Grant Writing

How to make your proposal go from fundable to funded

CentraleSupélec | université PARIS-SACLAY

ACADEMIC WRITING CENTER
CentraleSupélec
Université Paris-Saclay

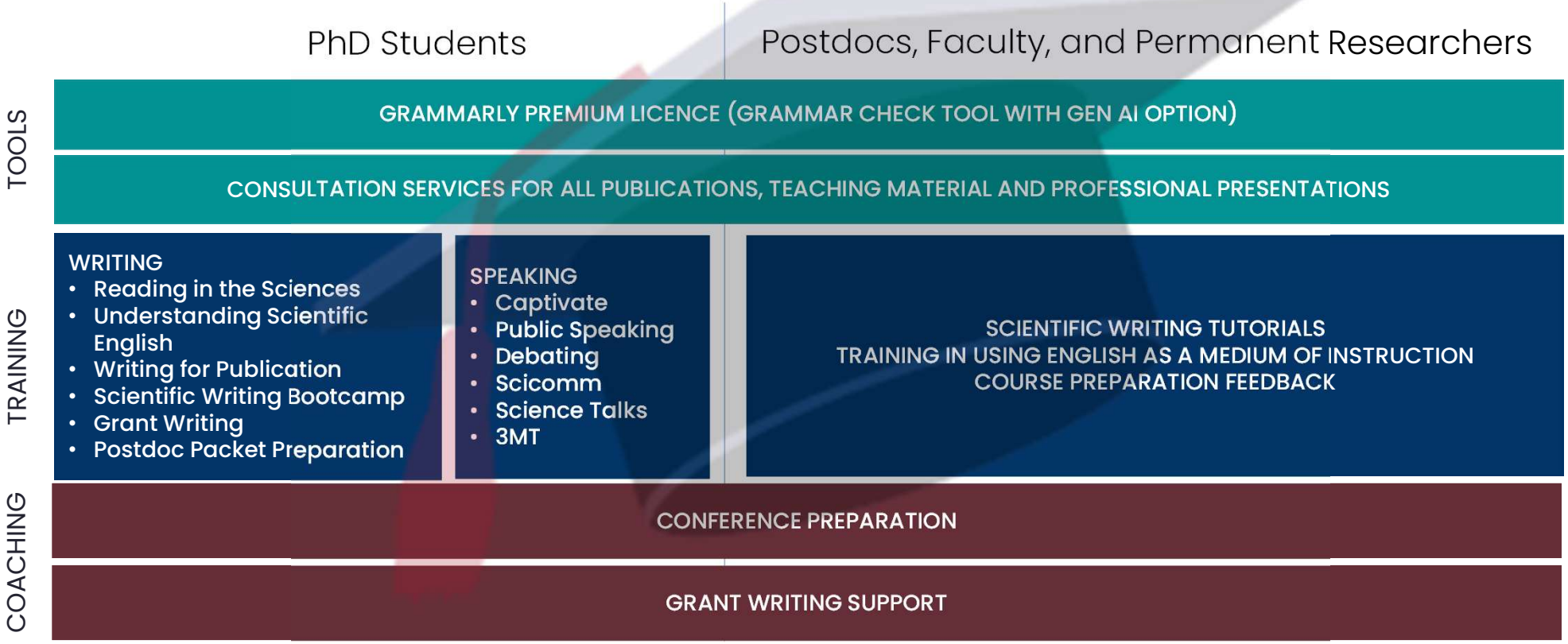
Melissa Ann Thomas
Research and scientific communication instructor
CentraleSupélec

COLOURS School 2025
9.00
Institut Pascal
Orsay, France

About the speaker

I am both proofreader and lead instructor for our research and scientific communication courses. With a background in language learning and cognitive neuroscience, I have helped hundreds of students and researchers not only improve their global writing skills, but also achieve their goal of publishing their research.

The AWC's Services



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Provides over 400 features, such as checking for grammatical mistakes, providing vocabulary enhancement suggestions, detecting plagiarism, using AI prompts, and offering citation suggestions.

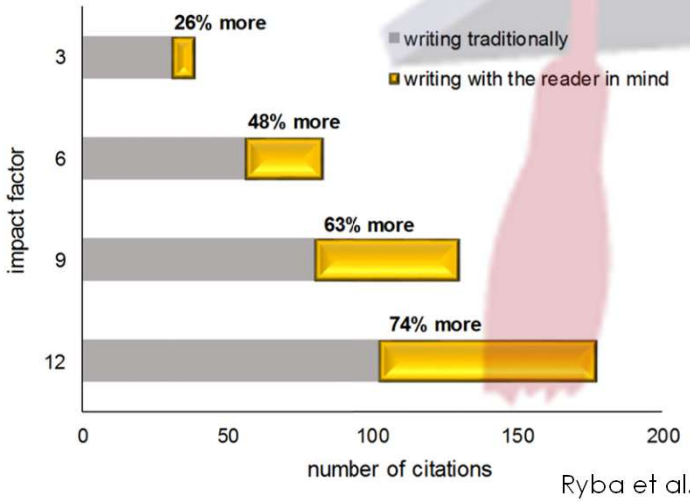
Users can adjust for the type of English (British or American), the target audience (General, Knowledgeable, Academic), and the goal of the text (Inform, Persuade, Describe)

How to request access:

Email awc@centralesupelec.fr
You must provide your **institutional email account**

Consultations (Proofreading) sessions

- One-hour sessions
- All corrections are done “live”
- Pedagogical explanations provided for each correction

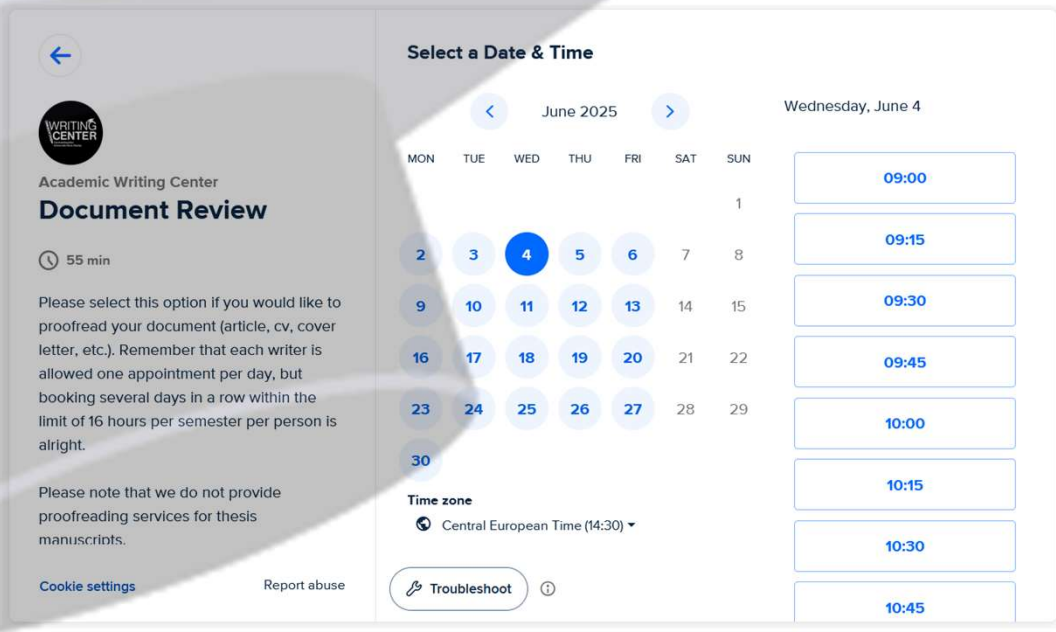


Ryba et al., 2019

Goal of the proofreader: Increase writer autonomy and reader-friendly writing

Goal of the writer: Increase chances of publication and citation

50 appointments available each week



It's like Doctolib for writers!

Book a consultation at https://calendly.com/academicwritingcenter

Have questions?

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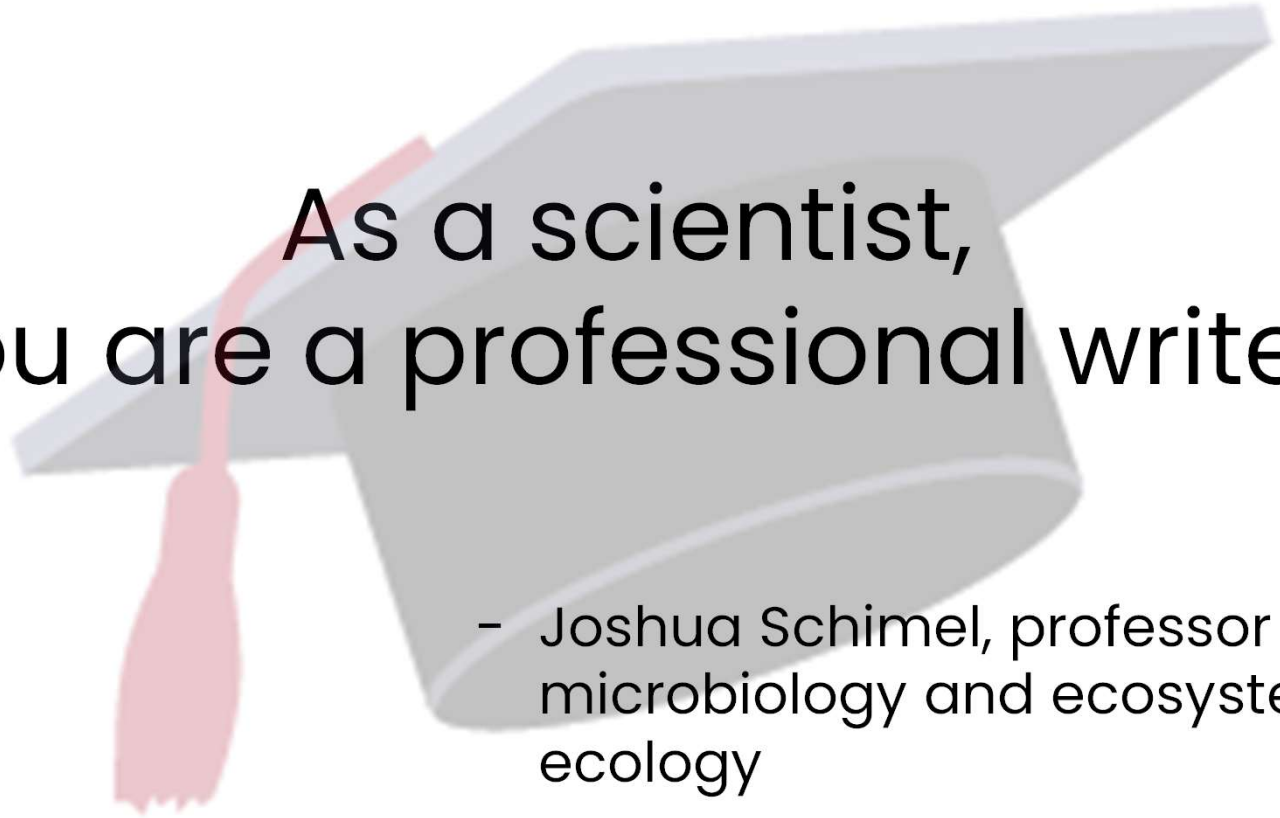
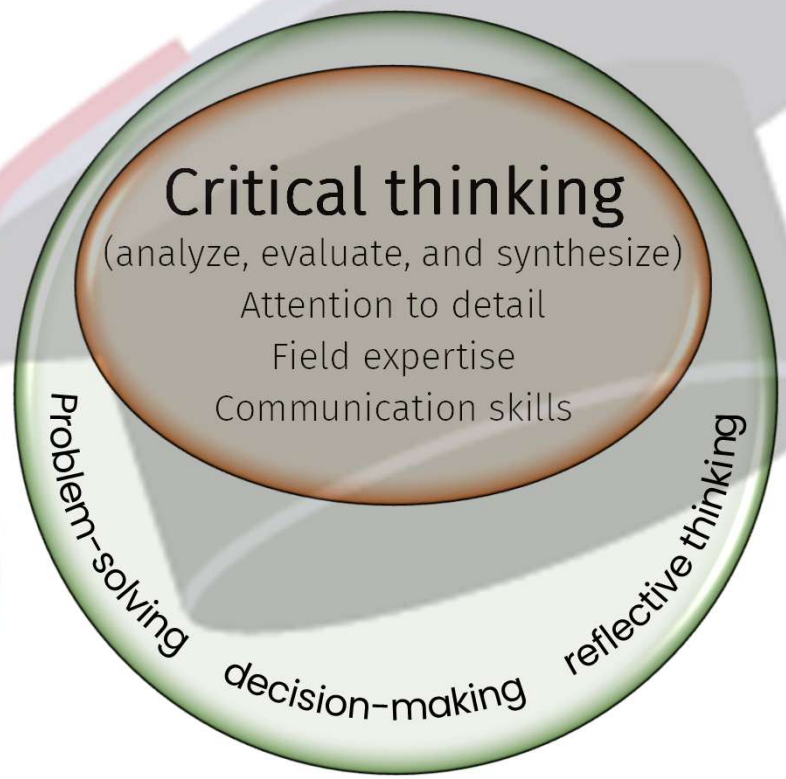


As a scientist, you are a professional writer.

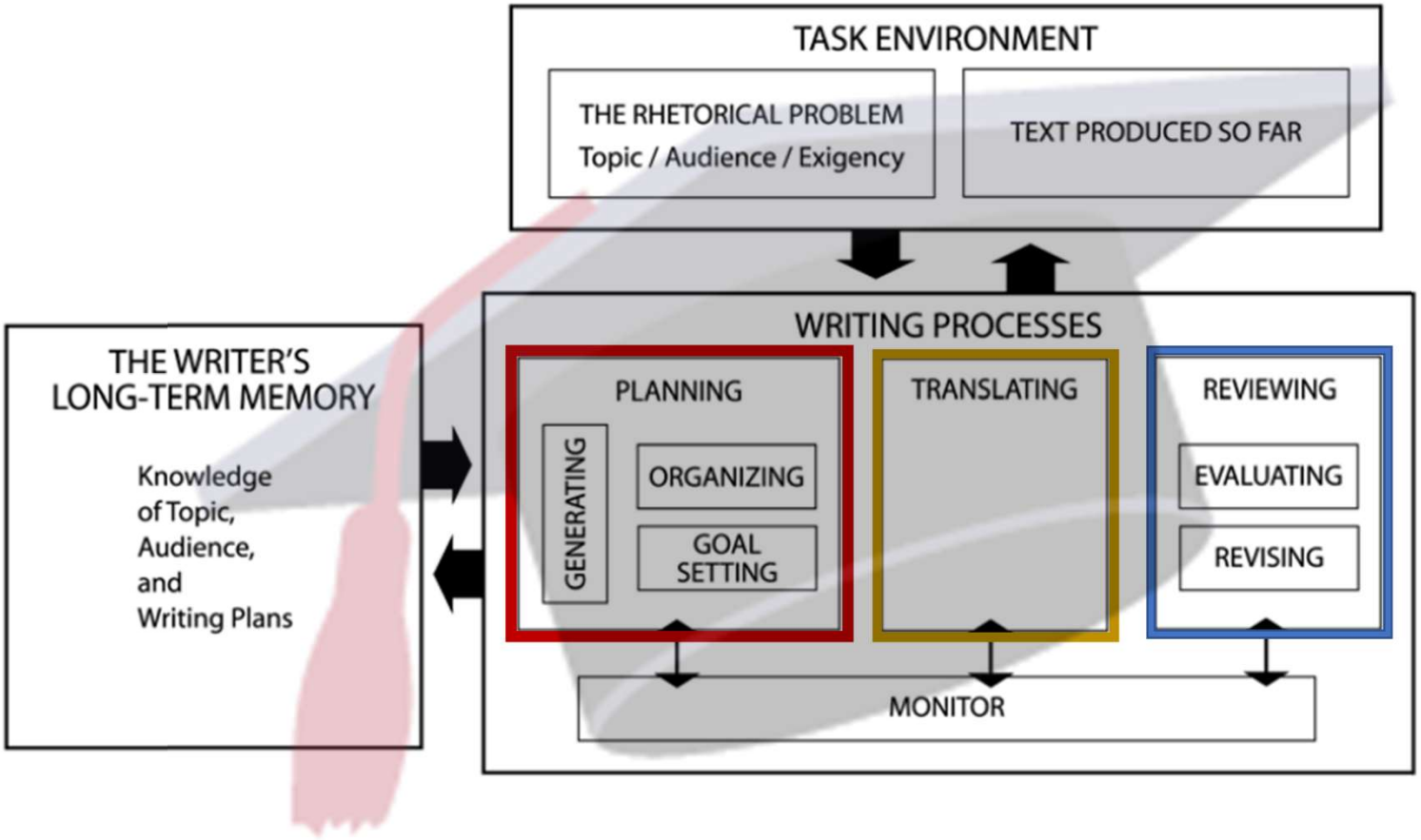
- Joshua Schimel, professor of soil microbiology and ecosystem ecology

Schimel, 2012

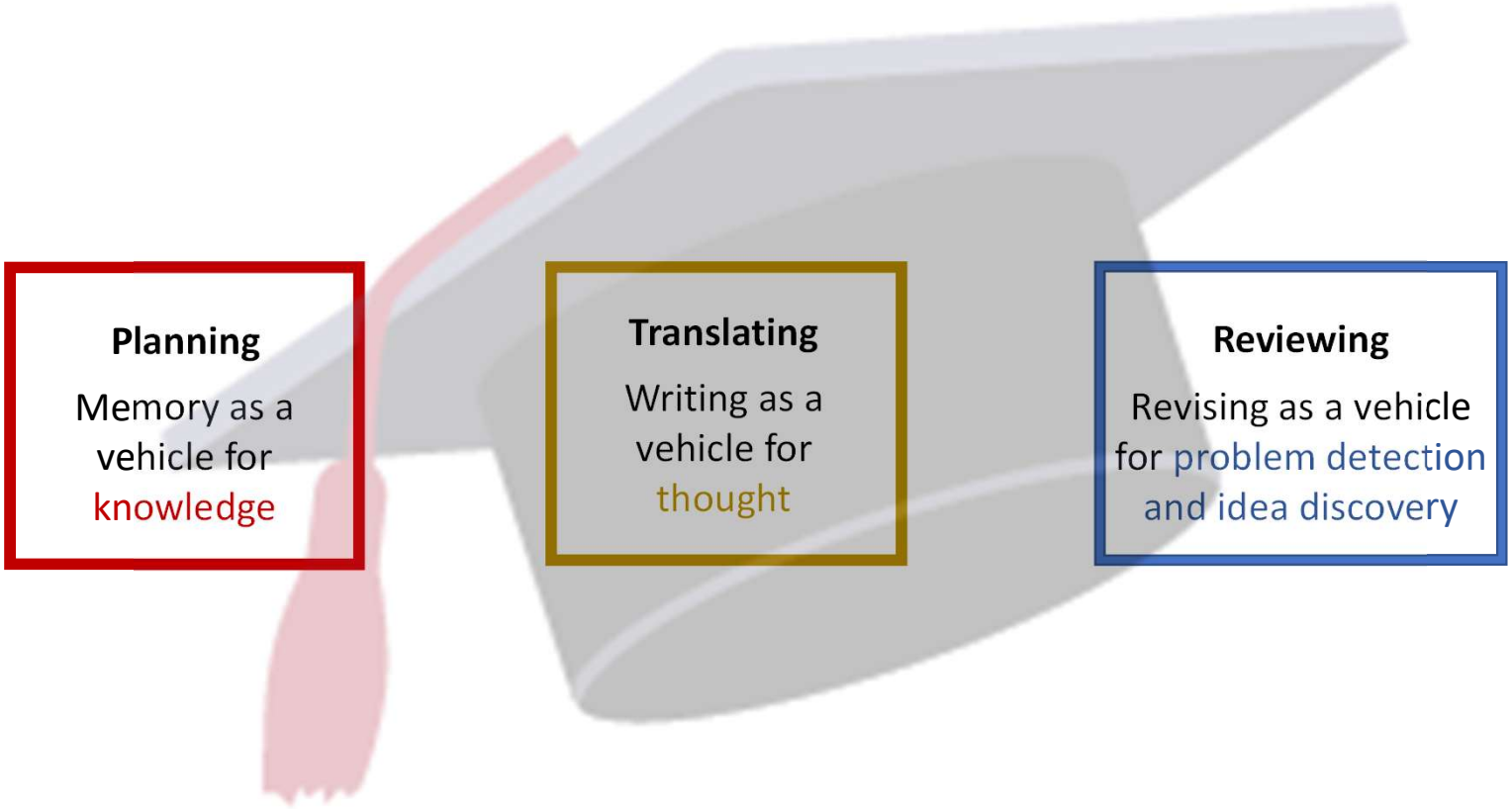
Expectation Skill Sets: The scientific writer



Halpern, 1998

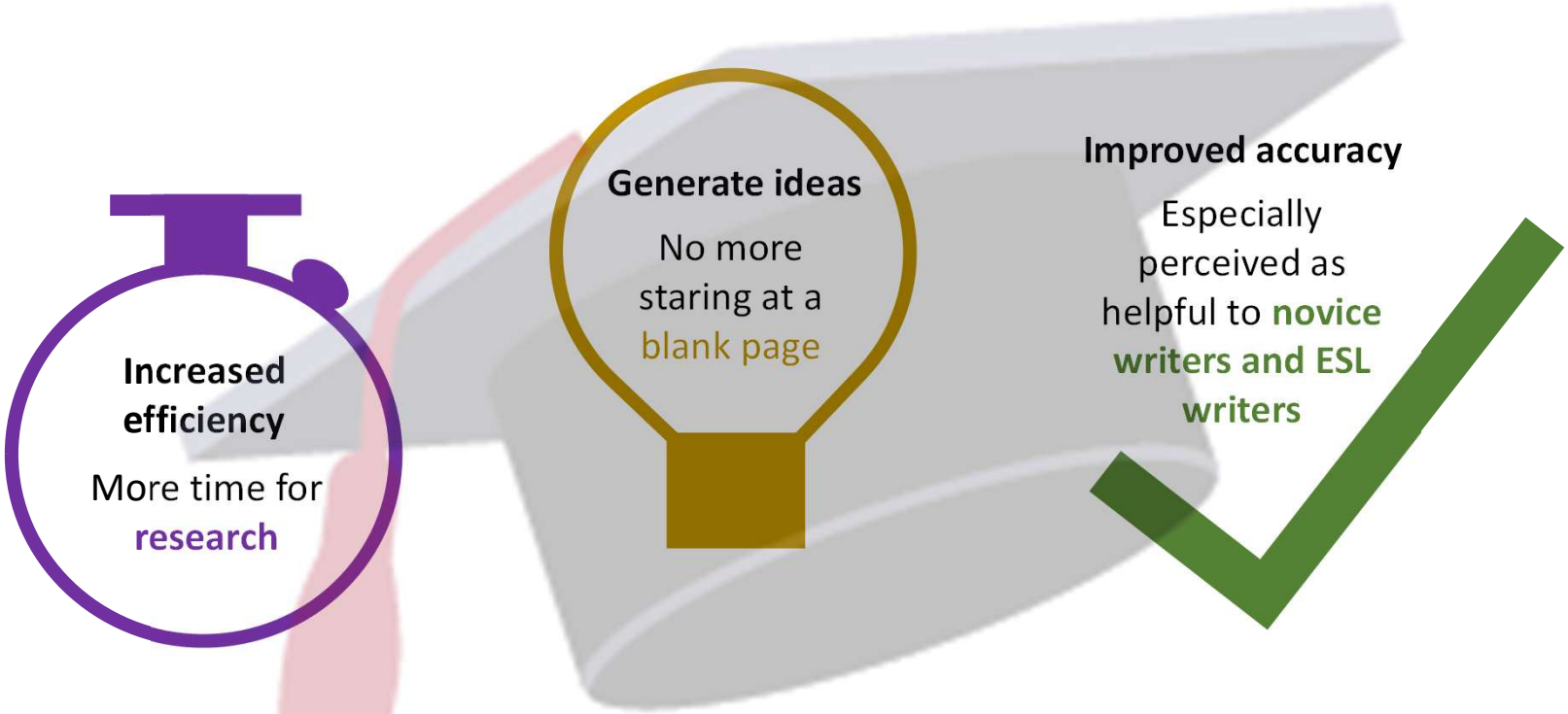


Flower and Hayes model, from Horning and Becker, 2006


Planning
Memory as a vehicle for knowledge
Translating
Writing as a vehicle for thought
Reviewing
Revising as a vehicle for problem detection and idea discovery

But what does this all mean when it comes to generative AI?

Perceived benefits for researchers?

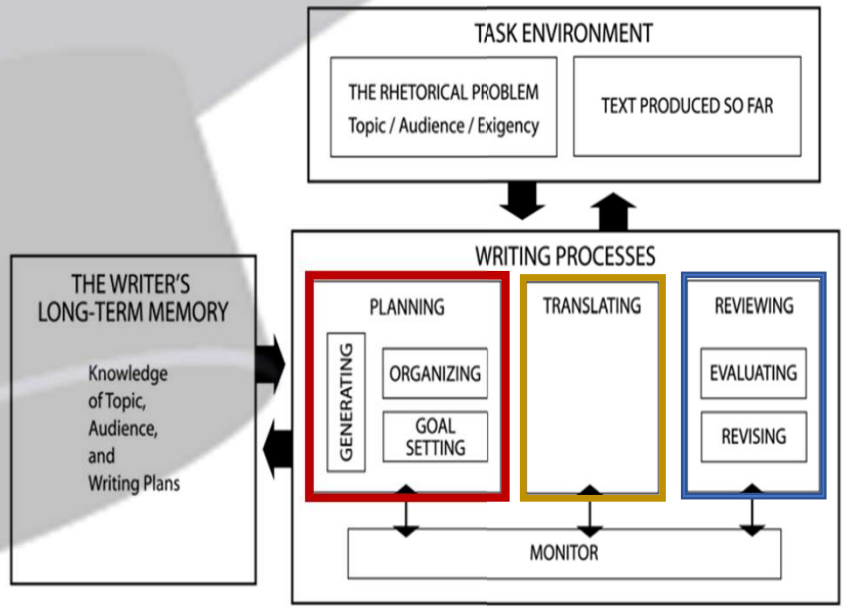


But at what cost???

Writing with generative AI

Impact of AI on autonomy in the writing process

- The degree of control a writer has over the generative AI they are using (assistant vs ghostwriting)
- Authenticity in cognitive input, voice of the writer, and authoring practices
- Best practices for written communication and the standard of academic English



The drawbacks of using gen AI

The drawbacks of using gen AI
(Gerlich, 2025)

- The ability to synthesize
  - Dependency issues = using Gen AI for information retrieval and decision-making
  - Students that are highly efficient workers but less capable of independent problem-solving and critical evaluation

- The ability to plan and translate in the writing process
  - Increased trust in gen AI = greater cognitive offloading = reduced engagement in critical thinking
  - Although cognitive load on WM is reduced, there is less experience in deeper cognitive involvement
  - Loss of creativity, originality, and serendipitous discovery of thought

Planning

Memory as a vehicle for knowledge

Translating

Writing as a vehicle for thought

Reviewing

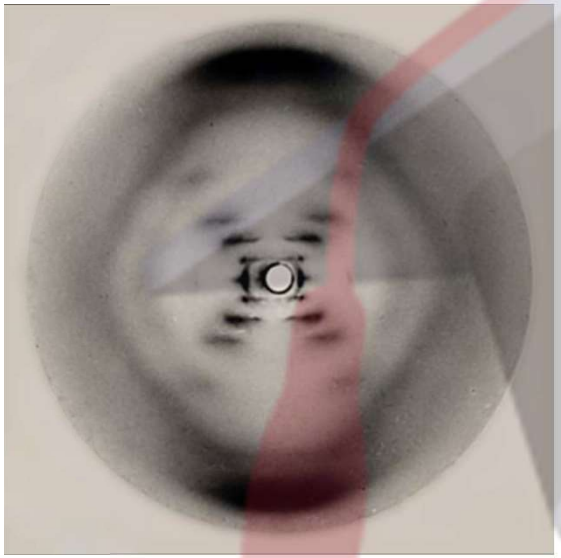
Revising as a vehicle for problem detection and idea discovery

Generative AI **cannot** pause, think, discover, or choose to rewrite

Overview of Grant Writing

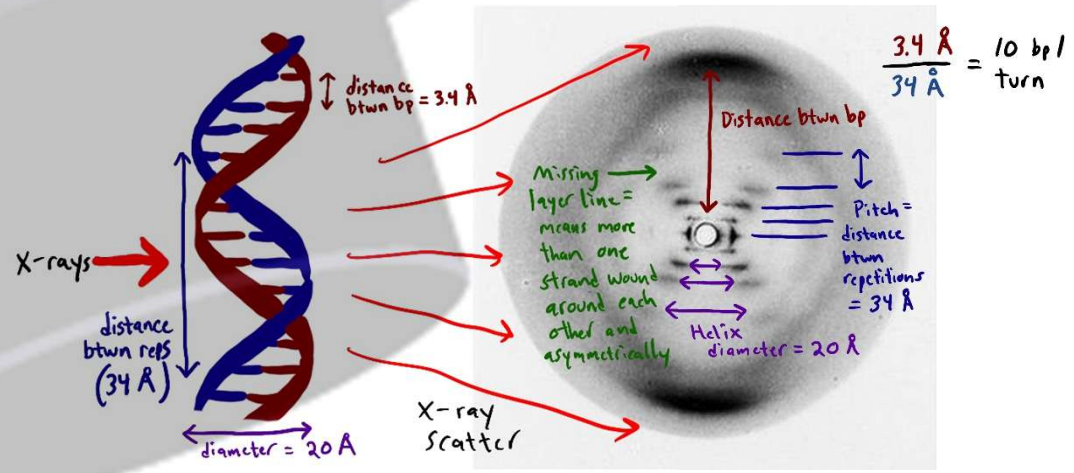
Today's goal: Writing an **effective** summary for a non-expert audience

What does this raw data say to you?



By Raymond Gosling/King's College London
http://www-project.slac.stanford.edu/wis/images/photo_51.jpg,

What about these notes?



Dr. Emily Willoughby, explanation of how Photo 51 captured the double helix structure of DNA.

No. 4356 April 25, 1953 NATURE 737

equipment, and to Dr. G. E. R. Deacon and the officers of R.R.S. *Discovery II* for their part in making the observations.

¹ Young, F. B., Gerrard, H., and Jevons, W., *Phil. Mag.*, **40**, 149 (1949).
² Longsdale, Miss K., Woods Hole Papers in Phys. Oceanog. Meteor., **11** (3) (1950).
³ Von Arx, W. S., *Deep Sea Res.*, **6**, 282 (1949).
⁴ Ekman, V. W., *Arkiv. Mat. Astron. Fysik* (Stockholm), **2** (11) (1905).

MOLECULAR STRUCTURE OF NUCLEIC ACIDS

A Structure for Deoxyribose Nucleic Acid

We wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest.

A structure for nucleic acid has already been proposed by Pauling and Corey[1]. They kindly made their manuscript available to us in advance of publication. Their model consists of three interwined chains, with the phosphates near the fibre axis, and the bases on the outside. In our opinion, this structure is unsatisfactory for two reasons: (1) We believe that the material which gives the X-ray diagrams is the salt, not the free acid. Without the acidic hydrogen atoms it is not clear what forces would hold the structure together, especially as the negatively charged phosphates near the axis will repel each other. (2) Some of the van der Waals distances appear to be too small.

Another three-chain structure has also been suggested by Fraser (in the press). In his model the phosphates are on the outside and the bases on the inside, linked together by hydrogen bonds. This structure as described is rather ill-defined, and for this reason we shall not comment on it.

We wish to put forward a radically different structure for the salt of deoxyribose nucleic acid. This structure has two helical chains each coiled round the same axis (see diagram). We have made the usual chemical assumptions, namely that each chain consists of phosphate diester groups joining β-D-deoxyribofuranose residues with 3′,5′ linkages. The two chains (but not their bases) are related by a dyad perpendicular to the fibre axis. Both chains are right-handed helices, but owing to the dyad the sequences of the atoms in the two chains run in opposite directions. Each chain loosely resembles Furberg's[2] model No. 1; that is, the bases are on the inside of the helix and the phosphates on the outside. The configuration of the sugar and the atoms near it is close to Furberg's 'standard configuration', the sugar being roughly perpendicular to the attached base. There is a residue on each chain every 3·4 A. in the z-direction. We have assumed an angle of 36° between adjacent residues in the same chain, so that the structure repeats after 10 residues on each chain, that is, after 34 A. The distance of a phosphorus atom from the fibre axis is 10 A. As the phosphates are on the outside, cations have easy access to them.

The structure is an open one, and its water content is rather high. At lower water contents we would expect the bases to tilt so that the structure could become more compact.

The novel feature of the structure is the manner in which the two chains are held together by the purine and pyrimidine bases. The planes of the bases are perpendicular to the fibre axis. They are joined together in pairs, a single base from one chain being hydrogen-bonded to a single base from the other chain, so that the two lie side by side with identical z-co-ordinates. One of the pair must be a purine and the other a pyrimidine for bonding to occur. The hydrogen bonds are made as follows: purine position 1 to pyrimidine position 6; purine position 6 to pyrimidine position 1.

If it is assumed that the bases only occur in the structure in the most plausible tautomeric forms (that is, with the keto rather than the enol configurations) it is found that only specific pairs of bases can bond together. These pairs are: adenine (purine) with thymine (pyrimidine), and guanine (purine) with cytosine (pyrimidine).

In other words, if an adenine forms one member of a pair, on either chain, then on these assumptions the other member must be thymine; similarly for guanine and cytosine. The sequence of bases on a single chain does not appear to be restricted in any way. However, if only specific pairs of bases can be formed, it follows that if the sequence of bases on one chain is given, then the sequence on the other chain is automatically determined.

It has been found experimentally[3,4] that the ratio of the amounts of adenine to thymine, and the ratio of guanine to cytosine, are always very close to unity for deoxyribose nucleic acid.

It is probably impossible to build this structure with a ribose sugar in place of the deoxyribose, as the extra oxygen atom would make too close a van der Waals contact.

The previously published X-ray data[3,4] on deoxyribose nucleic acid are insufficient for a rigorous test of our structure. So far as we can tell, it is roughly compatible with the experimental data, but it must be regarded as unproved until it has been checked against more exact results. Some of these are given in the following communications. We were not aware of the details of the results presented there when we devised our structure, which rests mainly though not entirely on published experimental data and stereochemical arguments.

It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material.

Full details of the structure, including the conditions assumed in building it, together with a set of co-ordinates for the atoms, will be published elsewhere.

We are much indebted to Dr. Jerry Donohue for constant advice and criticism, especially on interatomic distances. We have also been stimulated by a knowledge of the general nature of the unpublished experimental results and ideas of Dr. M. H. F. Wilkins, Dr. R. E. Franklin and their co-workers at

This figure is purely diagrammatic. The two ribbons symbolize the sugar-phosphate backbones, and the horizontal rods the pairs of bases holding the chains together. The vertical line marks the fibre axis

Writing as…

something you **do**

versus

something you **are**

Early career researchers (ECR) need to be able to write fundable proposals

1. Europe needs to stay competitive
2. Promotion of research early on = more likelihood of more grants
3. More likely to stay in research

The more experience a writer has, the more confident they will be

The earlier these skills are learned, the more successful they will be

(Pion, 2001; Bloch, Graversen, & Pedersen, 2014; Gerritsen et al., 2013; Bol, de Vaan, & van de Rijt, 2018)

And yet, postdoctoral fellows often lack training in this important skill

(Lee et al., 2010)

The typical route to funded grants

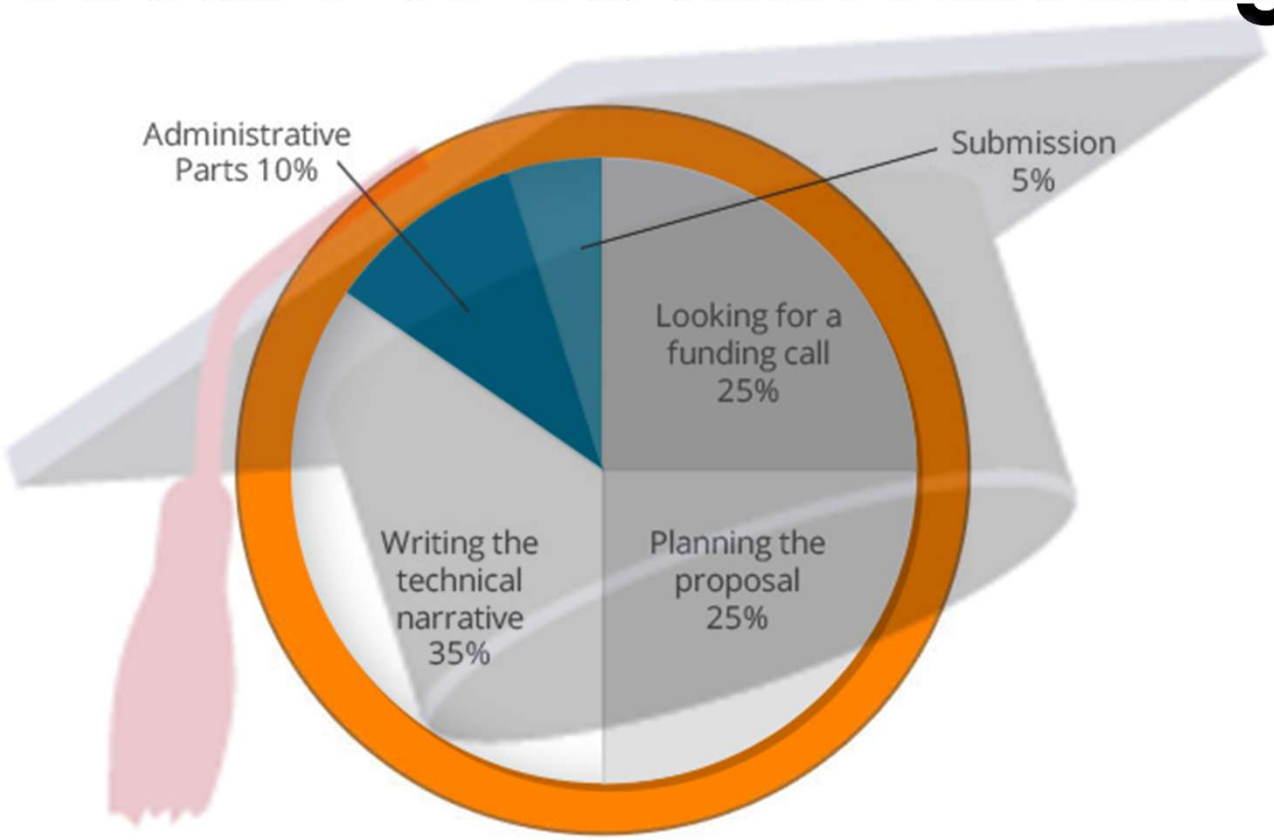
Offer to be on review panel

Writing skill increases with every fundable proposal

Why do we need to write grants?

- **Funding challenges** (Dolgin, 2019, Lee 2016)
  - Budget cuts + competition = researchers must apply for grants
  - Decreasing acceptance rates for grants in general (less than 30% for researchers under 40)

The pressure to obtain funding



https://researcheracademy.elsevier.com/research-preparation/funding

Comparison of Major European Grants

Grant	Main Objective	Proposal Sections	Section with Research Description	Page Limit
ERC (European Research Council)	Supports high-risk, high-gain frontier research	1. B1 (Extended Synopsis, CV, Track Record) 2. B2 (Scientific Proposal) 3. Budget & Resources	B1: Extended Synopsis (concise project summary) B2: Scientific Proposal (detailed research plan)	B1: 5 pages B2: 14-15 pages (varies by call)
MSCA PF (Marie Skłodowska-Curie Postdoctoral Fellowships)	Enhances career development and international mobility of postdocs	1. Excellence (Objectives, Methodology, Impact) 2. Impact (Career, Dissemination) 3. Implementation (Work Plan, Host Institution, Supervision)	Excellence (includes objectives, methodology, research questions, and originality)	10 pages (total proposal including Impact & Implementation)
ANR (Agence Nationale de la Recherche, France)	Funds collaborative and national research projects in France	1. Scientific Context, Objectives, Methodology 2. Impact 3. Budget Justification 4. Consortium & Management	Scientific Document (detailed project description, methodology, state of the art)	20 pages (full proposal)

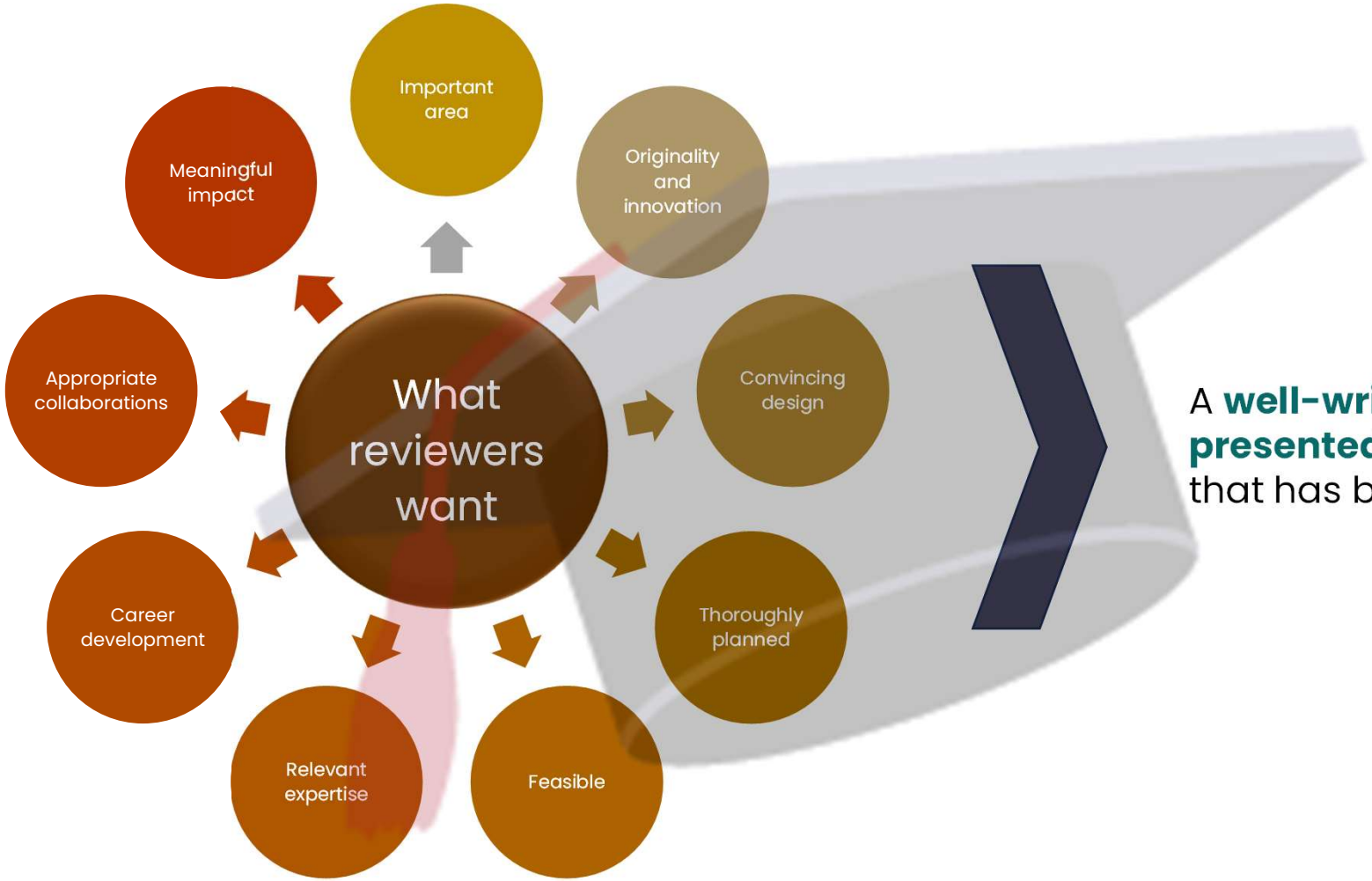
Why do we need to write grants?

- When **quality is ambiguous or difficult to observe**, evaluators may base their judgments on status markers (Manzo & Baldassarri, 2015; Simcoe & Waguespack, 2011, Bol et al., 2018).
- In merit reviews, evaluators rely on applicant seniority status, past citations, and publication record (Waguespack & Sorenson, 2011).
- Science funding based on **research proposals** may *reduce* reliance on prior accomplishments when selecting awardees, and thus dampen Matthew effects in scientific careers (Bol et al., 2018).

So, a well-written grant proposal **matters**!

What does it mean to have a well-written grant proposal?

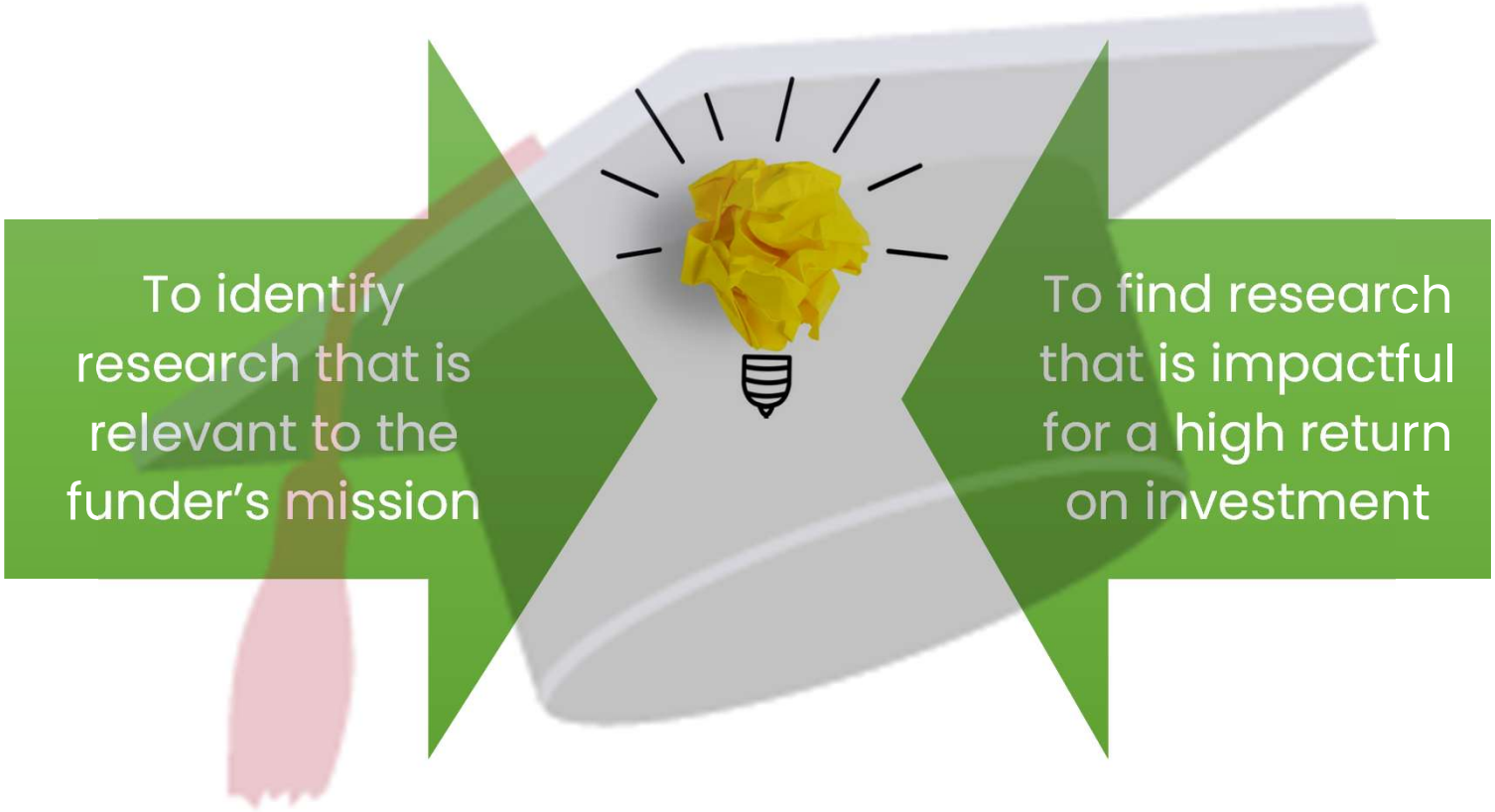
- **Read all guidelines and documents carefully**
- Ask peers, collaborators, and mentors for advice
- Ask questions to the grants officer or funder staff managing the scheme
- Talk to others who have succeeded
- Be well prepared for the interview.
- **Write the application with reviewers in mind**



A **well-written and clearly presented application** that has been proofread

https://researcheracademy.elsevier.com/research-preparation/funding

What funders want



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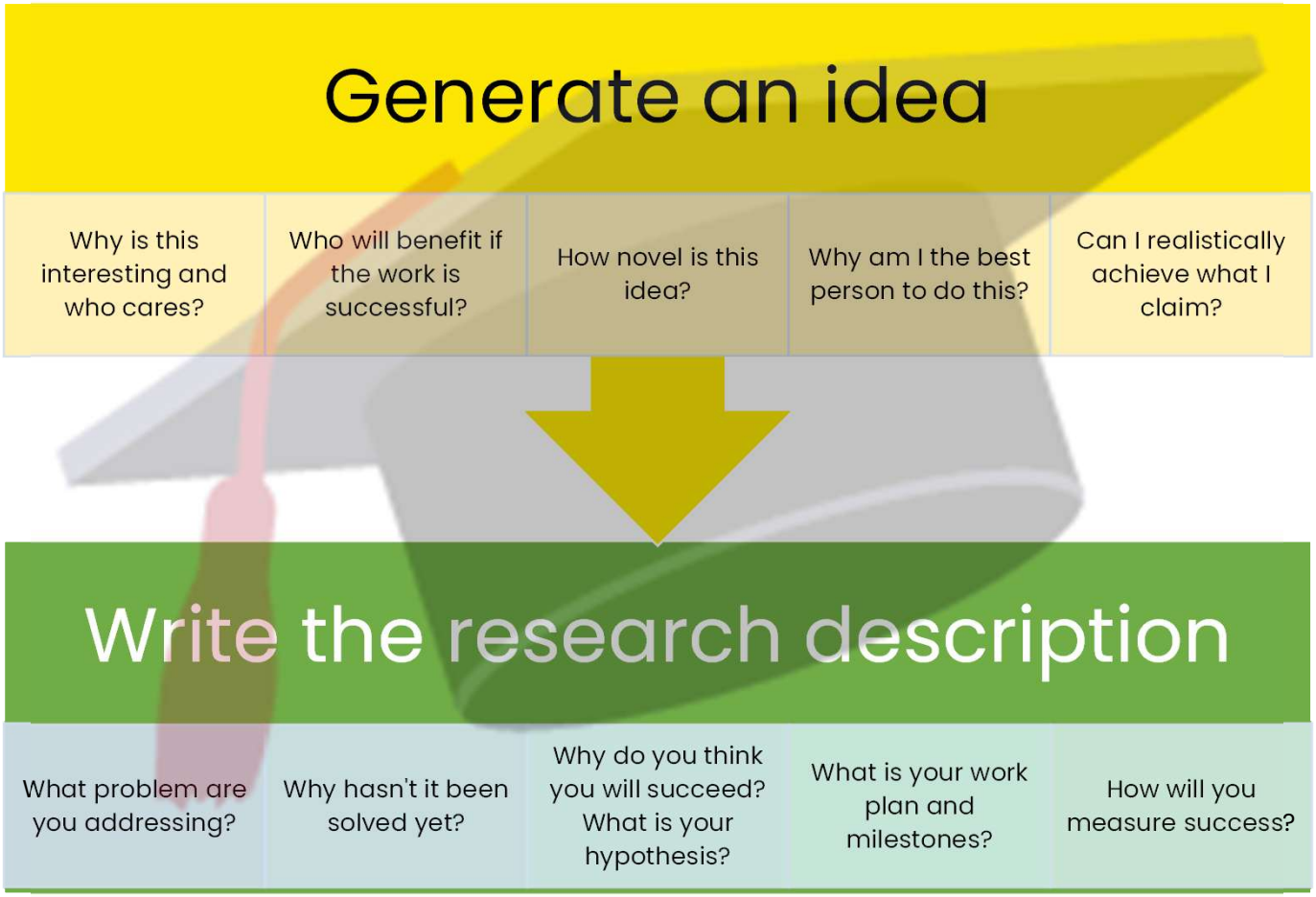
How to approach grant writing



More than just money

- Forces researchers to critically reflect on ideas and develop rigorous research plans
    - May be of value also if no funding is obtained (Barnett et al., 2017)
    - Writing as a vehicle for thought!
- Applicant receives valuable peer feedback that may lead to an improved research design.

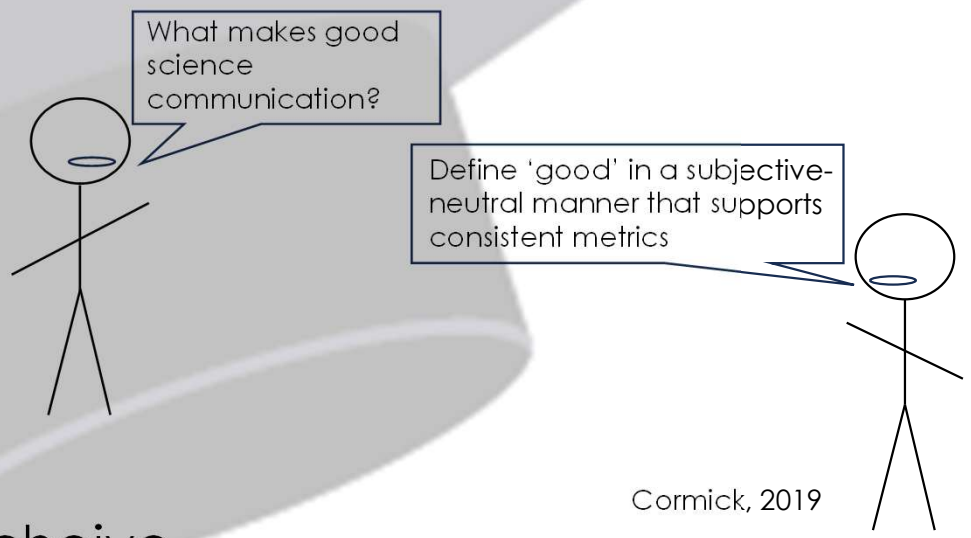
What makes for good scientific communication?

Know your audience

Non-specialist audience

Tell a good story

The focus of this course!



Cormick, 2019

Be clear on what you want to acheive

The reader feels excited about the possibilities of your research!

Public perception (funders) of science and how it influences the stories we tell

1. Story: a simple story is critical.
2. Focus: it must target either the "who knows about this?" elements or the application—what does this mean for them or for society?
3. Structure: the audience is impatient to know why this story will be interesting.
4. Language: keep it simple
5. Scientific method: The public thinks that science proceeds through "Eureka!" breakthroughs made by brilliant men and women and expects stories to present those breakthroughs. The best stories for the public integrate our joy in puzzling out nature with their focus on results and application.

Schimel, 2012

Summarizing your work

Write a short summary describing your research, without using generative AI (this will be important later). Your target audience is scientists who are not specialists in your discipline. You are trying to tell the story of your work and engage and educate your readers, not write a technical paper. The tone can range between somewhat technical and more casual, but it must be something that technical readers would still find interesting.

Max: 200 words (6-8 sentences)

Schimel, 2012

Summarizing your work: Identifying Key Points

To start, try to answer the following questions, using no more than two to three sentences per question. These questions will help you identify the essential elements you should share with the reader.

1. What is your opening? This should identify the larger problem to which you are contributing, give readers a sense of the direction your proposal is going, and make it clear why it is important. It should engage the widest audience practical.
2. What is your specific question or hypothesis?
3. What will be the key results of your work? Identify these in a short list. There should be no more than two to three points.
4. What do you hope to learn about the nature of the problem? This should use the results from question 3 to answer question 2, and should address the larger problem identified in question 1.

Schimel, 2012

Effective storytelling in the sciences

Storytelling in the Sciences

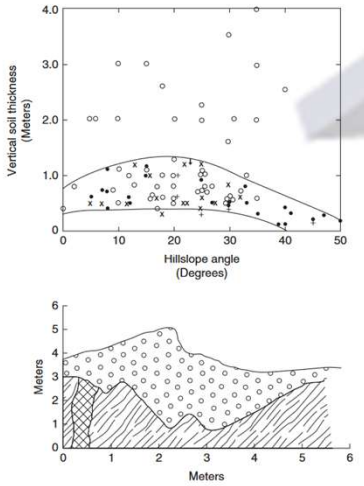


Figure 2.3. The top figure illustrates the relationship between hill steepness and soil depth in the U.S. Pacific Northwest; the bottom figure illustrates a cross-section through a wedge. Redrawn from Dietrich and Dunne (1978).

Scientists are storytellers

- If we weren't, only methods and results would be needed
- Think about data with no interpretation or no story as like going to a foreign country where you don't know the language and you decide to just speak loudly.

What does scientific storytelling look like?

- Main character(s): **the question(s)/larger issue(s) being addressed**
- Supporting actors: **the data** ← Important! The data are not the story, but the story grows from the data

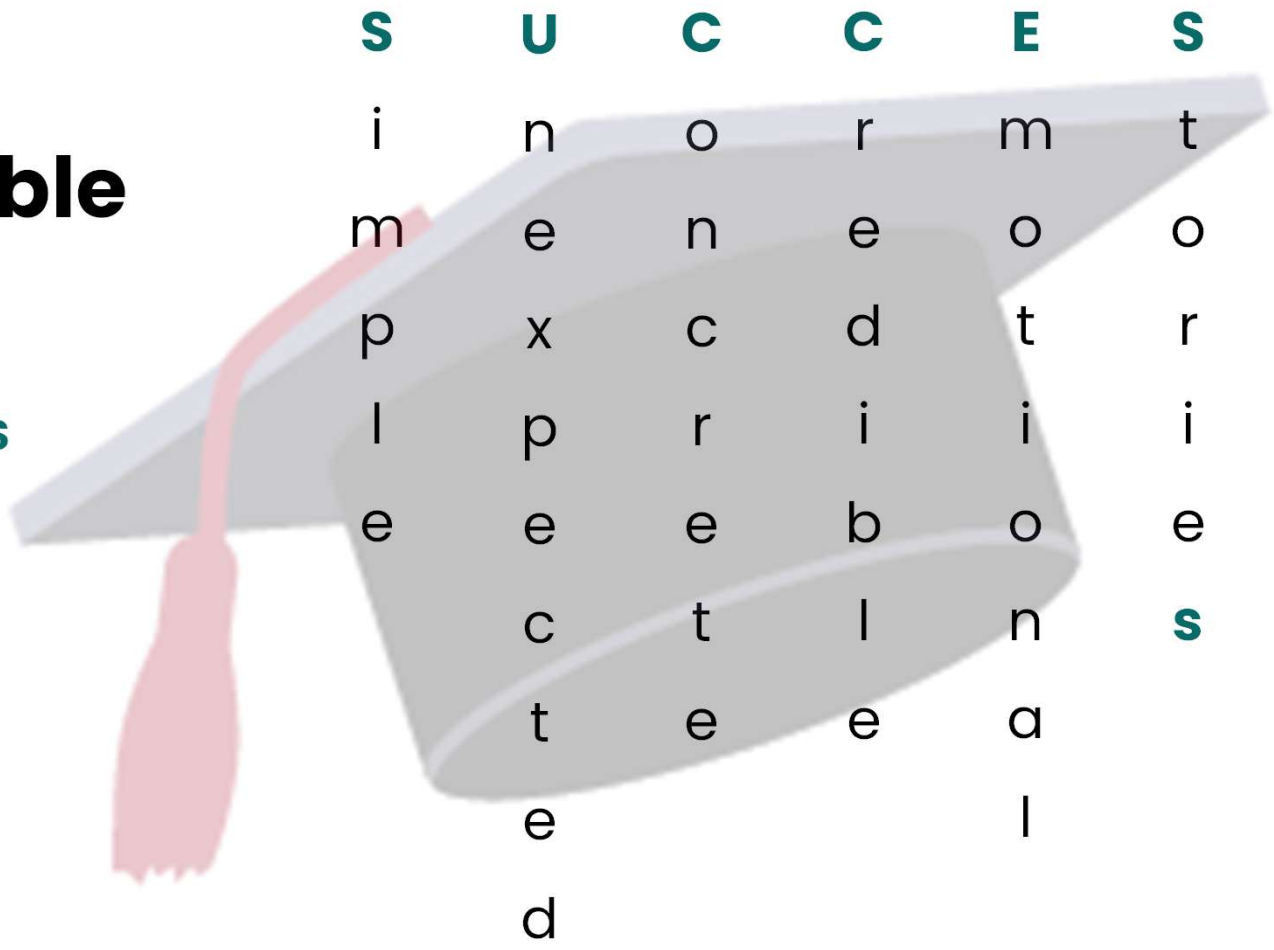
Data → Information → Knowledge → Understanding

- Your goal: **help the audience toward understanding**

Schimel, 2012

Writing memorable Science

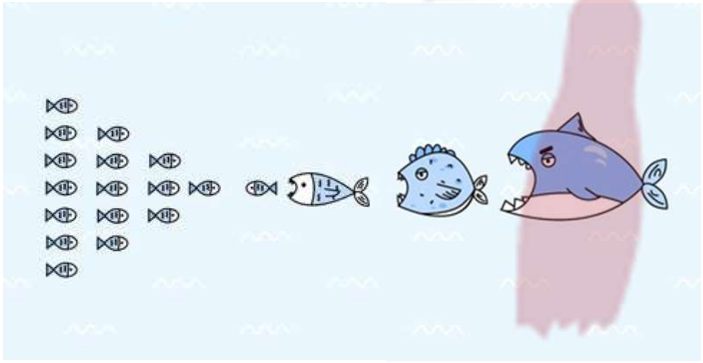
Make it a **SUCCESS**



Heath & Heath, 2007

Writing memorable Science

Make it **simple**



1. **Example of Darwin**
   - Theory of evolution, the "survival of the fittest" gets to the core of the idea
   - Different from simplistic explanations, which dodge the main issue, as in political slogans
   - "It takes no talent to see the complex in the complex"
2. **Words aren't coming? Try drawing!**
   - The most cited papers include at least six figures and two tables
   - Tease out the idea through diagrams, plots, charts, then get writing!
3. **Simple ideas give the audience an idea to build off of, or "schema"**
   - New ideas need to fit into existing structures
     OR
   - A new structure must be built
   - If you don't provide either to your reading audience, they won't get far into your paper – writing above their knowledge level
   - Like throwing someone into the deep end of a lake and describing to them how to do the butterfly

Schimel, 2012

Writing memorable Science

Make it **unexpected**

Incremental science is important, but impactful science is novel

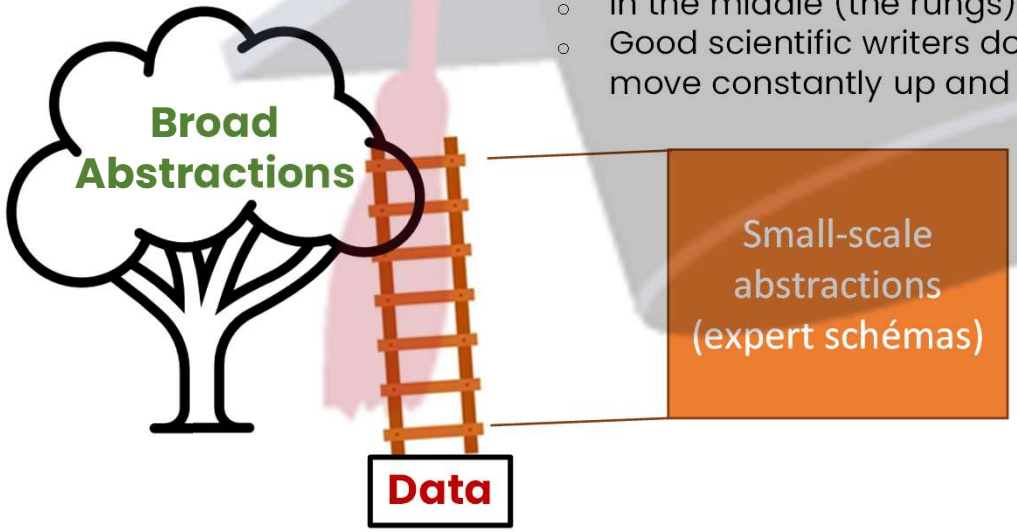
- Achieving novelty depends on the question and interpretation of the data
- Highlight what is unknown (why the reader needs to know), not what is already known (showing off what you know)

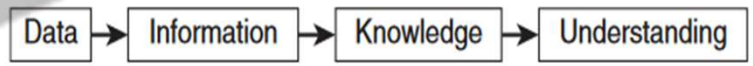
Schimel, 2012

Writing memorable Science

Make it **concrete**

1. **Science is about two things: data and interpretation**
   - Data = concrete (complex details)
   - Interpretation = abstract (models and theories)
   - Put another way: complexity → simple structures for understanding
2. **The difference between expert and novice researchers**
   - Novices interpret a complex detail as its own concrete thing
   - Experts see a complex detail as belonging to a larger idea
     - Concrete → Abstract
3. **The ladder of abstraction (Clark, 2006)**
   - Ladder is placed on the ground, the "concrete"
   - At the top, are the abstractions we strive toward
   - In the middle (the rungs) are the jargon words used only by experts
   - Good scientific writers don't stay on the rungs (limited audience) but move constantly up and down the ladder (wider audience)



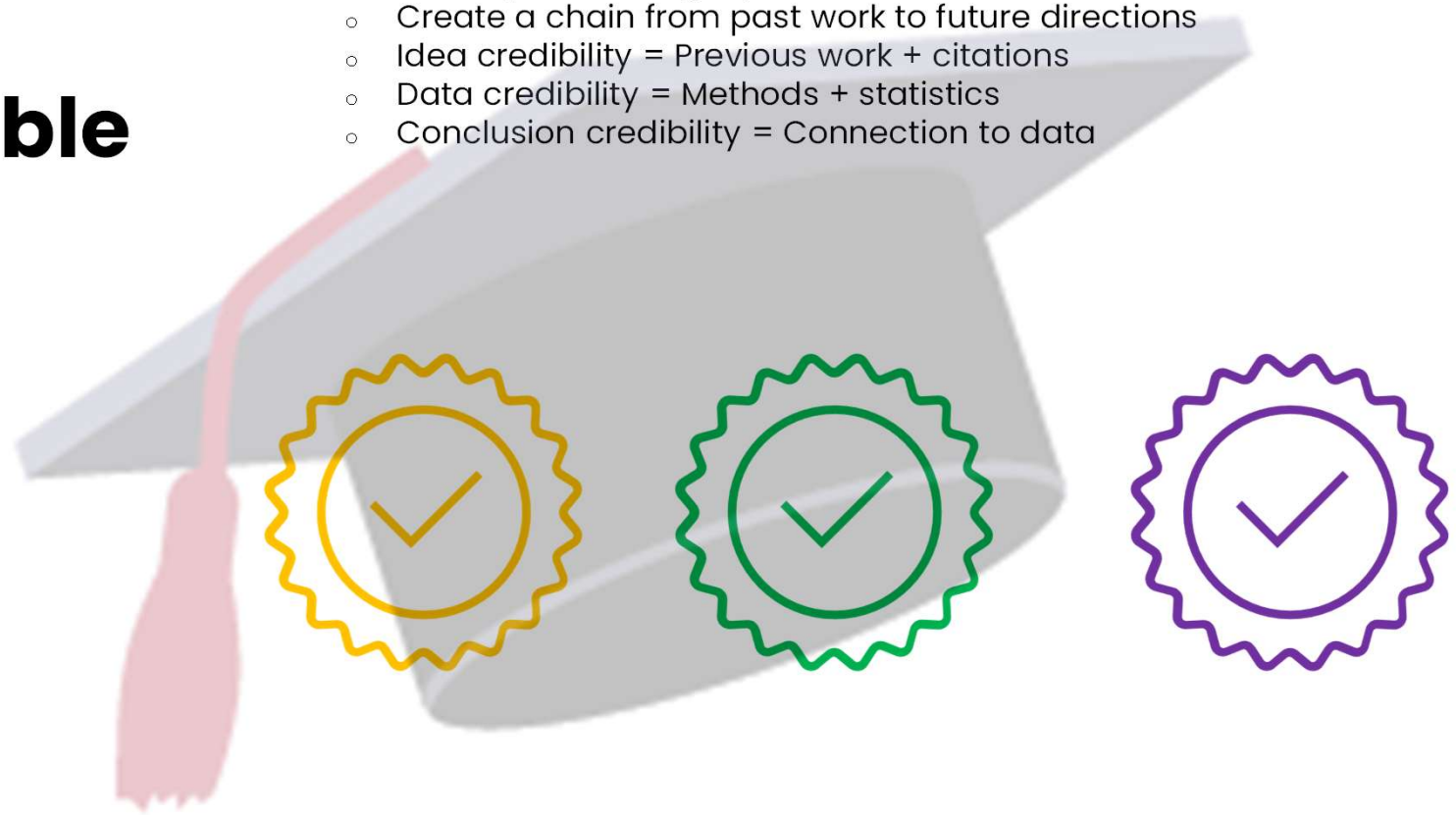


Schimel, 2012

Writing memorable Science

Make it **credible**

1. **Make sure your writing style doesn't undermine the value of the content**
   - Create a chain from past work to future directions
   - Idea credibility = Previous work + citations
   - Data credibility = Methods + statistics
   - Conclusion credibility = Connection to data

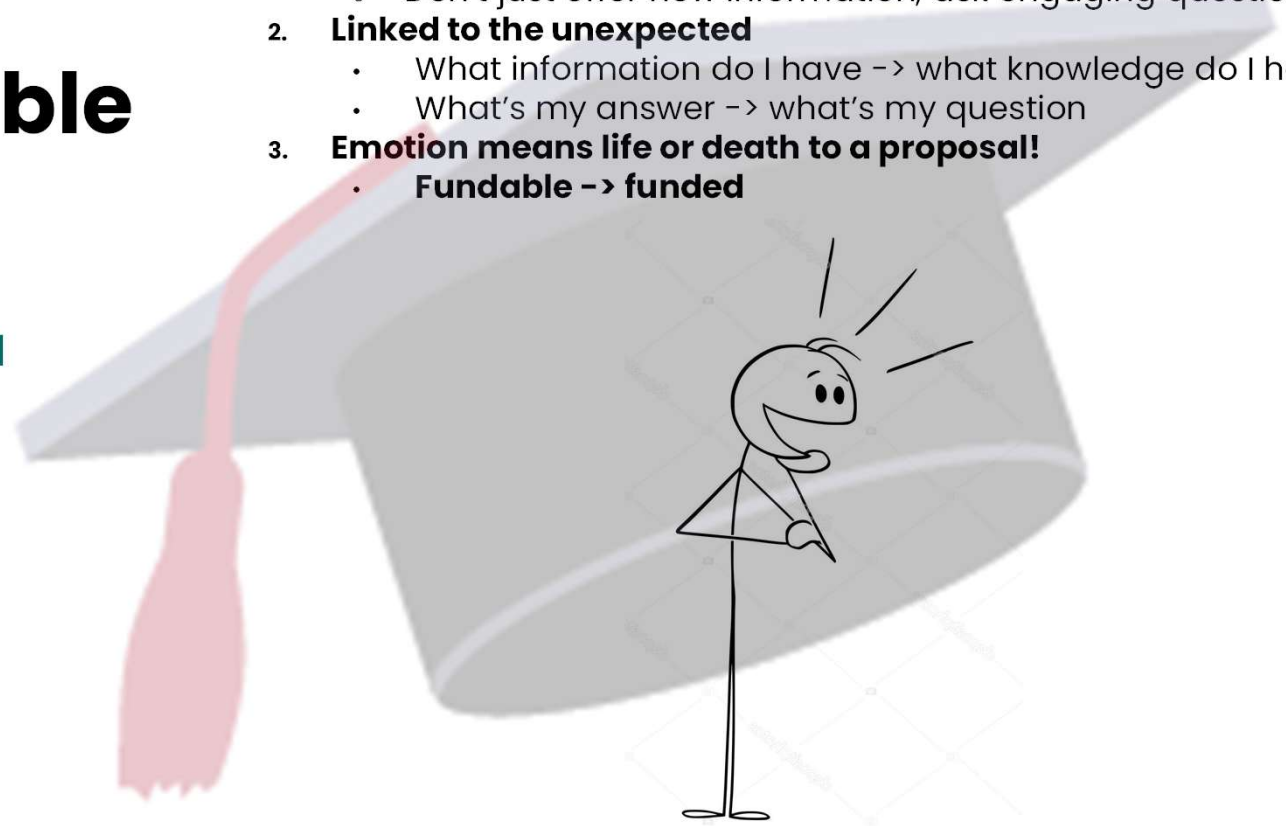


Schimel, 2012

Writing memorable Science

Make it **emotional**

1. **Make sure your writing inspires curiosity and excitement**
   - Don't just offer new information, ask engaging questions
2. **Linked to the unexpected**
   - What information do I have -> what knowledge do I have to offer?
   - What's my answer -> what's my question
3. **Emotion means life or death to a proposal!**
   - **Fundable -> funded**



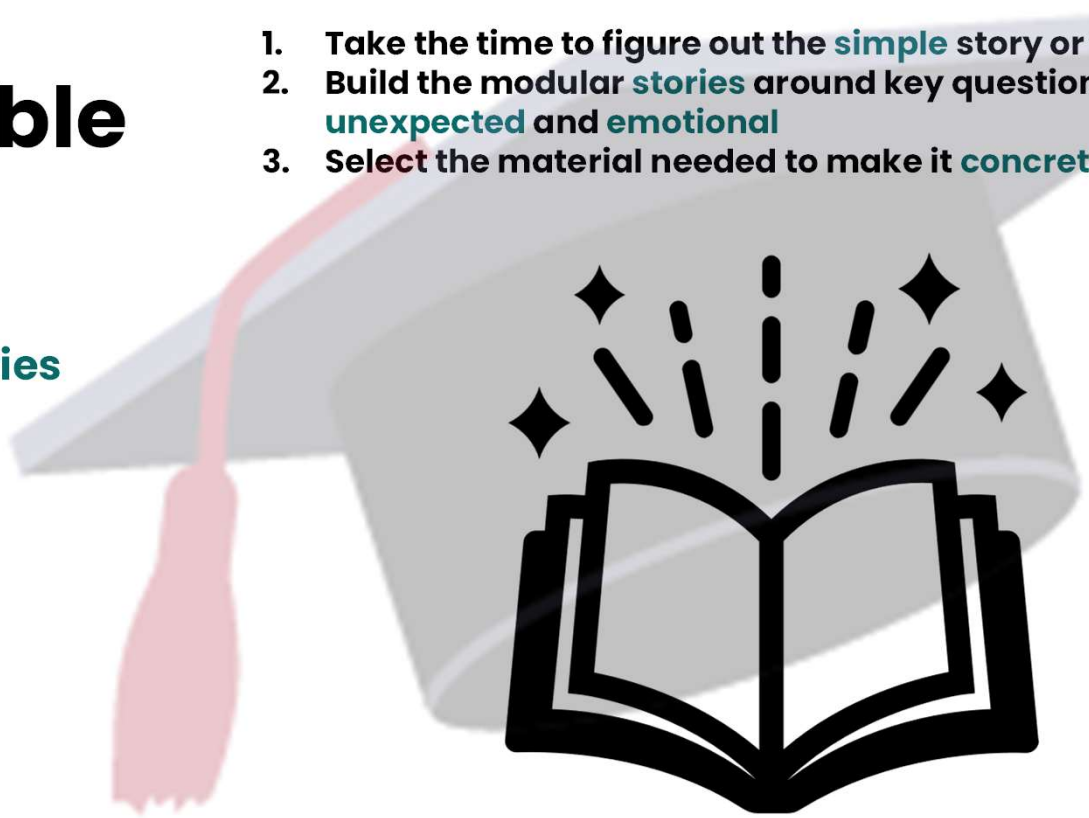
Schimel, 2012

Writing memorable Science

Make it **about stories**

Have an overarching thread with modular stories attached

1. **Take the time to figure out the simple story or "thread"**
2. **Build the modular stories around key questions that engage the unexpected and emotional**
3. **Select the material needed to make it concrete and credible**



Schimel, 2012

Is your summary a SUCCESS?

References

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The Art of Talking Science

Presentation skills and their importance in scientific communication

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CentraleSupélec Université Paris-Saclay

Melissa Ann Thomas
Research and scientific communication instructor
CentraleSupélec

COLOURS School 2025
11.30
Institut Pascal
Orsay, France

Nothing in science has any value if it is not communicated, and scientists are beginning to learn their social obligation.

- *Anne Roe,* The Making of a Scientist (1953)

The GOAL

Each one of you will produce a 2-minute video abstract of your research!

<u>The key things you need to consider:</u>

- Who is your target audience?
- What is the purpose of your presentation?
- What is at the core of your message?
- Who are YOU as a presenter?

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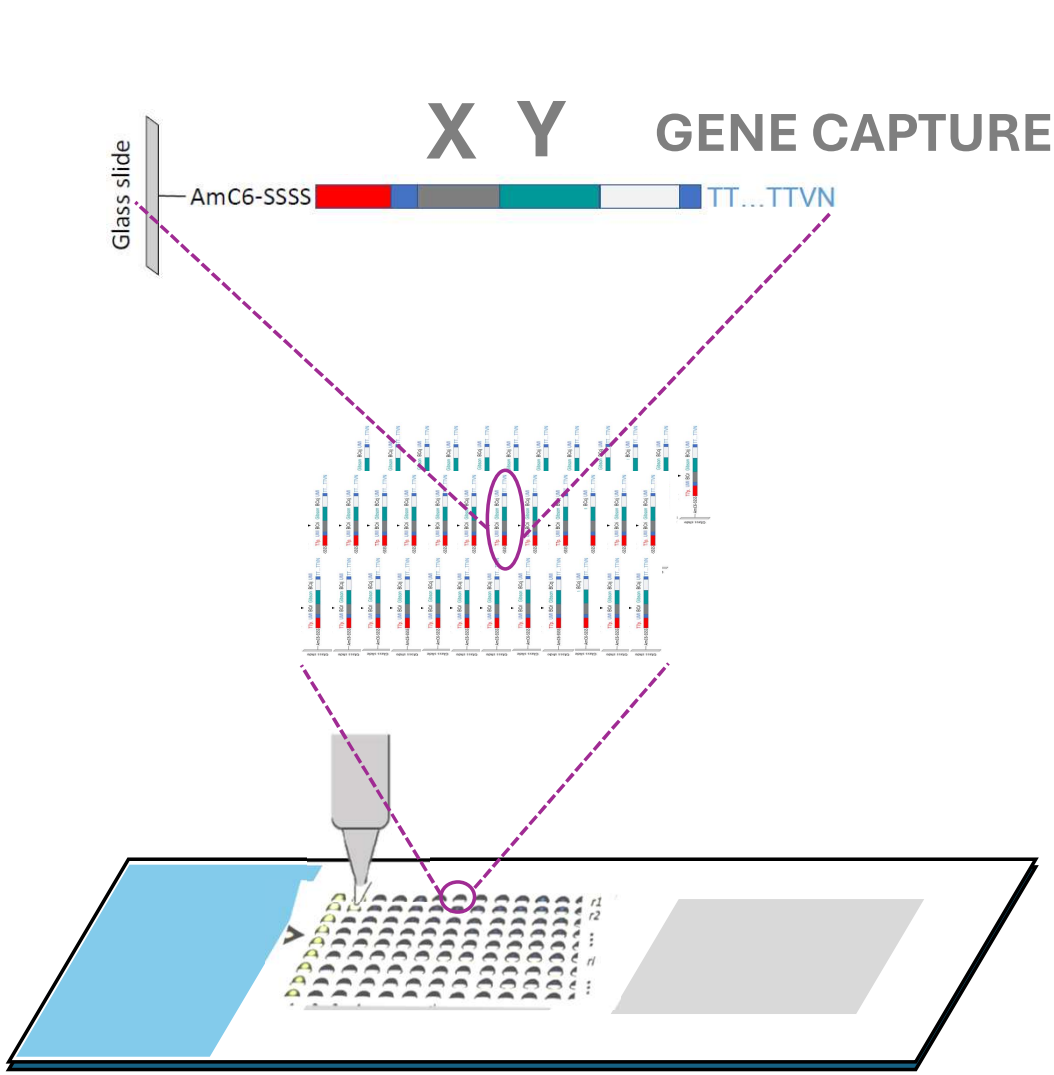
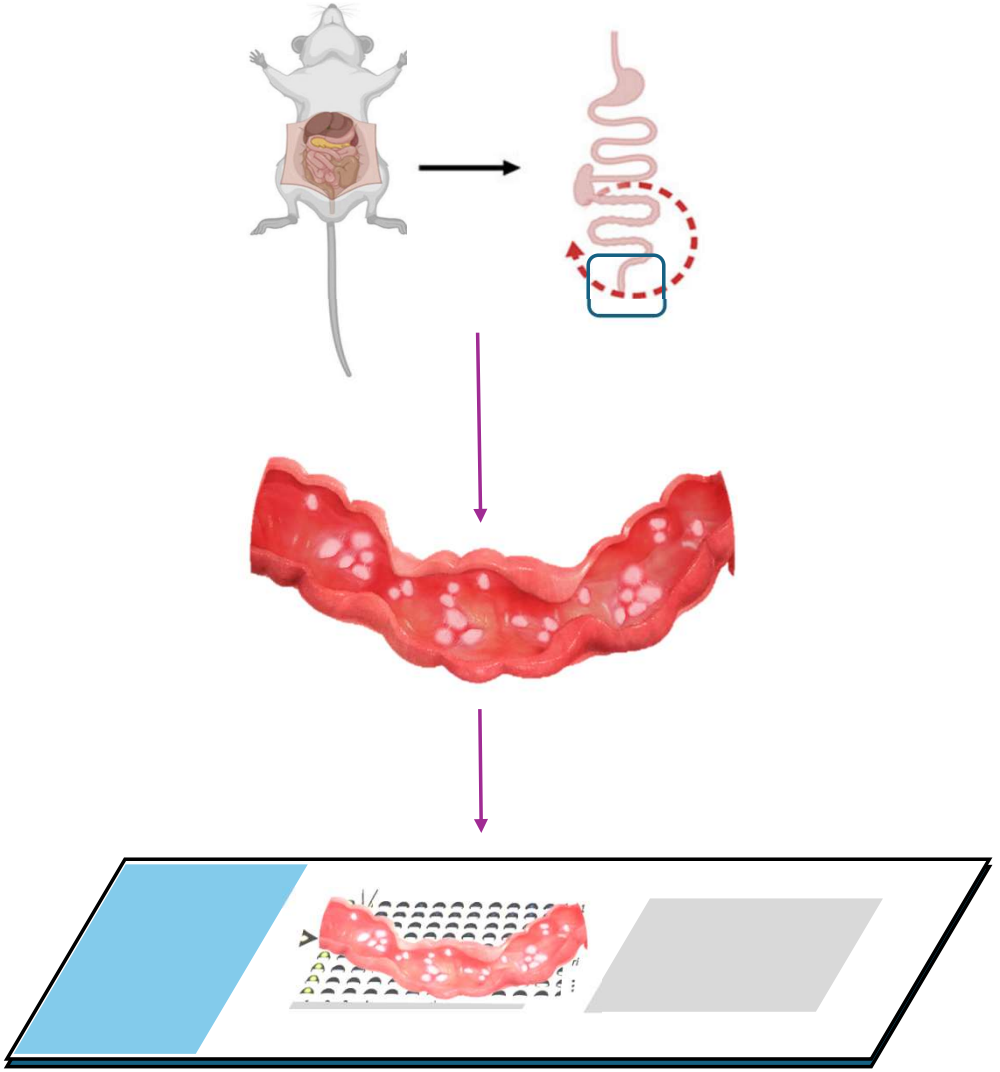
Gwendoline Lozachmeur

Graduate School of Life Sciences and Health
CEA Genoscope – SysFate Laboratory
Knowledge is power

HOW TO BETTER UNDERSTAND A DISEASE ?



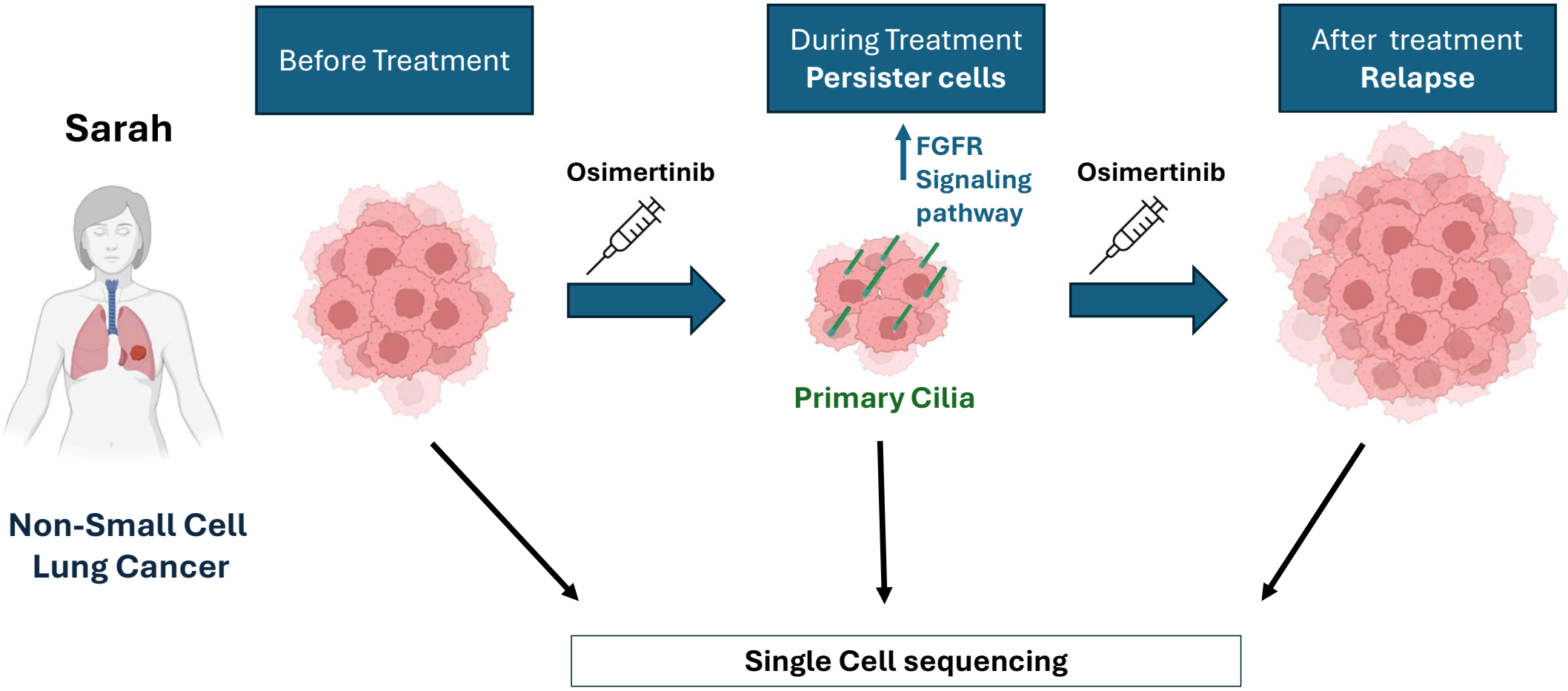


Naomi KASTE MFONFU

Graduate School of Life Sciences and Health

Gustave Roussy UMR 981

Lung cancer resistance


Sarah
Non-Small Cell Lung Cancer
Before Treatment
Osimertinib
During Treatment
Persister cells
FGFR Signaling pathway
Primary Cilia
Osimertinib
After treatment
Relapse
Single Cell sequencing

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Interuniversity Final 2025

IP Paris is delighted to host an interuniversity Three-Minute Thesis (3MT®) competition.
PhD students will explain their research in three minutes, in a language appropriate to a non-specialist audience in English.

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Join us!

Registration is required,
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Course Topics

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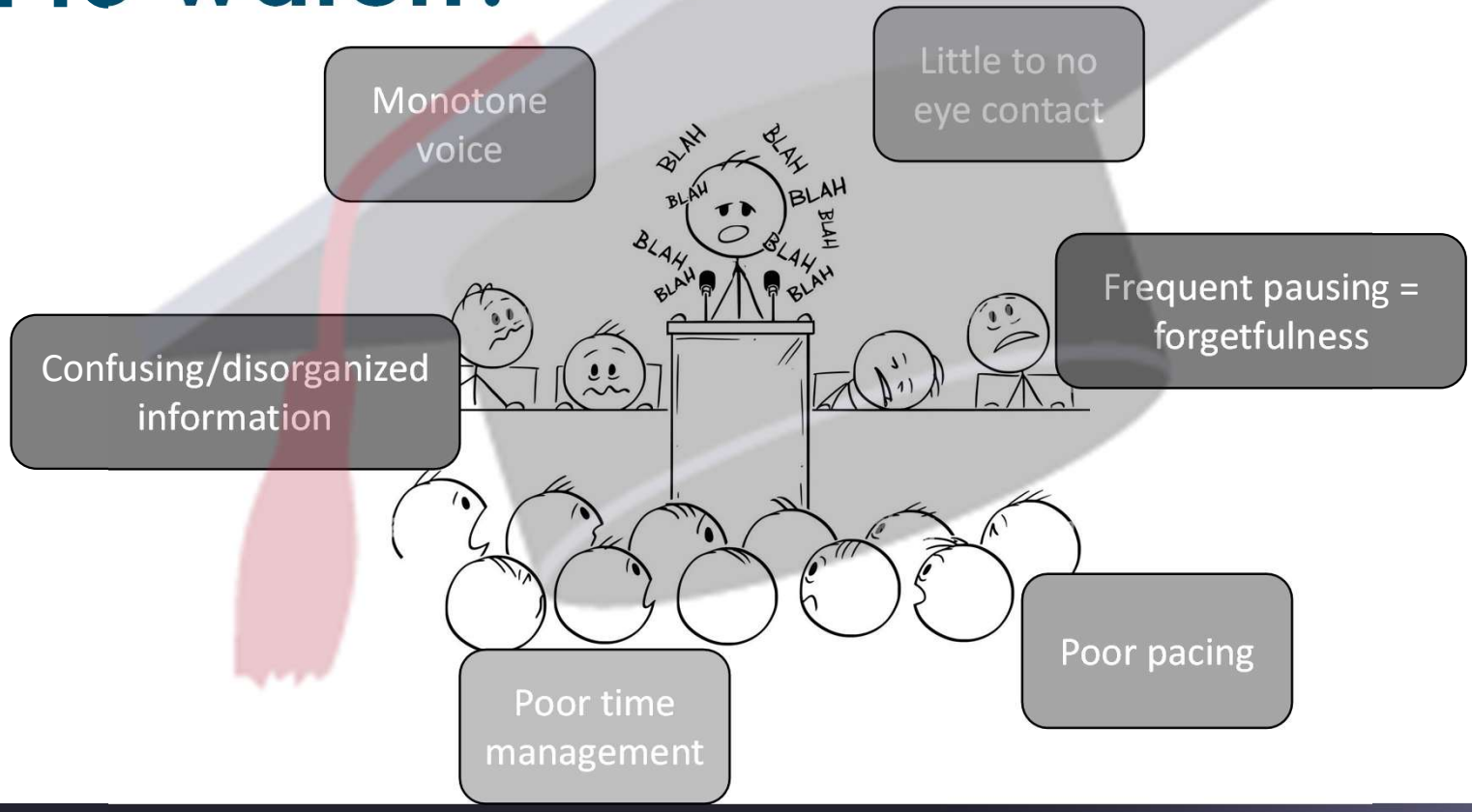
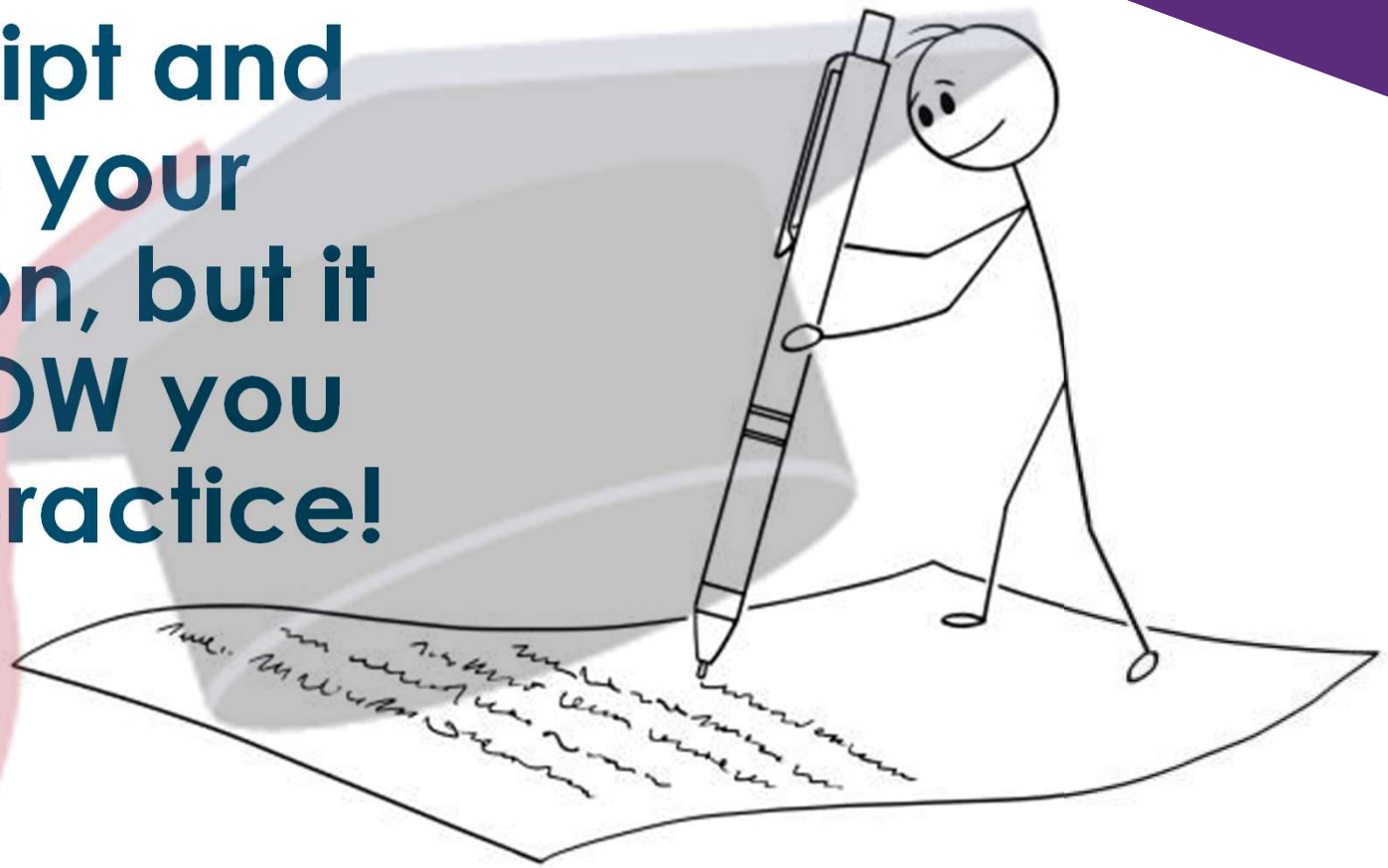
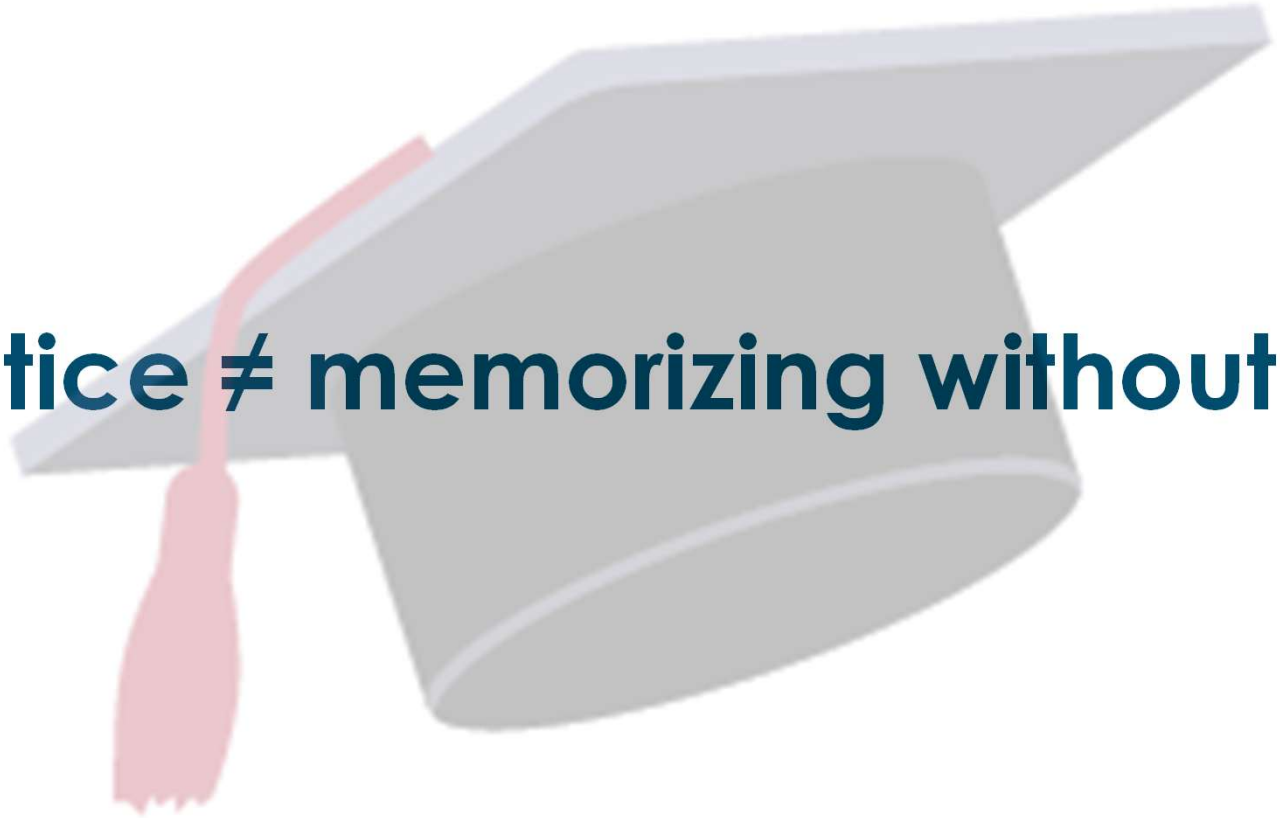
Effective practicing

What makes a presentation hard to watch?



Write a script and practice your presentation, but it matters HOW you write and practice!





Practice ≠ memorizing without error

Practice ≠ memorizing without error

Practice = a talk that is organized, comprehensive, and easy to follow

But, I don't need a script, I'll just "wing" it…

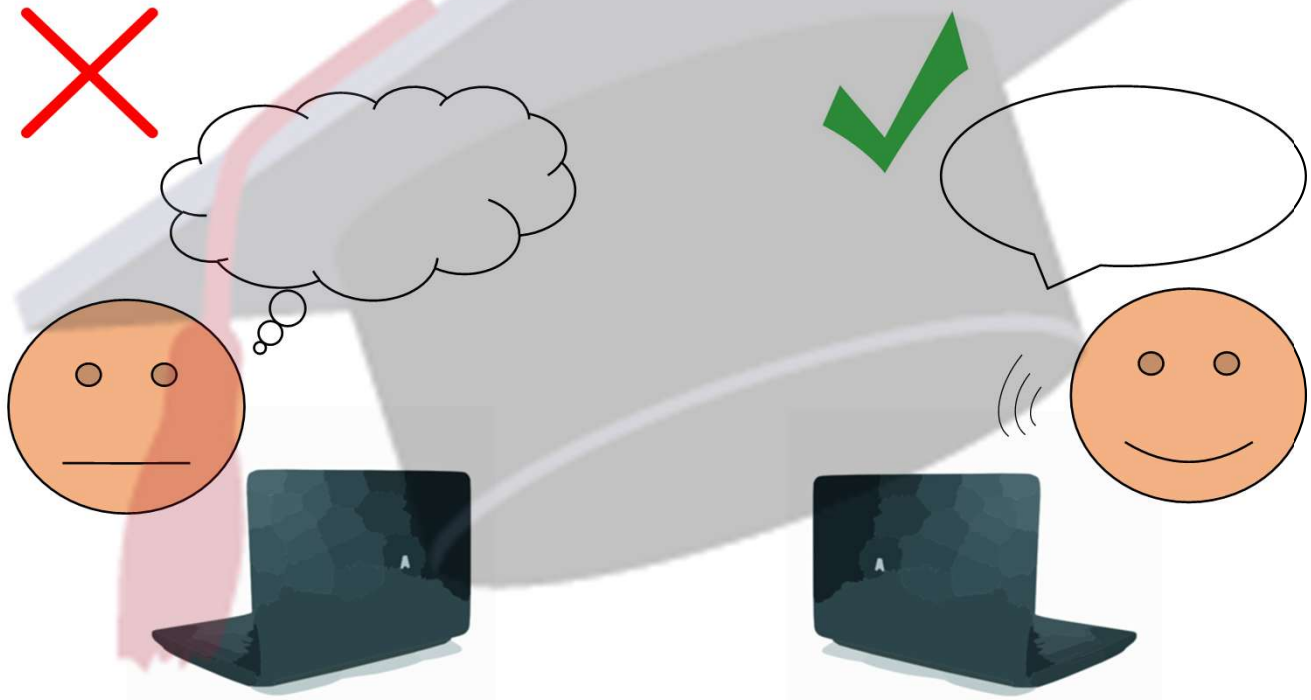
When you “wing” it, you could…

Forget transitions
Mix the order of topics
Go on unhelpful tangents
Leave out information
Neglect the audience’s need for repetition

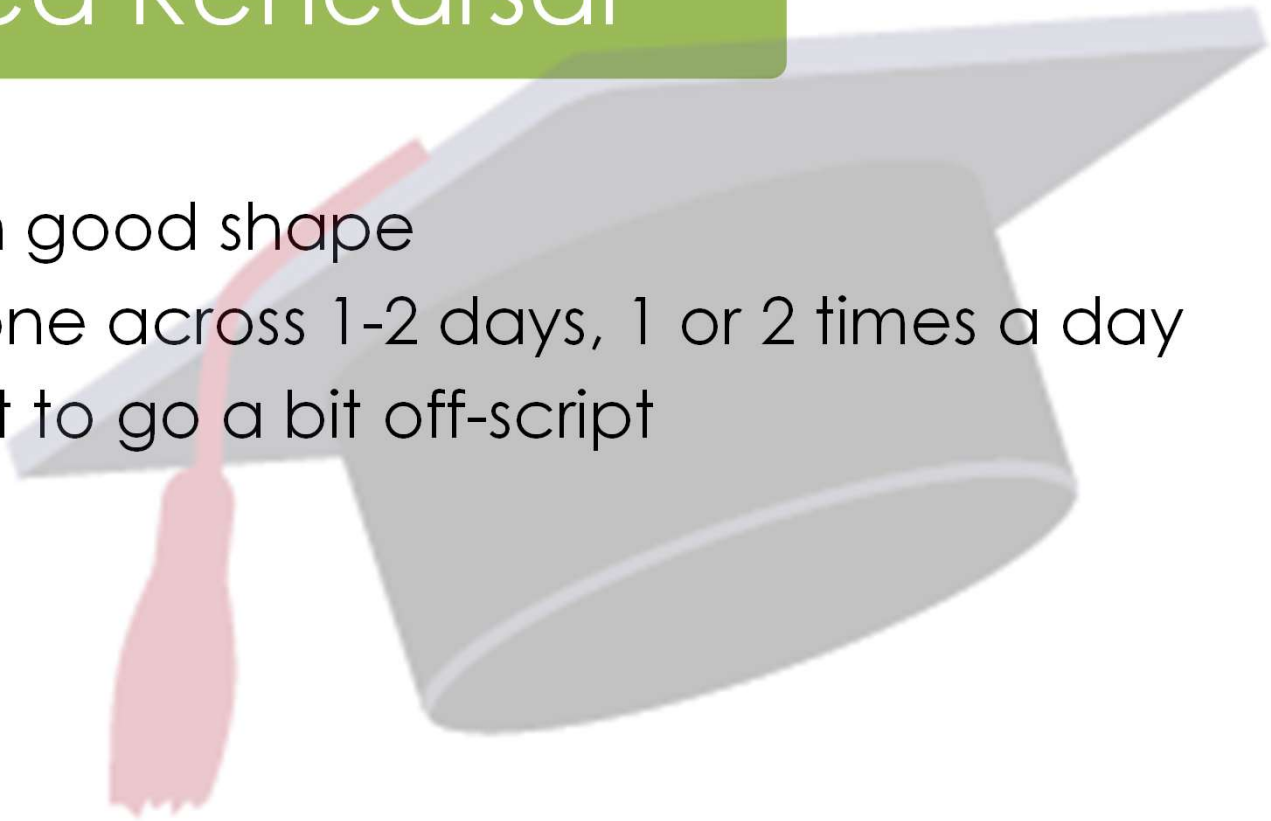
These problems disappear when you write a script and practice your presentation!

Practicing a presentation

Practice out loud



Timed Rehearsal



- Draft is in good shape
- To be done across 1-2 days, 1 or 2 times a day
- Can start to go a bit off-script

Timed Rehearsal

Equipment needed: a stopwatch and something with which to take notes.

1. Start your timer.
2. Practice your script.
   - ➢Any changes? PAUSE THE TIMER and write your notes.
   - ➢RESTART THE TIMER and continue your practice.
   - ➢Do this every time you note a change
3. Note how long it took.
   - ➢Make any other notes to help you revise
4. Repeat.

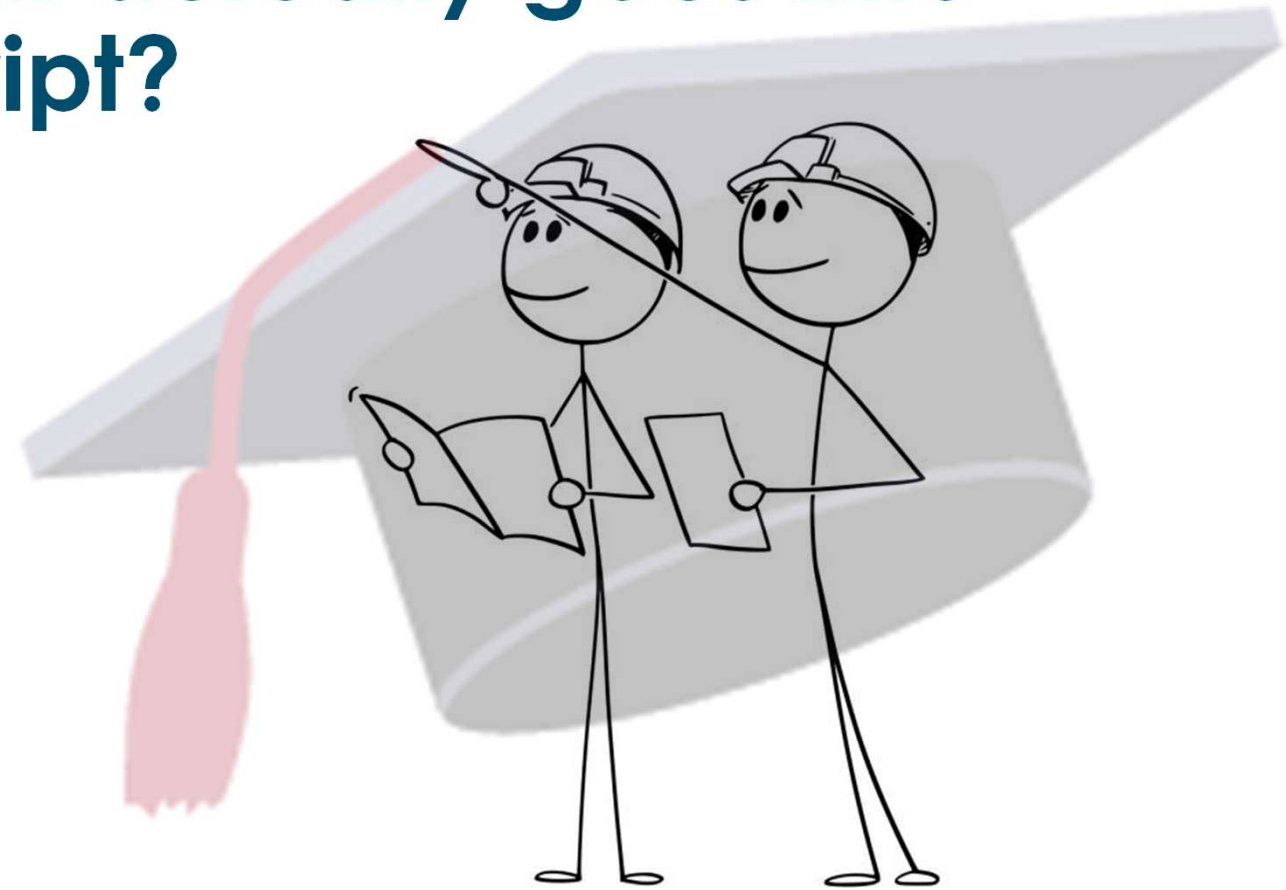
Dress Rehearsal

- What most people think of when we say practice.
- To be done without notes.
  - Try to change things here and there, add a sentence, leave out a few words, pauses, gestures, etc.
  - Practiced improv
- Make your environment as close to the real thing as possible

Take home message:

Comfortable Confidence!

So what actually goes into the script?



Structuring your talk

1. Capture attention
2. Tell the story of your research
3. End your talk strongly

Capturing attention

Story or experience

Motivational quote or line from a poem or book

Joke

Audience participation

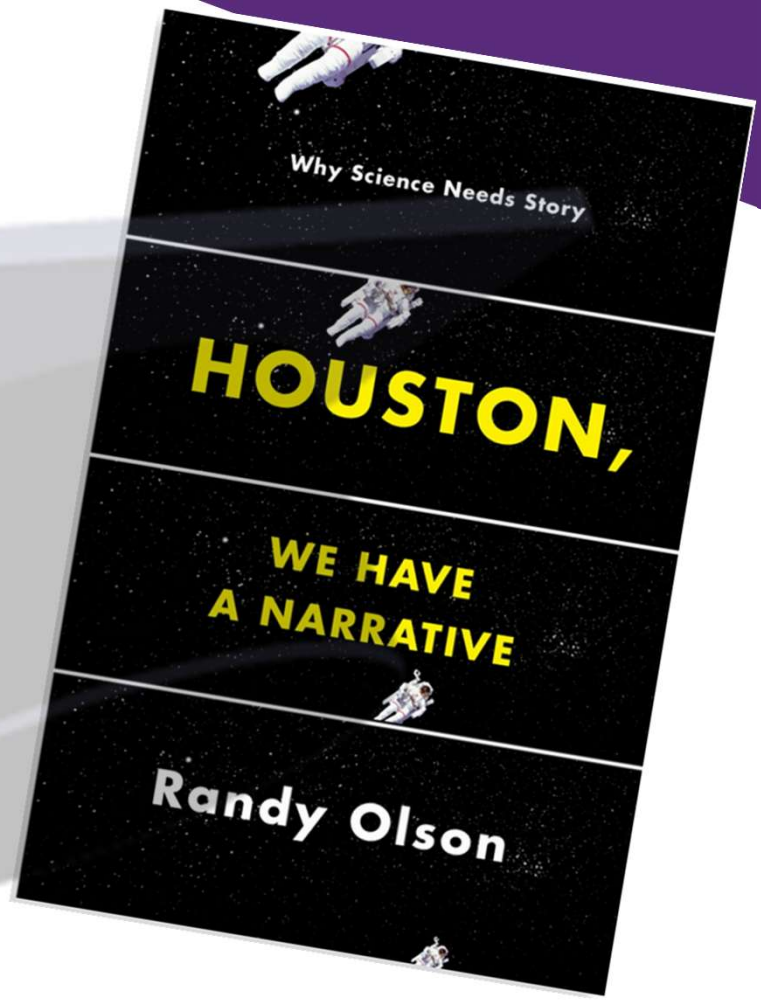
Shocking, bold statement

Rhetorical question

The ways to tell a story

When scientists tell us about their work, they pile one moment and one detail atop another moment and another detail—a stultifying procession of "and, and, and." What we need instead is an understanding of the basic elements of story, the narrative structures that our brains are all but hardwired to look for—which Olson boils down, brilliantly, to "And, But, Therefore," or ABT.

https://www.emotivebrand.com/business-writing/



Olson, R. (2015). Houston, We Have a Narrative– Why Science Needs Story. The University of Chicago press.

ABT in scientific communication

ABT STRUCTURE

AND - known facts in scientific literature. THEORY

BUT - knowledge gap (a problem) that must be solved. METHODS

THEREFORE - results. Solution to the knowledge gap or problem. CONCLUSION

Greyson-Gaito, Ch. (2021). Storytelling in Scientific Writing.

Structuring your talk: Basic requirements

- Background and significance to research question
- Research strategy/ design
- Results/findings of the research
- Conclusions, outcomes and impact of the research.

This is your story!!!

Questions to ask yourself:

- What made you decide to do this study or project?
- Why is this study important to your field or to the lay reader?
- Why should someone want to know about your research?
- What is your research trying to better understand or what problem is it trying to solve?

Questions to ask yourself: Script specifics

First part: Background + motivation

- Incorporates the answers to the previous list of questions

Second part: Methodology

- How you solved or made progress on this problem
- How you conducted your research.

Questions to ask yourself: Script specifics

Fourth part: Conclusion

- This is an answer to the motivation posed in the first part
- Can include the implications
- Be sure to connect this statement closely to your results and not the area of study in general.
- Answer one of these questions:
  - What are the exact effects of these results on my field? On the wider world?
  - What other kind of study would yield further solutions to problems?
  - What other information is needed to expand knowledge in this area?

Questions to ask yourself: Script specifics

Third part: Results

- Answer questions like these:
  - What did your study yield in concrete terms (e.g., trends, figures, correlation between phenomena)?
  - How did your results compare to your hypothesis? Was the study successful?
  - Were there any highly unexpected outcomes or were they all largely predicted?

Putting it all together…

Ending strongly

The end of a presentation should recapture the audience's attention, recall key points, and form a connection between the audience, you, and your topic.

"A person is likely to remember only 25% of a 10-minute presentation after 24 hours."
- Florence I. Wolff and Nadine C. Marsnick, from *Perceptive Listening*

1. **Call-to-Action:** Something you'd like your audience to do or think after your presentation
2. **End in 3s:** Humans process information through pattern recognition and three is the smallest number that allows us to recognize a pattern in a set. Used in jokes, screenplays, and fairy tales Examples in language include repeating words or phrases 3 times.
3. **End With a Memorable Quote/Statistic:** Always match the quote or statistic to your topic
4. **Close With a Story**

A story at the beginning = lead-in to message
A story at the end = creative summary

5. **Drive Your Main Points Home**
6. **Thank and Acknowledge**

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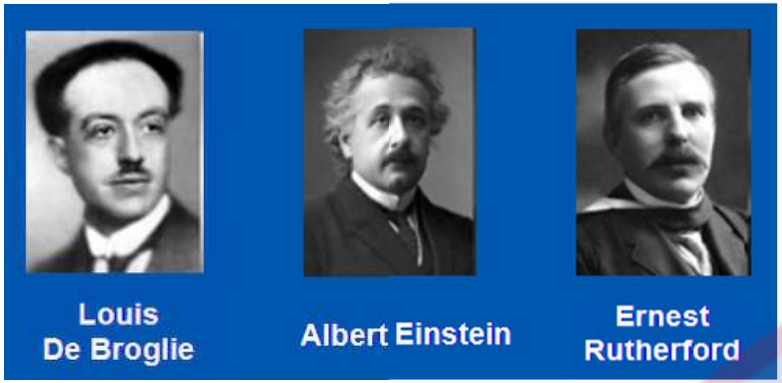
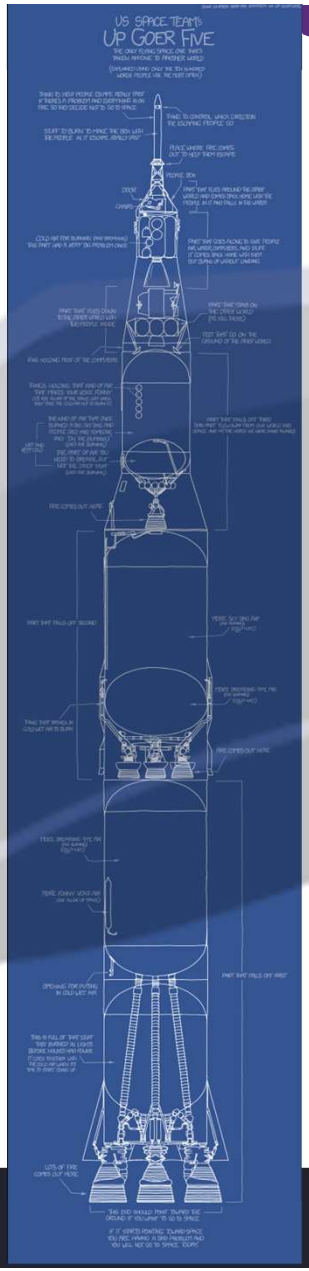
Language for structuring your talk



"To de Broglie, Einstein revealed an instinctive reason for his inability to accept the purely statistical interpretation of wave mechanics. It was a reason which linked him with Rutherford, who used to state that "it should be possible to explain the laws of physics to a barmaid." Einstein, having a final discussion with de Broglie on the platform of the Gare du Nord in Paris, whence they had traveled from Brussels to attend the Fresnel centenary celebrations, said "that all physical theories, their mathematical expressions apart ought to lend themselves to so simple a description 'that even a child could understand them.' "

From *Einstein: His Life and Times* (1972) by Ronald W. Clark, page 418



The Up-Goer 5 Challenge

Describe something complicated using only the ten hundred (1000) most common English words

Inspired by Randall Monroe's comic describing the Saturn V rocket as the "Up-Goer Five" https://xkcd.com/1133/. He states in an interview:

"It's tempting to think of technical audiences and general audiences as completely different, but I think that no matter who you're talking to, the principles of explaining things clearly are the same. The only real difference is which things you can assume they already know, and in that sense, the difference between physicists and the general public isn't necessarily more significant than the difference between physicists and biologists, or biologists and geologists."

xkcd

Language and complex ideas

"…an academic presentation aiming for international audience does not require massive uses of infrequent words or complicated clausal structures; rather, an academic presentation made by an experienced ELF speaker is built up with 85% of basic and 15% of academic and professional level words, with clear indication of how information is structured at [all] levels."

Kao & Wang, 2014

Language techniques: Fronting

- Place the most important information at the beginning of a sentence
- Takes the burden off the listener to predict a message

Sentence without fronting:

It is important to enhance the lecture ***audience's understanding***.

Sentence with fronting:

Understanding - it is important to enhance the lecture audience's understanding.

or

Understanding among the lecture audience is an important aspect to consider

Language techniques: Conciseness

- Change phrases from passive to active
- Avoid overuse of pronouns
- Each sentence should only have one idea
- How to do this? Use the Paramedic Method (Lanham, 1992)

Language techniques: Conciseness

Paramedic Method

- Circle the prepositions

(of, in, about, for, onto, into, etc)

- Draw a box around the "is" verbs

(is, was, has been, will be, are, become)

- Ask, "Where's the action?"
- Change the "action" into a simple verb
- Move the doer into the subject
- Eliminate any unnecessary slow wind-ups

Example

~~In order~~ to understand the new methodology, the conference was attended by the entire lab.

To understand the new methodology, the entire lab attended the conference.

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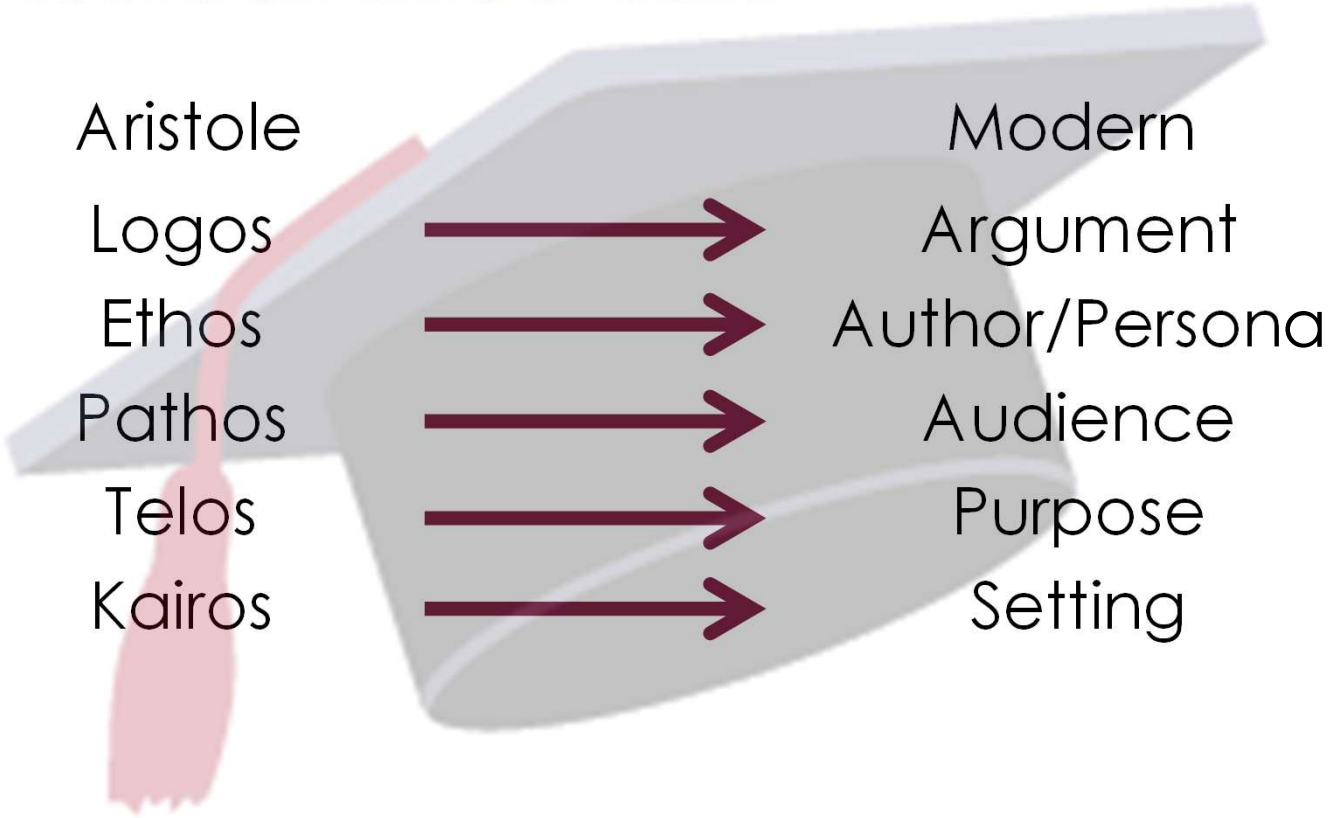
Rhetoric
(who you are as a speaker)

Definition of rhetoric

"an ability, in each particular case, to see the available means of persuasion"

the set of methods people use to identify with each other—to encourage each other to understand things from one another's perspectives

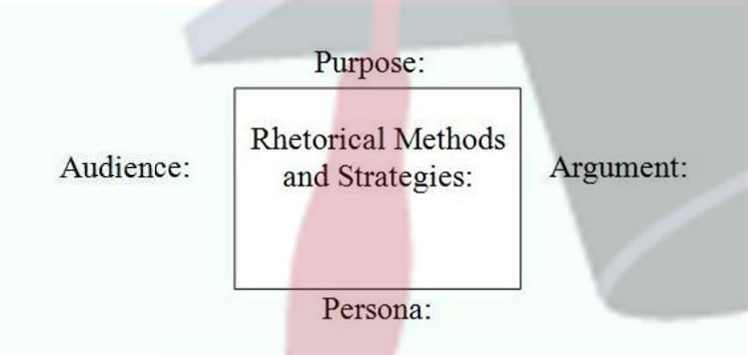
The rhetorical situation



The rhetorical situation

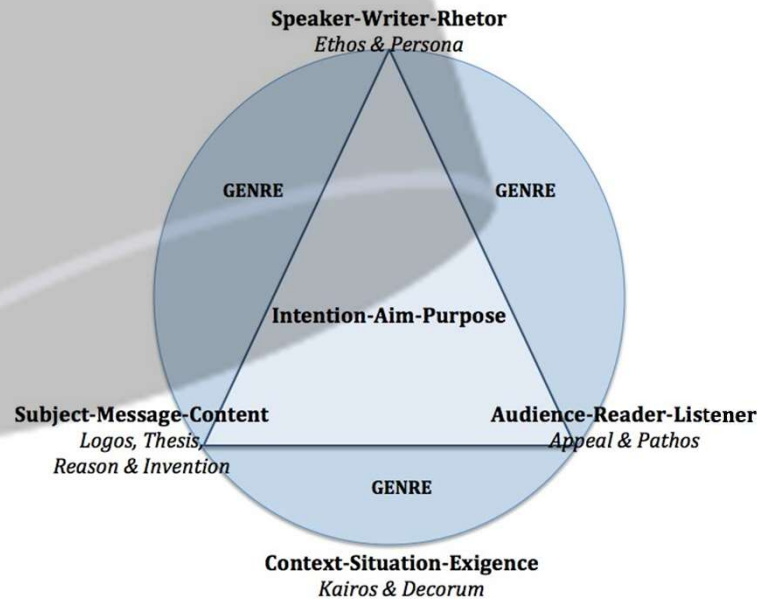
PAPAS

Purpose Audience Persona Argument Setting



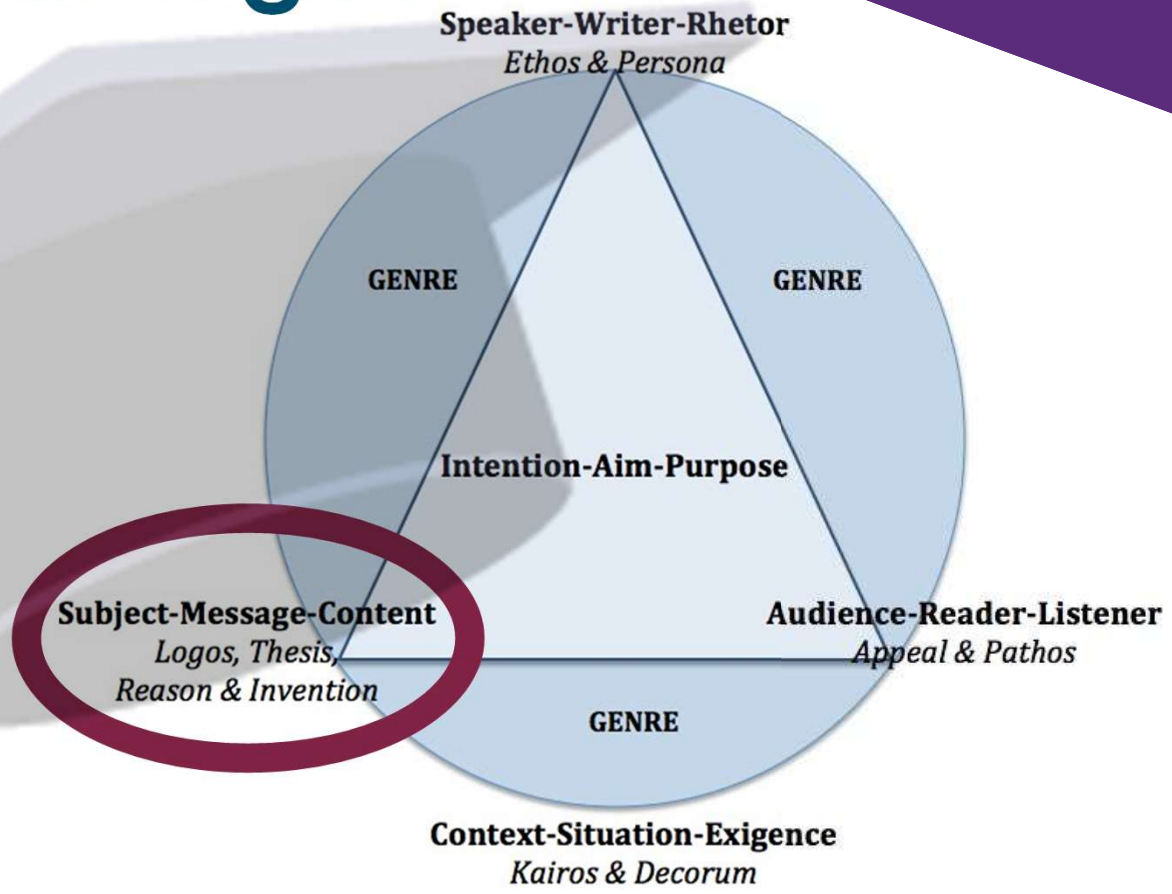
SOAPS

Speaker Occassion Audience Purpose Subject



Rhetorical devices: Logos

- The argument of your text/speech
- Includes commonplaces
- Allows the audience to realize the conclusion before you do
  - But how to achieve this?



Rhetorical devices: Logos

Inductive reasoning:
Specific case -> General

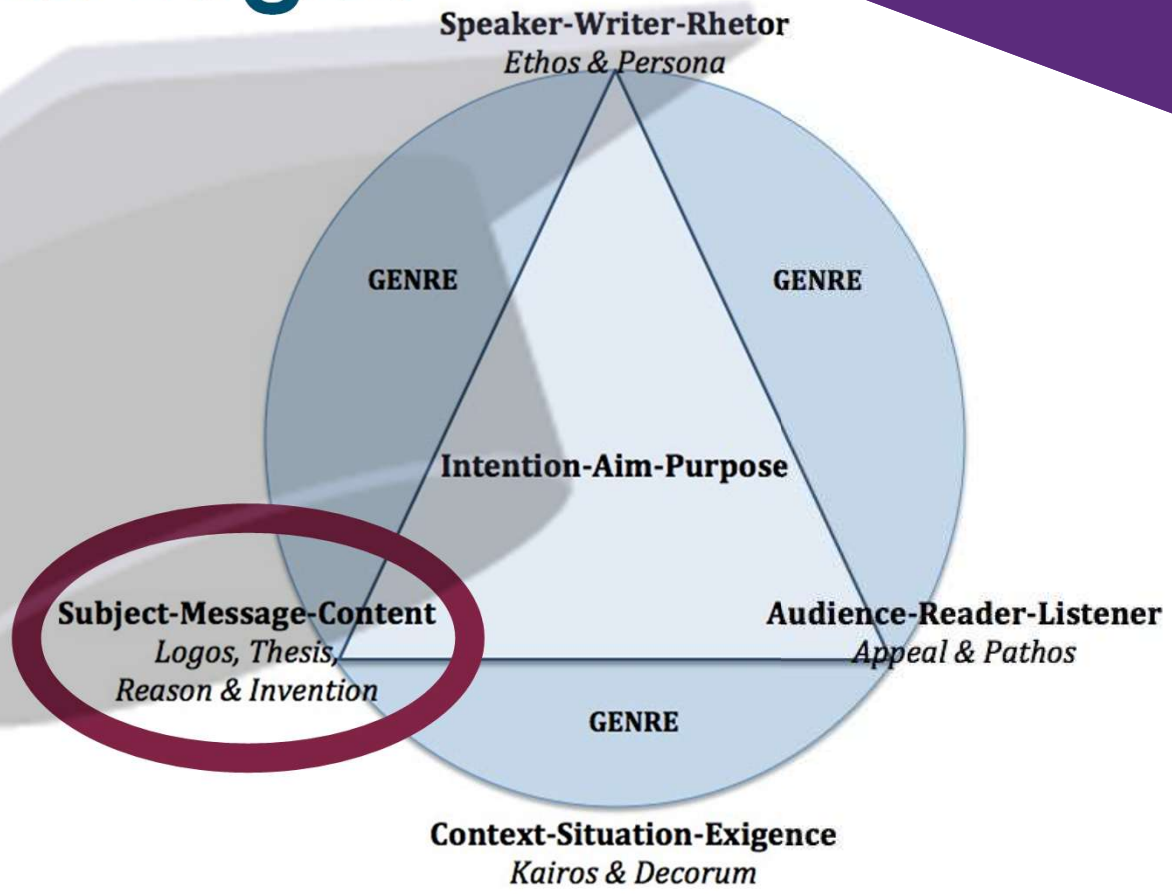
Fair trade agreements have raised the quality of life for coffee producers, so fair trade agreements could be used to help other farmers as well.

Deductive reasoning:
General -> Specific case

Genetically modified seeds have caused poverty, hunger, and a decline in biodiversity everywhere they have been introduced, so it's possible this could happen when genetically modified corn seeds are introduced in Mexico.

Syllogism:
2 premises -> conclusion

All men are mortal. Socrates is a man. Therefore, Socrates is mortal.

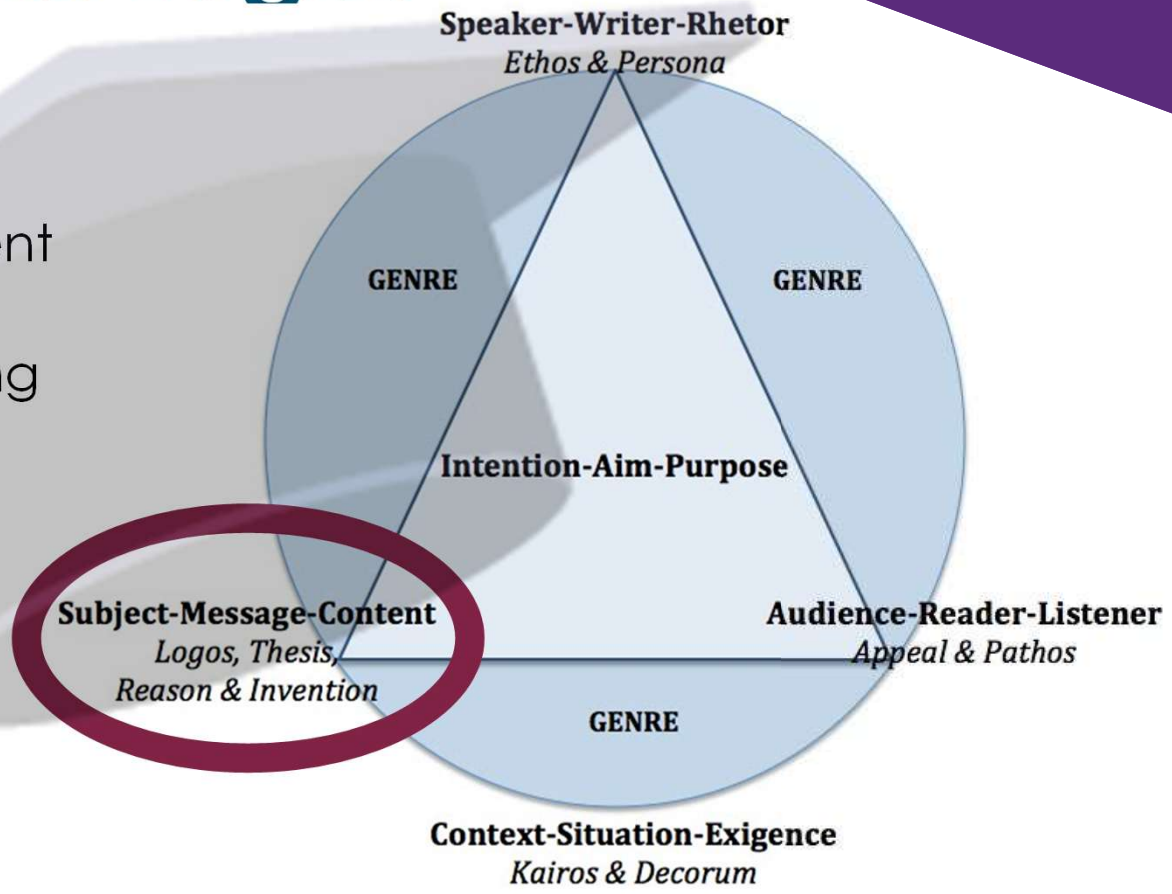


Rhetorical devices: Logos

Characteristics of a good thesis statement

Debatable:
Pollution is bad for the environment
vs
At least 25 percent of the federal budget should be spent on limiting pollution.

Specific:
Drug use is detrimental to society
vs
Illegal drug use is detrimental because it encourages gang violence.



Rhetorical devices: Logos

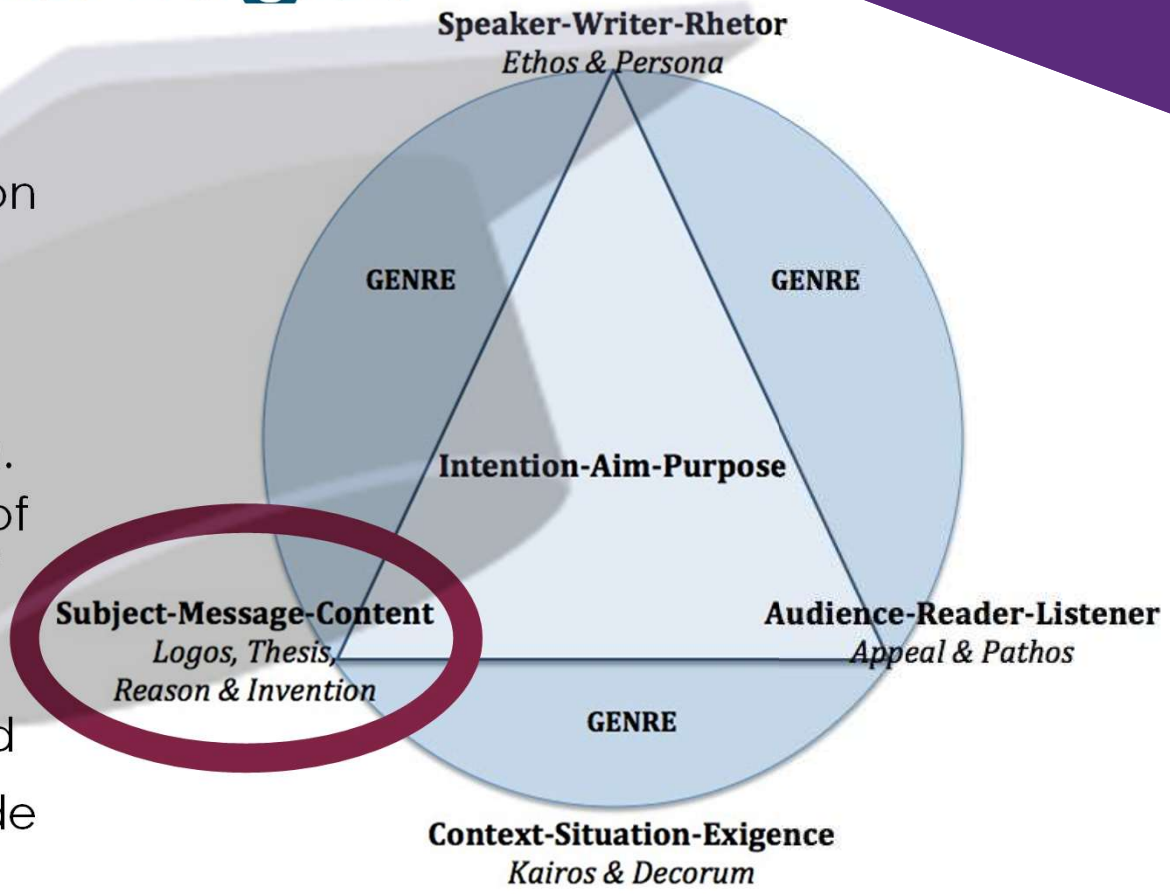
4 Types of theses

Fact/Definition: While some have framed a four-year college education as something necessary for adult success, this notion should not be treated as a given.

Cause and Effect: Federal student loan policies have contributed to widespread growth in college tuition.

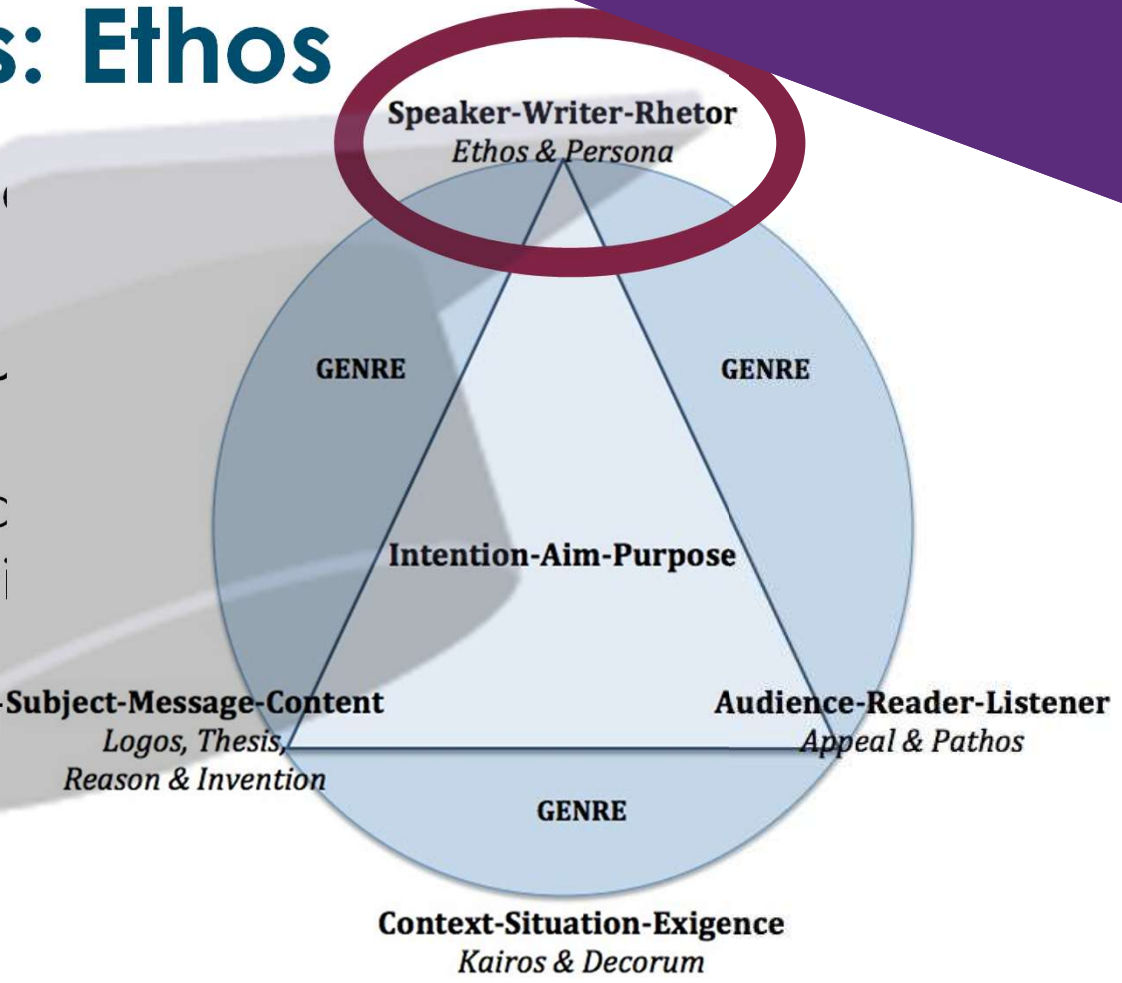
Value: The student debt crisis is one of the most serious problems facing the country today.

Solutions/Policies: Rather than encouraging all students to attend four-year colleges, we should instead emphasize the validity of two-year colleges, technical schools, and trade schools.



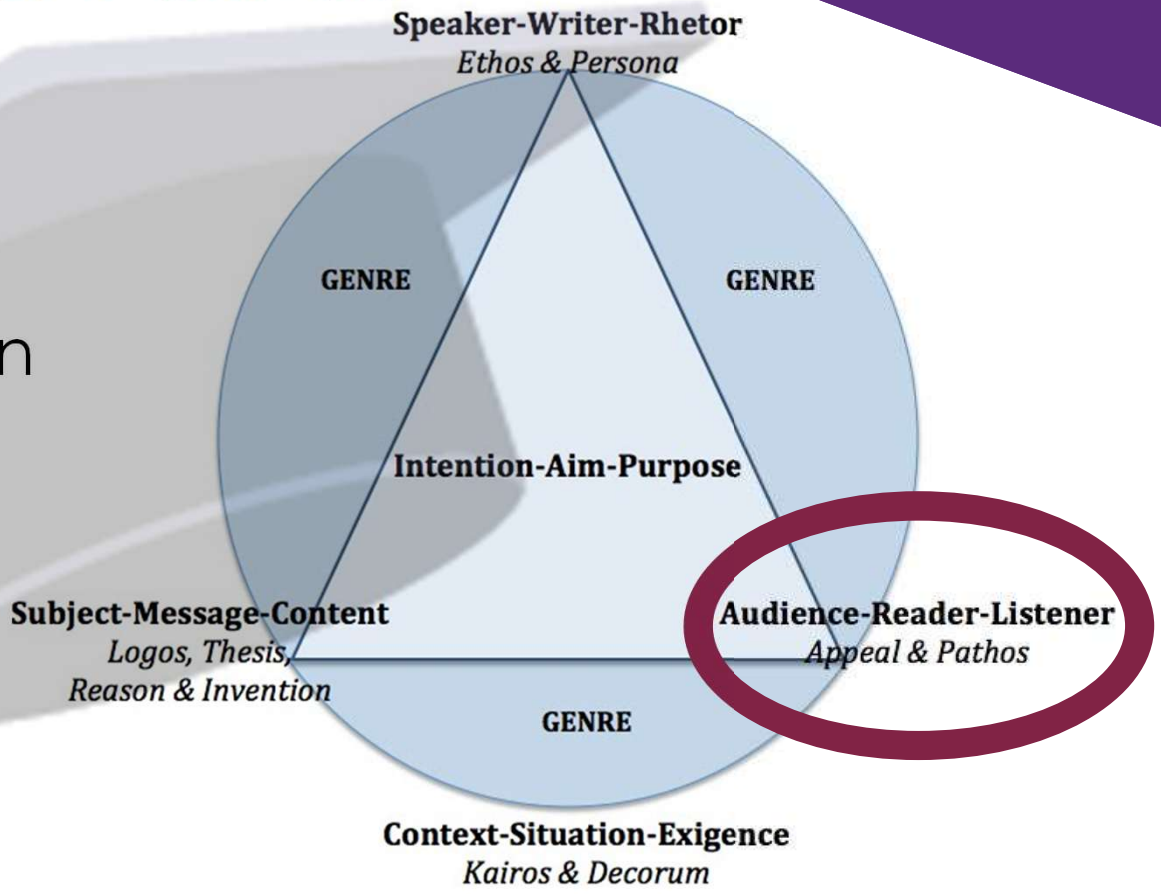
Rhetorical devices: Ethos

- Is the persona (perspective) c
  the writer/speaker
- Establish trustworthiness throu
  - Credible sources
  - Stating opposing views accurc
  - Establish a common ground wi
    the audience
  - Your interest or connection wit
    topic
  - An easy-to-follow argument
  - Practice or proofread



Rhetorical devices: Pathos

- Emotional appeal to the audience (excitement, curiosity
- Used to make a connection with the audience and to support an argument
- Know your audience
- Admitting limitations = honesty
- Jokes



The GOAL

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- Who is your target audience?
- What is the purpose of your presentation?
- What is at the core of your message?
- Who are YOU as a presenter?

What is a video abstract?

A short, engaging video (2-5 minutes) that highlights the main conclusions, results, and significance of a study, published alongside the written paper.

What is its purpose?

To attract viewers to the full scientific article. It is meant to pique interest and should make the research more understandable and appealing to a broader audience, including those outside the immediate field of study.

How does it differ from the written abstract?

The video abstract uses visuals, narration, and sometimes animation or lab footage

Why do journals ask for one?

To boost article visibility, audience engagement, clear communication, and rapid dissemination of new findings, which all increase the likelihood of citation

Characteristics of an effective video abstract

- Summarizes the research topic, question, methodology, main results, and conclusions
- Uses plain language to ensure accessibility
- Tells a story or highlight the most compelling aspects of the research to engage viewers
- Includes visuals such as images, animations, or footage relevant to the study

Publishing video abstracts with PASP

Editorial guidelines for video abstracts

In producing a video abstract, you are asked to adhere to the following basic guidelines:

1. It should not last longer than four minutes
2. It should introduce the topic of the article, highlight the main results and conclusions, and discuss future potential developments in the field as a result of the work
3. It should be understandable and accessible to users outside of the immediate field of the article
4. It can include additional relevant material such as images, animations and lab footage, which is strongly encouraged
5. It **must** provide a clear verbal narration of the visual content
6. It should not include small text that will be difficult to read
7. It **must** be accompanied by a transcript (as a .txt file) to meet accessibility requirements
8. It **must not** include music soundtracks due to our copyright policy; this also applies to open source music
9. It **must** be used and distributed in line with the terms and conditions of the journal's copyright statement.

https://publishingsupport.iopscience.iop.org/video-abstracts/

The GOAL

Each one of you will produce a 2-minute video abstract of your research!

Recording Your 2-Minute Video to Padlet

1. **Access our Padlet board**

https://padlet.com/melissaannthomas/two-minute-research-abstract-lu7n79ppif7ypdcz

2. Click the **+ button** (bottom right).
3. In the post:
    - **Title** your video (e.g., "John Doe – Climate Change Overview")
    - **Record your video** using the camera icon:
4. Click **Publish/Post**.

Thank you for your attention!

melissa-ann.thomas@centralesupelec.fr

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