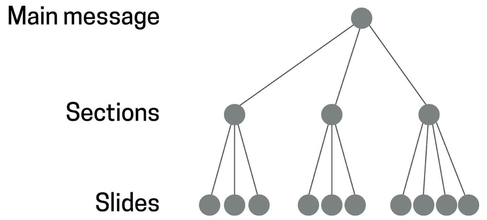
SCIENCE COMMUNICATION WORKSHOPS

Fall: **Presentation**

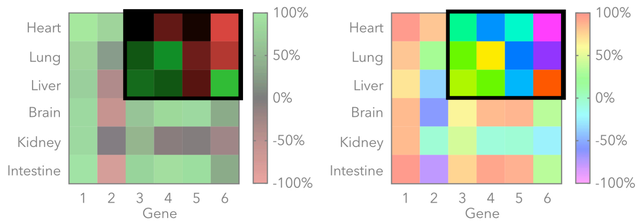
Structuring presentation

Presentations can be chunked



Visual design

Visual design isn't making data **pretty** it's making data **clear**



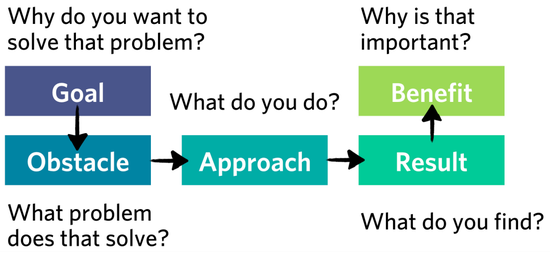
Distilling your message

Focus on the **meaning** behind the details

"Excitation was restricted to a femtoliter volume"	▶ We eliminated a major source of noise
"Trivalent nitrogen bonds contain 945 kJ/mol"	▶ Nitrogen clings so tightly to itself, nobody knew if it could be pried apart
"I'm building an annotated corpus"	▶ I'm teaching a computer what to look for

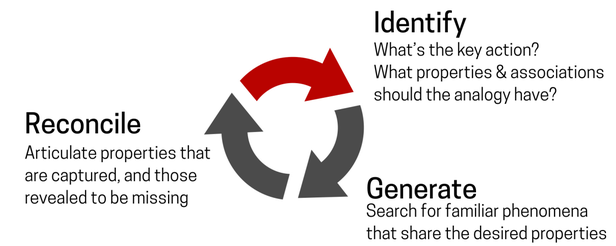
Telling science stories

To fill in the gaps, ask yourself these questions:



Crafting explanations

Crafting metaphor is an iterative process



Vocal delivery

What do we consider good stage presence?

	Avoid	Aim for
Speed	*fast*	Slow
Volume	*quiet*	Loud
Gesture	*fidgeting feet, hands*	Deliberate
Fluency	*filler words*	Fluid
Intonation	*up-tone, monotonous*	Expressive
Eye contact	*avoidant*	Connecting

Spring: **Writing**

Abstracts

We can think of these elements as the world *before* and *after*

Before	Context	Why the need is important
	Need	Why something needed to be done
	Task	What I did to address the need
	Object	What this document does
After	Findings	What the work revealed
	Conclusions	What the findings mean for the reader
	Perspectives	What the future holds beyond this work

Emphasis

Let's analyze the text

Main clause: 😠
End placement: 😠
Result: 🤬

a. Although Fred's an honest guy, he is often rude.
b. Although Fred is often rude, he's an honest guy.
c. Fred's an honest guy, but he is often rude.
d. Fred is often rude, but he's an honest guy.

Writing efficiently

Brainstorm Outline **Draft** Revise Edit

"Don't get it **right**
get it **written**

A key skill is to **delay editing**
and stay in **divergent thinking mode**

Posters

Strong titles describe results, use keywords, stay concise

Pancreatic extract reduces canine diabetic symptoms

Too short	✓	Too long
A novel treatment for diabetes		Pancreatic extracts containing islet of Langerhans cells injected intravenously results in a marked reduction in blood sugar of diabetic canines

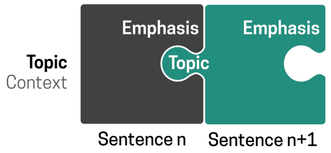
Proposals

Proposals make three arguments:

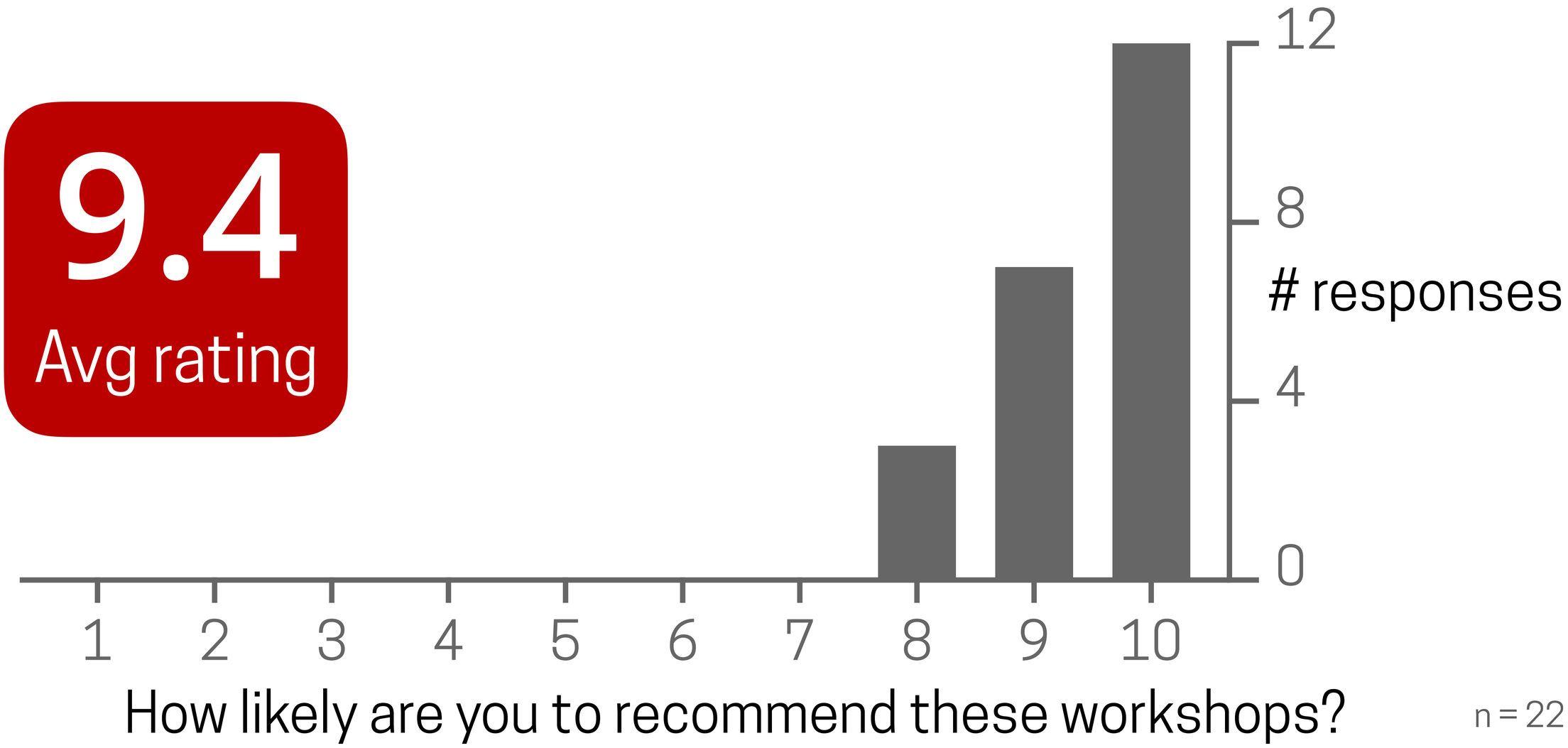
1. **Motive**: this problem is important
2. **Deliverable**: here's what you'll get
3. **Tractable**: I can make this work

Cohesion

To create flow, reference the emphasis of sentence n as the topic in n+1



Students strongly recommend workshops



Students strongly recommend workshops

"These workshops made my work faster and easier.
I was able to stay ahead of schedule, be less stressed,
and actually enjoy my last semester here."

Annie Arnold, Ph.D. candidate in Chemistry

Students strongly recommend workshops

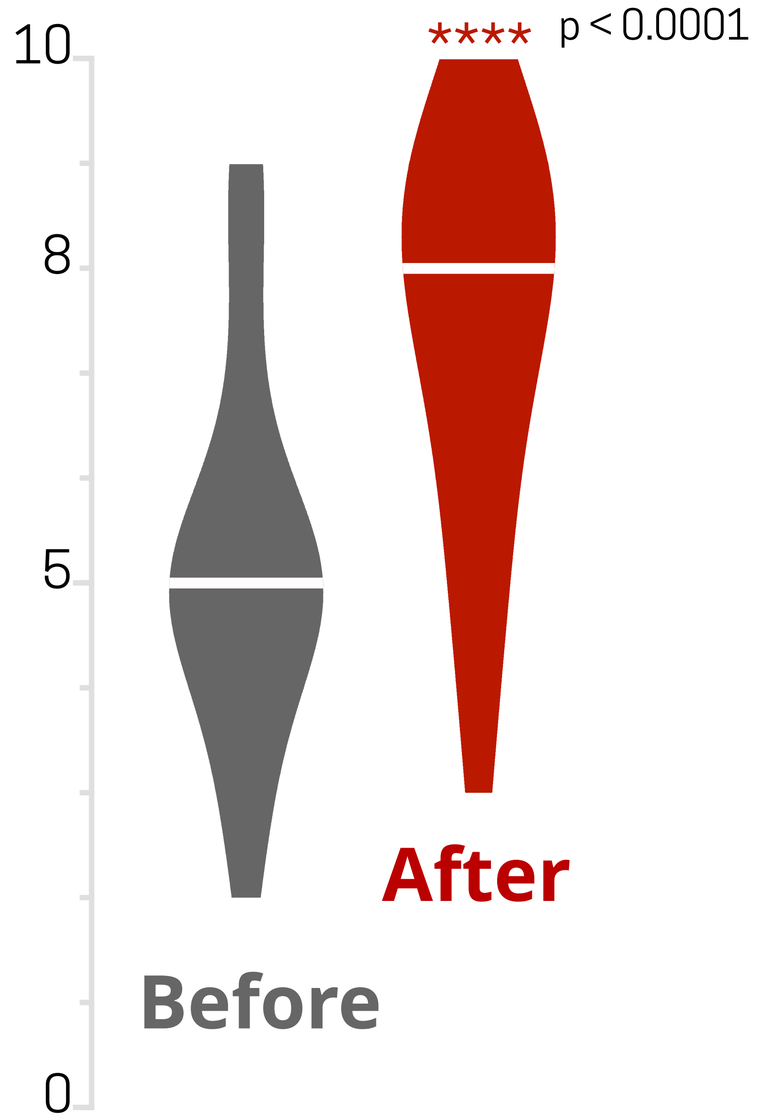
"There's a rigorous formulation of concepts. These workshops are valuable because they're specific and actionable."

Julian Whitman, Ph.D. candidate in biorobotics

After workshops, students feel **40% more prepared** for future careers

	MCS Survey	Before	After
Mean	6.3	5.2	**7.3**
95% CI	5.9—6.7	4.4—6.1	6.5—8.2

n = 22



How prepared do you feel for future careers?

There’s momentum for formal training

RECOMMENDATIONS

RECOMMENDATION 1: EXPAND TRAINING ACCESS

Provide access to formal communication training opportunities for all STEM graduate students.

While most graduate education programs target the cognitive and technical skills required in STEM disciplines, emotional and communication skills are gaining wider recognition for their contributions to leadership and career success. Although associated traits like charisma and innate abilities vary from person to person, communication skills can be improved with a combination of training, feedback, and practice (Silva and Bultitude 2009; Berkhof et al. 2011). Training is particularly important since people tend to chronically overestimate their communication effectiveness (Keysar and Henly 2002; Kruger et al. 2005; Keysar 2007), and not only does communication ability not improve with time and experience alone (Moore et al. 2013), it may even degrade (Ha et al. 2010).

Our snapshot of communication trainings and courses suggests that graduate students encounter wildly variable access to communication resources depending on their department, discipline, university, and geographic location. While not all students require or will take advantage of the expertise and coaching available to them, all students should have the ability to enroll in graduate-level coursework and/or professional development programming.

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GRADSCICOMM

REPORT AND RECOMMENDATIONS

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COMPASS

We have a lot to gain

Within our field

Grants, papers, adoption of your findings
Teaching
Recruiting the best students
Crossing the last 10 feet at conferences

Outside our field

Expanded career options
Recruiting collaborators
Forming interdisciplinary teams

SCIENCE COMMUNICATION WORKSHOPS

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