regional media are effective targets
- Use the project's local connections



Make it relevant to daily life

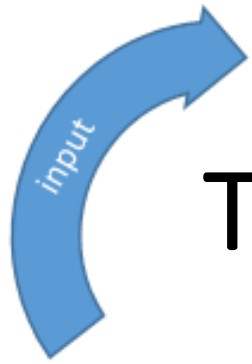
- Show the impact on society
- Avoid technical language and jargon



Build your brand

- Become a trusted source and voice
- Contribute where and when you can

“Share your knowledge. It’s a way to achieve immortality.”
— The Dalai Lama



Tipps for platforms

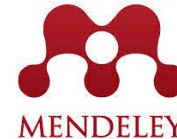
- [LinkedIn](#) 

- [SlideShare](#)  slideshare

- [ResearchGate](#) (for free!), [Academia](#), [Mendeley](#), [Epiloge](#), [Medium](#) etc.



ACADEMIA



epiloge



- What we did not intend here ;-)

- [Scopus](#)  Scopus

- [World of Science \(WoS\)](#) 

Best Practices in Science Communication

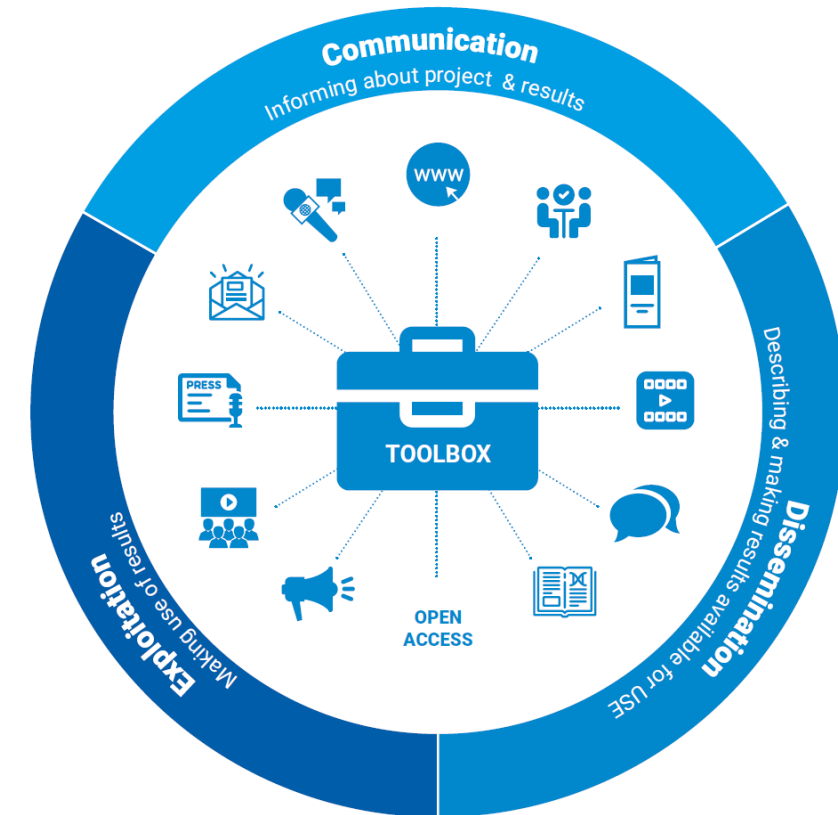


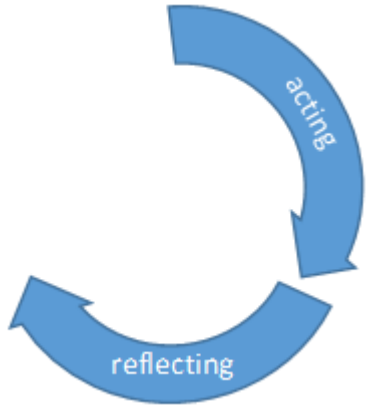
General Tips:

- **Know your audience**, and focus and organize your information for that particular audience.
- **Focus on the big picture.** What larger problem is your work a part of? What major ideas or issues does your work address? How will your work help global understanding of some issue?
- **Avoid jargon.** If you must use a technical term, make sure to explain it, but simplify the language.
- **Try to use metaphors** or analogies to everyday experiences that people can relate to.
- **Underscore the importance of public support** for exploratory research and scientific information, and the role of this information in providing the context for effective policy making.

Good examples on YouTube with my personal ranking ;-)

- [Science Communication: It's No Joke!](#) ***
- [On Becoming a Science Communicator](#) *
- [The EU Guide to Science Communication](#) – a series **
- [#CommsWorkout](#) – and engage in a community **
- [How to explain scientific ideas: 6 SIMPLE tips](#) *
- [Make the most of your project](#) *
- [EU Social Media Guide](#) * – including the following:





Your task now



- **Create a message for on-line presentation!**
on a theme of your choice, in a style of your choice!
- Present it afterwards in the plenum

6th input



ევროკავშირი
საქართველოსთვის
The European Union for Georgia



EU Twinning project

Supporting inter-sectoral collaboration possibilities between Research and Industry

GE 18 ENI OT 02 19

Targets, audience and message. How to communicate your research for various Target Groups

Sixth input

Muza Kirjusina, Daugavpils University

umweltbundesamt^U

FWF
Der Wissenschaftsfonds.

 DLR Projektträger

 FFG
Promoting Innovation.

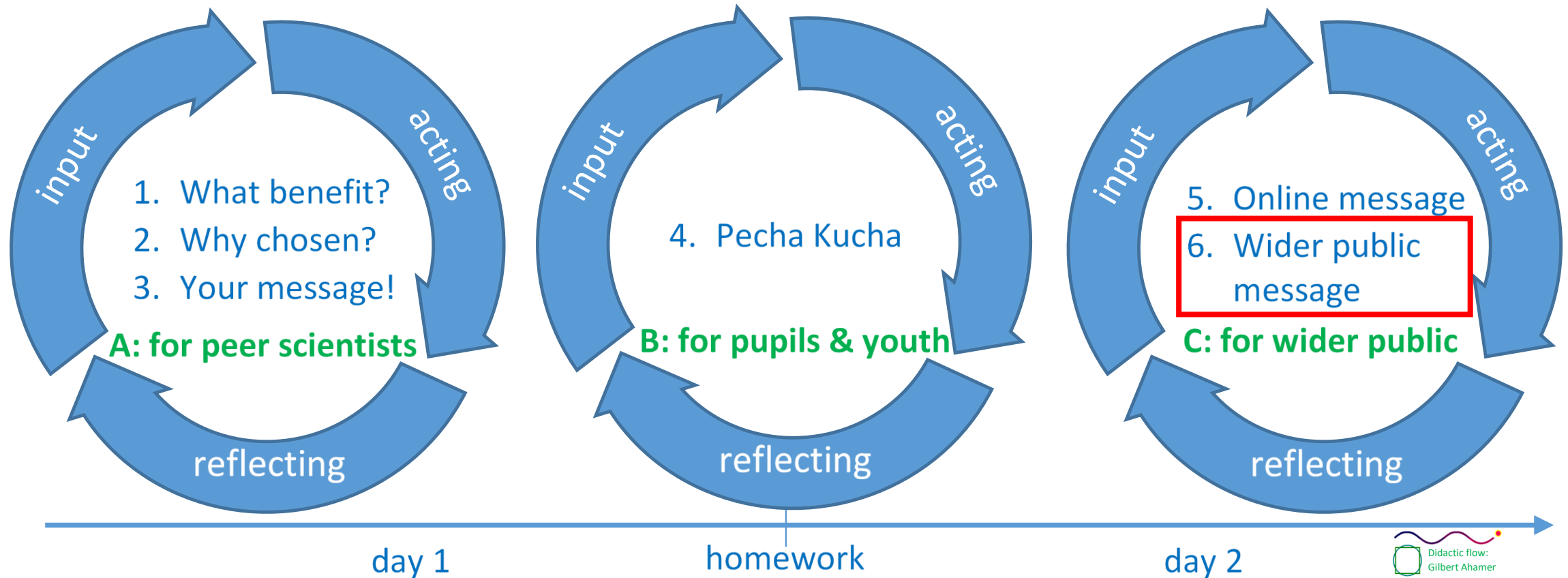
JOANNEUM
RESEARCH 



The overall sequence of interactive events in this seminar

according to the didactic paradigm of “action in reflection”

Schön, D.A. (1983), Reflective Practitioner: How Professionals Think in Action. Taylor & Francis Ltd, London.



Targets, audience and message:

Why and **what** are you planning to communicate? Your Target

Collaboration with colleagues

Collaboration with businessman

Search for sponsors/ funding

What is the **strongest message** I can inform with this data?

✓ Focus on key scientific questions. Answer important scientific questions.

✓ Know the expectations and needs of your audience

✓ Clearly understand the goal of your communication. What action do I want my communication to drive?

Clear communication is a critical skill that every scientist should possess.

Well-told story = beginning + middle + end



Who are you communicating to?

- Type of activity,
- age,
- how your message is best adapted to their individual needs.
-

What **type** of activity are you using?

- Live or face-to-face events:
public lectures, science festivals, workshops, debates
- Journalism:
newspapers, radio, popular science magazine
- Online communication:
websites, videos, podcasts



How to communicate your research with **live or face-to-face** events

- Public lectures: Topic, message, audience,
- Science festivals
- **Workshops:** different groups can discuss their understanding and opinions of a scientific topic

Citizen Science: involve the public in scientific research

(via e.g. applications); gathering and processing data, analyzing results.

Option form practice: Researchers' Night at university



Usually:

- In the hall
- A lot of people
- Quite noisy

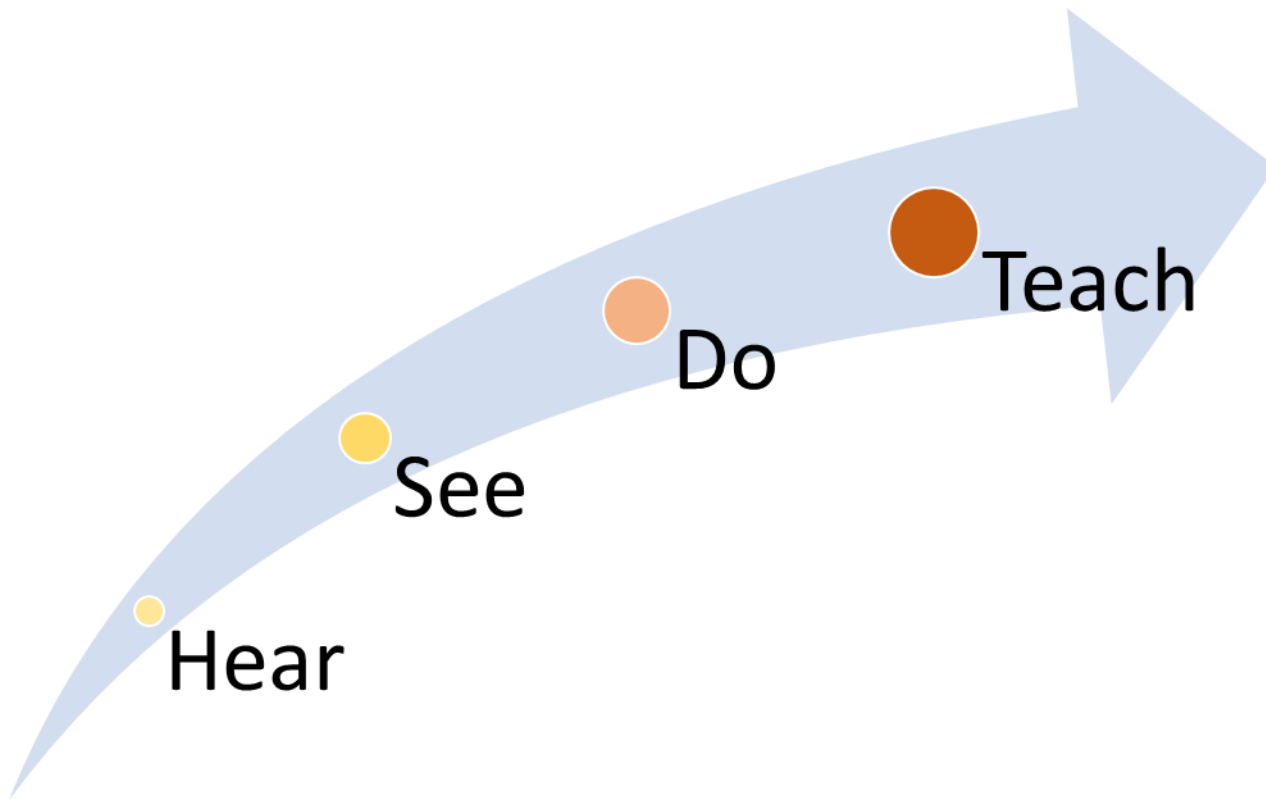
In Laboratory:

- calm atmosphere
- work with all ages group at the same time (whole family)
- different level of studies
- see the work of scientists from the inside

**Children and pupils
paint pictures +listen +seen**

**Adults also learned
a lot of practical information**

NOTE:



People memorize:

10% reading

15% of speech information

25% visual information

If you use both methods at the same time, a person can perceive up to 65% of the speech content

70% discussing with others

Practical work and training to other significantly increases perception of new knowledge

95% explaining to others

How to communicate your research with **media**

Scientists try explain their advanced, varied concepts to journalist

Journalist often doesn't know what to do with the information once they gets it.

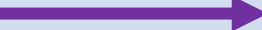
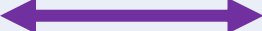
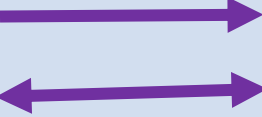
What can you do if the public isn't especially interested?

- Why does this matter? So what?
- Print media (e.g. newspapers, popular science journals)
- Video interview (use visualization if possible)
- Radio (limited time, questions on the air...)



“The height of sophistication is simplicity”

Communication channel comparison

Communication channel	Advantages	Limited	Communication approach
Traditional media (printed press, broadcasts)	Large audience. The message is of high quality, created in cooperation with professionals.	There is no control / knowledge about how the audience will perceive and interpret the content of the message.	Science popularization. 
"Live" events, online real-time mode (lectures, debates, Scientists' Night)	The researcher is able to control the content of the message. New scientific findings "here and now".	Resource-intensive activities. It is difficult to attract visitors who have no initial interest in the topic of the event.	Science communication 
Social media	Large audience. Direct interaction with the selected community group. The researcher can control the original content of the message. Always available if is an Internet.	It is difficult to control how the content will be perceived. Information needs to be updated regularly to increase the number of followers. Prior skills are required, as in this case the scientist is also a journalist.	

Examples form practice

Interview to journalist

- ask for a final draft for editing

Popular Science and professional magazines

- Carefully approach the writing of the text, think about the preliminary knowledge of the readers.

Video interview

- difficulties giving a speech

Radio

- questions on the air
- no face-to-face contact

Your task now

Write your **short message** for the wider public as target group. Theme of **your choice**.

short message for wider public
(C)

```
graph TD; A[short message for wider public (C)] --> B[30 min]; B --> C[Present your message];
```

30 min

Present your message

References:

Hundey EJ., Olker JH., Carreira C., Daigle RM., Elgin AK., Finiguerra M., Gownaris NJ., Hayes N., Heffner L., Razavi NR., Shirey PD., Tolar BB., and Wood-Charlson EM. 2016. A Shifting Tide: Recommendations for Incorporating Science Communication into Graduate Training. *Limnology and Oceanography Bulletin*. 109-116pp.

<https://bitesizebio.com/webinar/how-to-effectively-communicate-your-research/>

<https://sigchi.org/resources/communicating-your-research-with-the-public-and-press/>



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The European Union for Georgia



EU Twinning in Science-Business links

მადლობა ყურადღებისთვის Thank You!



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